Newsletter
Air Infiltration and Ventilation Centre

@AIVCnews

Foreword

The major roles of the Air Infiltration and Ventilation Centre (AIVC) are to disseminate information and to facilitate international collaborative projects in the fields of ventilation and airtightness. Seven projects have just been approved for the 2017-2021 operating period at our last board meeting: IAQ metrics, ventilation requirements, airtightness testing, and performance of fans, residential cooker hoods, and heat recovery are key issues addressed in these projects.

This newsletter gives you an overview of our latest achievements and initiatives. We encourage you to visit our website and follow us on twitter and LinkedIn to find out more and of course to mark your agenda for the upcoming 38th AIVC Conference on 13 -14 September 2017, in Nottingham UK.

We wish you a pleasant reading and look forward to seeing you in our future events.

Peter Wouters, Operating Agent AIVC

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March 2017

13 -14 September 2017 - 38th AIVC conference in Nottingham, UK

The 38th AIVC- 6th TightVent & 4th venticool conference "Ventilating healthy low-energy buildings" will be held on 13 and 14 September 2017 in Nottingham, UK. The event will place its focus on:

• thermal comfort and ventilative cooling (the application of ventilation to cool indoor spaces and reduce overheating risk in buildings);

• air infiltration through cracks in the building envelope and ductwork;

• the relationships between ventilation, indoor air quality and health.

The conference will consist of 3 parallel tracks largely devoted to airtightness issues, ventilative cooling, ventilation in relation to IAQ and health. It will consist of a mixture of topical sessions, presentations on invitation and presentations selected from the call for papers (more than 150 abstracts were submitted).

The conference is organised by:

• the International Network on Ventilation and Energy Performance (INIVE) on behalf of the Air Infiltration and Ventilation Centre (AIVC), TightVent Europe (the Building and Ductwork Airtightness Platform), and venticool (the international platform for ventilative cooling); and

• Brunel University London

• The University of Nottingham

• The Chartered Institution of Building Services Engineers (CIBSE)

Visit the conference website http://aivc2017conference.org for further information.

Alexandria 2016 conference focused on IAQ

The 37th AIVC Annual Conference was held in Alexandria, VA, USA in collaboration with ASHRAE's IAQ triannual conference. 176 persons from 21 countries attended the conference. This conference had a clear focus on indoor air quality, and confirmed the relevance of future research topics identified by the AIVC including IAQ metrics, air cleaning, cooker hoods, and measurement methods.

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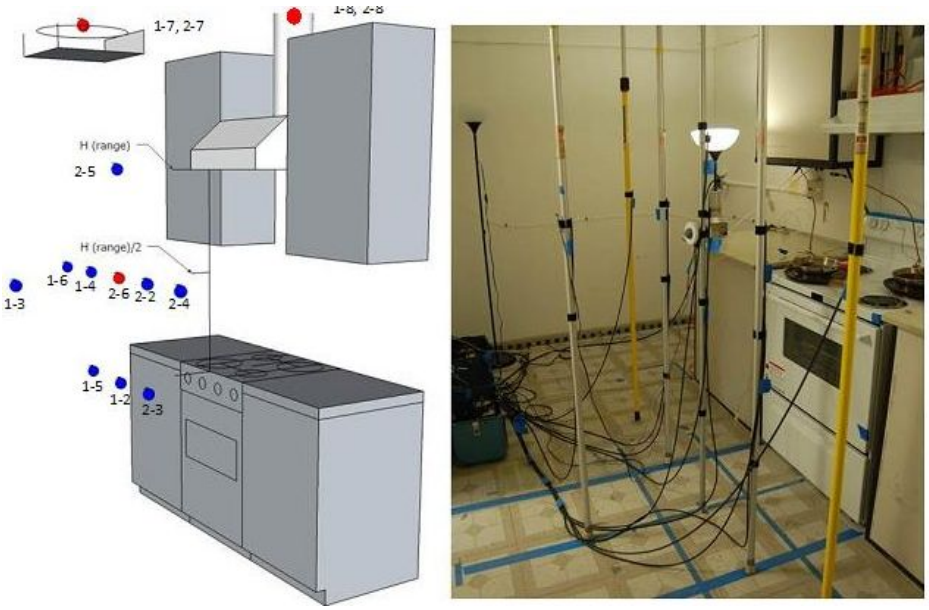
Air Infiltration and Ventilation Centre

Range Hood Capture Efficiency Standard Status Update

Iain Walker, LBNL

Over past couple of years LBNL has worked with an ASTM task group to develop a capture efficiency standard for kitchen cooker hoods. This standard rates the performance of cooker hoods using the concept of capture efficiency: i.e., the fraction of pollutants emitted from the cooking process (including the burners/heating elements) that are captured by the cooker hood and exhausted directly to outside. Capture efficiency (CE) is determined by releasing a tracer gas into the plume(s) above the cooktop and measuring the resulting concentrations in the test room air, incoming air and exhaust air. This is a laboratory test method performed under controlled conditions that will allow for the rating of cooker hoods by manufacturers or other interested parties. The test method specifies geometries/dimensions for the test room, location of heating elements, the design of the tracer gas injector system, and the power input to and the temperature of the hot plate simulating a cooking event (1000 W and 200°C, respectively). Step-by-step testing procedures are specified to ensure consistent testing. The overall test repeatability is typically 0.5 percent CE.

The draft standard has completed the ANSI/ASTM public review process and should be published in a few months. Once ratings are available it is anticipated that ventilation and indoor air quality standards could refer to CE ratings, rather than the air flows that are currently specified. Next steps are to work with rating organizations and manufacturers to have hoods tested and to develop a similar tracer-gas based test procedure for island and downdraft hoods. One more avenue of potential standardized testing to be investigated in the future is certification of automatic operation because the best hood in the world is not useful when it is turned off!



Schematic and photograph of test laboratory during preliminary tracer gas sample location testing

New Zealand focuses on IAQ Research

Manfred Plagman, BRANZ

The Building Research Association of New Zealand (BRANZ) has recently commissioned a literature review of Indoor Air Quality (IAQ) research that has been conducted in New Zealand or addresses issues identified in the New Zealand context. The initial idea was to focus on IAQ in residential houses, however, schools, preschools and age care facilities have also been included. The review looks at the health effects, the pollutants and the building characteristics. The publication with the title “Indoor Air Quality in New Zealand Homes and Schools” is available as a PDF file and can be downloaded from the BRANZ website. The publication has about 120 pages and references more than 350 publication. The literature review is intended to be updated once yearly.

One of the intended uses of the literature review is the preparation for an upcoming workshop on indoor air quality in residential houses. The review will help participants to get a good overview of IAQ research in New Zealand. The workshop will be held early April (exact date and venue will be published on the BRANZ web page at branz.co.nz) and is intended to help consolidate the IAQ

Emitter plates on cooktop during Capture Efficiency Testing

research effort in New Zealand and to establish priorities in addressing the knowledge gaps that have been identified. Researchers from construction and health sector, building industry, building officials, policy makers, and the like are sought to participate in the workshop and the discussions. The results from the discussion session will be made available later this year.

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News from IEA EBC Annex 68 Indoor Air Quality Design and Control in Low Energy Residential Buildings

Carsten Rode - IEA EBC Annex 68

IEA Annex 68 has been in the working phase since the beginning of 2016. The project's Subtask 1, which is on Defining the Metrics, has completed its work on collecting a set of relevant performance indicators regarding pollutants of concern for IAQ in energy efficient residential buildings. Information has been collected on indices, which are based on approaches such as Exposure Limit Values (ELV) and Disability-Adjusted Life Years (DALY). The question of aggregation of the parameters has been dealt with, and the result is a suggestion of a dashboard of indices that provides an overview of IAQ and energy consumption of low-energy residential buildings. The report from Subtask 1 is expected to be published by summer 2017.

Work continues if the other subtask of the project:

- Subtask 2: Pollutant loads in residential buildings

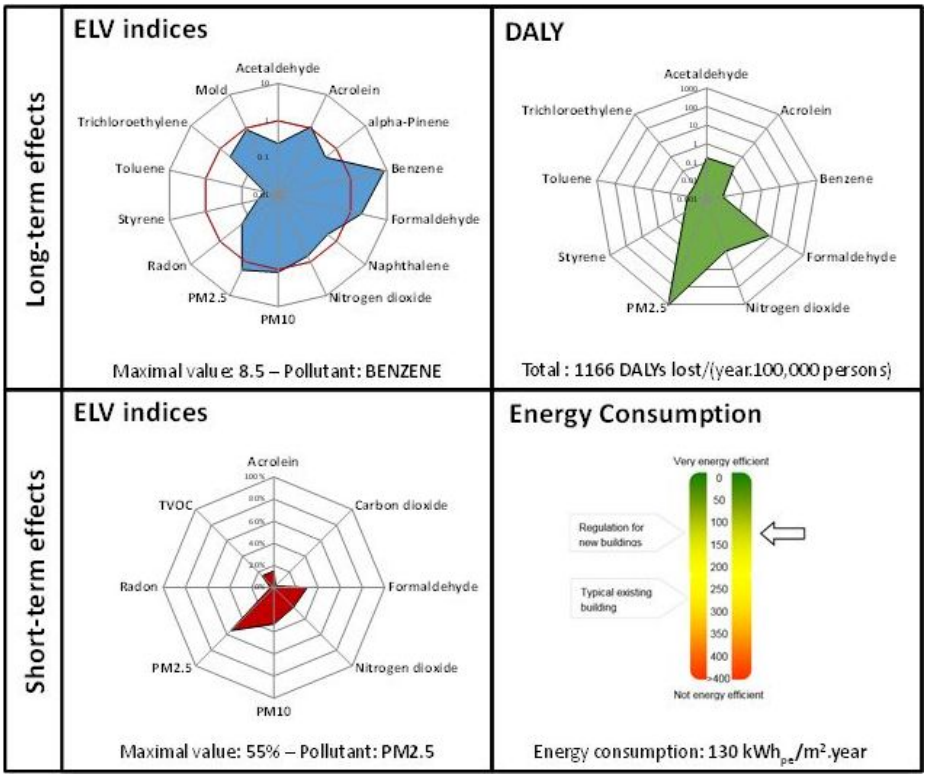
- Subtask 3: Modelling - review, gap analysis and categorization

- Subtask 4: Strategies for design and control of buildings

- Subtask 5 Field measurements and case studies

for which a set of "Common Exercises" is being defined, which is to be solved by the project participants and others who may be interested.

For more information, contact Operating Agent Prof. Carsten Rode, Technical University of Denmark, car@byg.dtu.dk.



IAQ/Energy dashboard for low-energy residential buildings (data represented here are just for display and do not represent an actual situation)

AIVC publishes new Ventilation Information Paper on ventilative cooling

The Air infiltration and Ventilation Centre just released its new Ventilation Information paper no35: Ventilative Cooling. State-of-the-art review executive summary.

This information paper summarises the outcome of the work of the initial working phase of IEA EBC Annex 62 Ventilative Cooling and is based on the findings in the participating countries. It presents a summary of the first official Annex 62 report that describes the state-of-the-art of ventilative cooling potentials and limitations, its consideration in current energy performance regulations, available building components and control strategies and analysis methods and tools. In addition, the report provides twenty six examples of operational buildings using ventilative cooling ranging from domestic to offices and other non-domestic buildings such as schools and exhibition spaces and located in different outdoor climates. The paper can be found here.

NEWSPAPER: "Energy Efficiency and Indoor Climate in Buildings"

The monthly online newspaper "Energy Efficiency and Indoor Climate in Buildings " contains relevant information on the Air Infiltration and Ventilation Centre (AIVC), the international platform on ventilative cooling (venticool) & IEA EBC annex 62-ventilative cooling, the building and ductwork airtightness platform (TightVent Europe), the Indoor Environmental Quality – Global Alliance (IEQ-GA), the QUALICHeCK project and the Dynastee network.

The paper is available at the first of every month at: http://news.inive.org/

Subscribe to get informed on a monthly basis on the various platforms' activities.

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IEA EBC ANNEX 62 "Ventilative Cooling" Summer course, Lisbon, 15-19th of May 2017

This five-day summer course will introduce students to the capabilities and limitations of ventilative cooling (VC) using a design case study approach. The course will be tought by VC experts who are currently participating in IEA ANNEX 62. By the end of an intense work week the students will be asked to present their VC solution for a school and discuss the expected system performance (predicted using building thermal and airflow simulation).

For more information please visit: http://venticool.eu/15-19-may-2017-lisbon-iea-ebc-annex-62-ventilative-cooling-summer-course/

IAQVEC 2016 Conference on Healthy & Smart Built Environment

The IAQVEC 2016 Conference was held in Seoul, October 23-26, 2016. The conference was organized by AIK, KIAEBS, KICT, Auric, and sponsored by AIVC, ASHRAE, REHVA, AIJ, SHASE. IAQVEC is a premier international conference series, held once every three years. The conference covers a wide range of key research areas with the goal of simultaneously improving indoor environmental quality and energy efficiency enhancing wellbeing and sustainability. This IAQVEC 2016 in Seoul had 12 topics including Ventilation, Thermal Comfort, Indoor Environment Quality, Particles, HVAC, Modeling, Thermal Environment, Indoor Air Quality, Particles & Control, Moisture, Integration and Smart Technology.

Six international experts including Bjarne W. Olesen, Max Sherman and Jaap Hogeling from the AIVC Board gave keynote speeches on Healthy & Smart Built Environment.

Also, a total of 293 papers were submitted from 31 countries, and about 360 professors, researchers and students attended.

AIVC • List of board members