Joint Conference

32nd AIVC Conference and 1st TightVent Conference

Towards Optimal Airtightness Performance

Programme

Wednesday October 12 2011		
08:00-18:00	Registration	
09:15-10:45	Opening session (8th floor)	
10:45-11:15	Break (8th floor)	
11:15-12:45	Combined session - Ventilation and infiltration for NZEB (8th floor)	
12:45-13:45	Lunch break (8th floor)	
	Ground floor – Room Klimt (in front of the reception)	8th floor
13:45-15:15	1A - Long oral presentation session (Ventilation system performance: Energy and IAQ)	1B - Topical session (how tight and insulated ducts should be?)
15:15-15:30	Room change	
15:30-16:30	2A - Short oral presentations session (assessment of ventilation system performance)	2B - Short oral presentations session (Airtightness of buildings and ductwork)
16:30-17:00	Coffee break (8th floor)	
17:00-18:30	3A - Topical session (Ventilation & cooling)	3B - Topical session (Development of air leakage databases)
18:30-19:30	Cocktail reception, poster and industry exhibition (8th floor)	

Thursday October 13 2011		
Time	Programme	
09:00-10:30	4A - Short oral presentation session (Ventilation in high performance buildings – Special applications)	4B - Topical session (Quality frameworks for airtightness assessment)
10:30-11:00	Coffee Break (8th floor)	
11:00-12:00	5A - Short oral presentation session (IAQ analysis and simulation of airflow and pollutant transport)	5B - Topical session (Philosophy for defining airtightness requirements)
12:00-12.15	Room change	
12:15-13:15	6A - Topical session (DCV and sensor technology - CLEAR UP project)	6B - Long oral presentation session (Uncertainties in airtightness measurement - field data)
13:15-14:00	Lunch break (8th floor)	
14:00-15:30	7A - Long oral presentation session (Evaluation of ventilation strategies)	7B - Long oral presentation session (IAQ and energy impacts of envelope leakage)
15:30-15:50	Room change	
15.50-17:00	Closing session (8th floor)	

Wednesday 12 October 2011

08.00 Registration and welcome coffee

09.15 – 10.45 Opening session (8th floor)
Chairpersons : François Durier and Hiroshi Yoshino

- The new AIVC – The TightVent Europe initiative (Peter Wouters, Manager INIVE, Belgium)
- REHVA Actions for Ventilation and NZEB (Francis Allard, Former President REHVA, France)
- High-impact R&D Initiatives for Near-zero Energy Consumption in the Built Environment: The IEA Perspective (Morad Atif, IEA ECBCS Chairman, Canada)
- Presentation by Tudor Constantinescu, Principal adviser, DG Energy, European Commission

10.45 – 11.15 Coffee break

11.15 – 12.45 Combined session – Ventilation and infiltration challenges for NZEB (8th floor)
Chairpersons : Francis Allard and Paula Wahlgren

- Lessons learned from the concerted action (Eduardo Maldonado, Chairman Concerted Action EPBD, Portugal)
- Why we ventilate? (Max Sherman, LBNL, USA)
- Trends in national Nearly Zero-Energy Buildings approaches (Hans Erhorn / Heike Erhorn-Kluttig, Fraunhofer-IBP, Germany)

12.45 – 13.45 Lunch break

13.45 – 15.15 Parallel Session 1A - Ventilation system performance: energy and indoor air quality (Ground floor, Room Klimt, in front of the reception)
Chairpersons : Rainer Pfluger and Yun Gyu Lee

- Formaldehyde and Relative Humidity in High-Performance Homes with Outdoor Air Intakes and exhaust ventilation (Jonathan Coulter, USA)
- Decentralized mechanical ventilation with heat recovery (Jean Lebrun, Belgium)
- Filters for balanced ventilation systems: design, long-term performances and energy considerations (Alain Ginestet, France)
- Analysis and implications of the revision of the Spanish regulation regarding ventilation and infiltration (José Manuel Salmerón Lissén, Spain)
- Ventilation rates and IAQ in European standards and national regulations (Nejc Brelih, Belgium)
- Window opening in high performance buildings (Piet Jacobs, Netherlands)

13.45 – 15.15 Parallel Session 1B - How tight and insulated ducts should be? (8th floor)
Chairpersons : Rémi Carrié and Peter Schild

For energy and indoor climate reasons, it is important that ductwork have a good airtightness an insulation but the levels that can or should be achieved are often ignored. This session, which is part of an AIVC-TightVent project, will include several presentations to discuss these issues.

- Ductwork airtightness requirements in Portugal (Eduardo Maldonado, Portugal)
- Hands-on training courses for ventilation systems installers within the PRAXIBAT initiative (Anne-Marie Bernard, France)
- Feasibility study of ventilation system air-tightness (Jeroen Soenens, Belgium)
- Case Study: Effect of Excessive Duct Leakage in a Large Pharmaceutical Plant (David Dyer, USA)

15.15 – 15.30 Room change

15.30 – 16.30 Parallel Session 2A with short oral presentations and posters – Assessment of ventilation system performance (Ground floor, Room Klimt, in front of the reception)
Chairpersons : Maria Kolokotroni and Wouter Borsboom

- Ventilation rates and indoor air humidity depending on local climate – Simulations and measurements of 9 European countries (Rainer Pfluger, Germany)
- Whole year simulation of humidity based demand controlled hybrid ventilation in multiapartment building (Jerzy Sowa, Poland)
- Method to assess the performance of ventilation systems in dwellings considering the influence of uncertainties (Zhiming Yang, Netherlands)
- Evaluation of some DCV control strategies based on building types (Ke Xu, Norway)
- Demand-controlled Ventilation: an outline of assessment methods and simulations tools (Jean-Luc Savin, France)

15.30 – 16.30 Parallel Session 2B with short oral presentations and posters - Airtightness of buildings and ductwork (8th floor)
Chairpersons : Bernd Rosenthal and Andrés Litvak

- Behavior of leakages exposed to dynamic wind loads. A numerical study using CFD on a single zone model (Dimitrios Kraniotis, Norway)
- Influence of Air Leakage on Indoor Air Quality in Low Energy Buildings: a case study (Juslin Koffi, France)
- The use of building own ventilation system in measuring airtightness (Timo Kauppinen, Finland)
- The use of a sampling method for airtightness measurement of multi-family residential buildings - an example (Jiri Novak, Czech Republic)
- Application Of Airtightness To Healthcare Buildings (William Booth, UK)
- Class C air-tightness: proven ROI in black and white (Peter Stroo, Belgium)
- The Power of Quality (Christophe Debrabander, Belgium)
- Quality Management Approach to Improve Buildings Airtightness, Requirements and Verification (Valérie Leprince, France)

16.30 – 17.00 Room Change and coffee break

17.00 – 18.30 Parallel Session 3A - Ventilation and cooling (Ground floor, Room Klimt, in front of the reception)
Chairperson : Lorenzo Pagliano

This session is organized within the scope of a starting AIVC-TightVent project that deals with various aspects of ventilation for cooling.

- Air/Ground heat exchangers for heating and cooling: dimensioning guidelines (Pierre Hollmuller, Switzerland)
- Future climate effect on building refurbishment using ventilation for cooling: a case study (Maria Kolokotroni, UK)
- Ventilation solutions in net zero energy buildings, the Elithis Tower case study (Oscar Hernandez, France)
- Low-energy buildings with night and air-to-air heat exchangers – case studies and analysis (Jens Pfafferott, Germany)

17.00 – 18.30 Parallel Session 3B - Development of air leakage databases (8th floor)
Chairpersons : Rengie Chan and Rémi Carrié

There are several national initiatives to collect air leakage data from field measurements. The objective of this session is to begin structuring communication between some of these initiatives. It falls within the scope of a AIVC-TightVent project.

- Preliminary analysis of U.S. Residential Air Leakage Database Update v.2011 (Wanyu R. Chan, USA)
- U.S. Commercial Building Airtightness Requirements and Measurements (Andrew Persily, USA)
- The Web@set project: reasons behind, objectives and on-going developments (Andrés Litvak, France)
- Experience with the development of an air leakage database in Germany (Oliver Solcher, Germany)

18.30 – 19.30 Reception with posters and industry exhibition (8th floor)

19.30 End of the first day

Thursday 13 October 2011

09.00 – 10.30 Parallel Session 4A with short oral presentations and posters - Ventilation in high performance buildings - Special applications (Ground floor, Room Klimt, in front of the reception)
Chairpersons : Andrew Persily and Samuel Caillou

- Measured public benefits from energy-efficient homes (Jonathan Coulter, USA)
- Measurement of pollutant emissions in two similar very low energy houses with cast concrete and timber frame (Franck Alessi, France)
- Low pressure drop air transfer between rooms in buildings with balanced ventilation - A commonly ignored issue (Peter Schild, Norway)
- Impact of the filtration system on the indoor-outdoor particles concentration relationships in an air conditioned office building (Alain Ginestet, France)
- Measured performance of three types of energy program houses in two US cities (Jonathan Coulter, USA)
- Experimental evaluation of Supply-Only ventilation effectiveness (Mireille Rahmeh, France)
- The Applicability of Glazing System with Dynamic Insulation for Residential Buildings (Shinsuke Kato, Japan)
- Integrated Approach of CFD and SIR Epidemiological Model for Infectious Transmission Analysis in Hospital (Hiroaki Asanuma, Japan)
- Shelter-in-place effectiveness in the event of toxic gas releases: French and Catalan assessment approach (Gaelle Guyot, France)

09.00 – 10.30 Parallel Session 4B - Quality frameworks for airtightness assessment (8th floor)
Chairmen : Xavier Loncour and Jiri Novak

Rewarding or imposing good airtightness in a regulation directly calls into question the reliability and accuracy of the measurements that are performed in practice. Several schemes will be presented to increase or assess the quality of the measurements and execution. This session is part of an AIVC-TightVent project.

- Quality system for airtightness measurement of buildings (Oliver Solcher, Germany)
- The quality framework for Air-tightness measurers in France: assessment after 3 years of operation (Valérie Leprince, France)
- Interlaboratory tests for the for the determination of repeatability and reproducibility of airtightness measurements (Christophe Delmotte, Belgium)
- Pressure distribution inside large buildings during airtightness tests (Stefanie Rolfsmeier, Germany)

10.30 – 11.00 Room Change and coffee break

11.00 – 12.00 Parallel Session 5A with short oral presentations and posters – IAQ analysis and simulation of airflow and pollutant transport (Ground floor, Room Klimt, in front of the reception)

Chairperson : Luk Vandaele

- Performances of decentralized air handling terminals connected to building airtightness and indoor hygro-thermal climate (Gabrielle Masy, Belgium)
- Basis study about prediction of air flow environment in cross-ventilated room by neural network (Tomoyuki Endo, Japan)
- Sensitivity study for architectural design strategies of office buildings in Central Chile: effectiveness of nocturnal ventilation (Felipe Encinas Pino, Belgium)
- Nano-scale Aerosol Deposition Model for CFD in Indoor Environmental Analysis (Jun Narikawa, Japan)
- Exposure Concentration Prediction by Multi-Nesting Approach Connecting Building Space-Virtual Manikin-Nasal Airway Model (Kazuhide Ito, Japan)

11.00 – 12.00 Parallel Session 5 B - Philosophy for defining airtightness requirements (8th floor)
Should there be specific airtightness requirements? If so, what level is to be required? Should there be a minimum level of air leakage? The objective of this session is to review critical aspects that have to be considered to tackle such questions. It falls within the scope of a AIVC-TightVent project.
Chairpersons : Peter Wouters and Willem de Gids

- Philosophy on airtightness requirements: general context (Peter Wouters, Belgium)
- Optimal air tightness levels of buildings (Willem de Gids, Netherlands)
- Discussion time

12.00 – 12.15 Room Change

12.15 – 13.15 Parallel Session 6A - DCV and sensor technology - CLEAR UP project (Ground floor, Room Klimt, in front of the reception)
Demand Controlled Ventilation (DCV) is usually seen as an effective way for reducing the energy consumption. The aim of this workshop is to present new sensors for DCV developed in the framework of the EU project Clear-up and to discuss with ventilation experts their possible applications in buildings.
Chairpersons : Willem de Gids – Luk Vandaele

- General introduction to DCV - Willem de Gids, TNO, the Netherlands
- DCV : What is the real potential of savings – Anne-Marie Bernard, Allie Air, France
- Energy-efficient Demand-Controlled Ventilation using Micromachined Metal Oxide Semiconductor Gas Sensor Technology - Simone Herberger, Applied Sensor, Germany
- Simulation case study on new ventilation algorithms based on combined indoor and outdoor pollution sensing - Philip Kraeuchi, Siemens, Switzerland
- Panel discussion on the potential applications of these new sensors

12.15 – 13.15 Parallel Session 6B – Uncertainties in airtightness measurement - field data (8th floor)
Chairpersons : David Unwin and Hiroshi Yoshino

- Modernizing ISO, EN and ASTM air leakage standards ... more accuracy in less time (Colin Genge, Canada)
- Evaluation of selection criteria of an air tightness measurement method for multi-family buildings (Bassam Moujalled, France)
- Improvement of air tightness of communities (Markku Hienonen, Finland)

13.15 – 14.00 Lunch break

14.00 – 15.30 Parallel Session 7A - Evaluation of ventilation strategies (Ground floor, Room Klimt, in front of the reception)
Chairpersons : Anne-Marie Bernard and Bjarne Olesen

- Numerical validation for natural ventilation design (François Demouge, France)
- Performance of low pressure mechanical ventilation concept with diffuse ceiling inlet for renovation of school classrooms (Søren Terkildsen, Denmark)
- Definition of occupant behaviour patterns with respect to ventilation by means of multivariate statistical techniques (Felipe Encinas Pino, Belgium)
- Control and performance of innovative Ventilation systems in Low Energy Buildings: a case study (Juslin Koffi, France)
- Shelter-in-place strategy: CONFINE, an airtightness level calculation tool to protect people against accidental toxic releases (Gaëlle Guyot, France)
- Liabilities of Vented Crawl Spaces And Their Impacts on Indoor Air Quality in Southeastern U.S. Homes (Jonathan Coulter, USA)

14.00 – 15.30 Parallel Session 7B - IAQ and energy impacts of envelope leakage (8th floor)
Chairpersons : Jean Lebrun and Bernd Rosenthal

- Laboratory investigation of timber frame walls with an exterior air barrier in a temperate climate (Jelle Langmans, Belgium)
- State of Art of Non-Residential Buildings Airtightness and Impact on the Energy Consumption (Valérie Leprince, France)
- Investigations on the effects on airtight performance improvement and energy consumption of insulation retrofit in detached houses (Hiroshi Yoshino, Japan)
- The influence of air permeability and type of underlay on the hygrothermal performance of an inclined roof (Paul Steskens, Belgium)
- Impacts of Airtightening Retrofits on Ventilation and Energy in a Manufactured Home (Andrew Persily, USA)

15.30 – 15.50 Room Change

15.50 – 17.00 Closing session (8th floor)
Chairpersons : Morad Atif and Peter Wouters

- Summing up of airtightness track (Willem de Gids, Expert, VentGuide, Netherlands)
- Summing up of ventilation track (Martin Liddament, Expert, Veetech Ltd, UK)
- Perspectives for AIVC and TightVent projects (Rémi Carrié, Senior Consultant, INIVE, France)
- Can we meet the ventilation required in international standards in an energy efficient way? (Bjarne Olesen, Professor, Technical University of Denmark

17.00 End of the conference