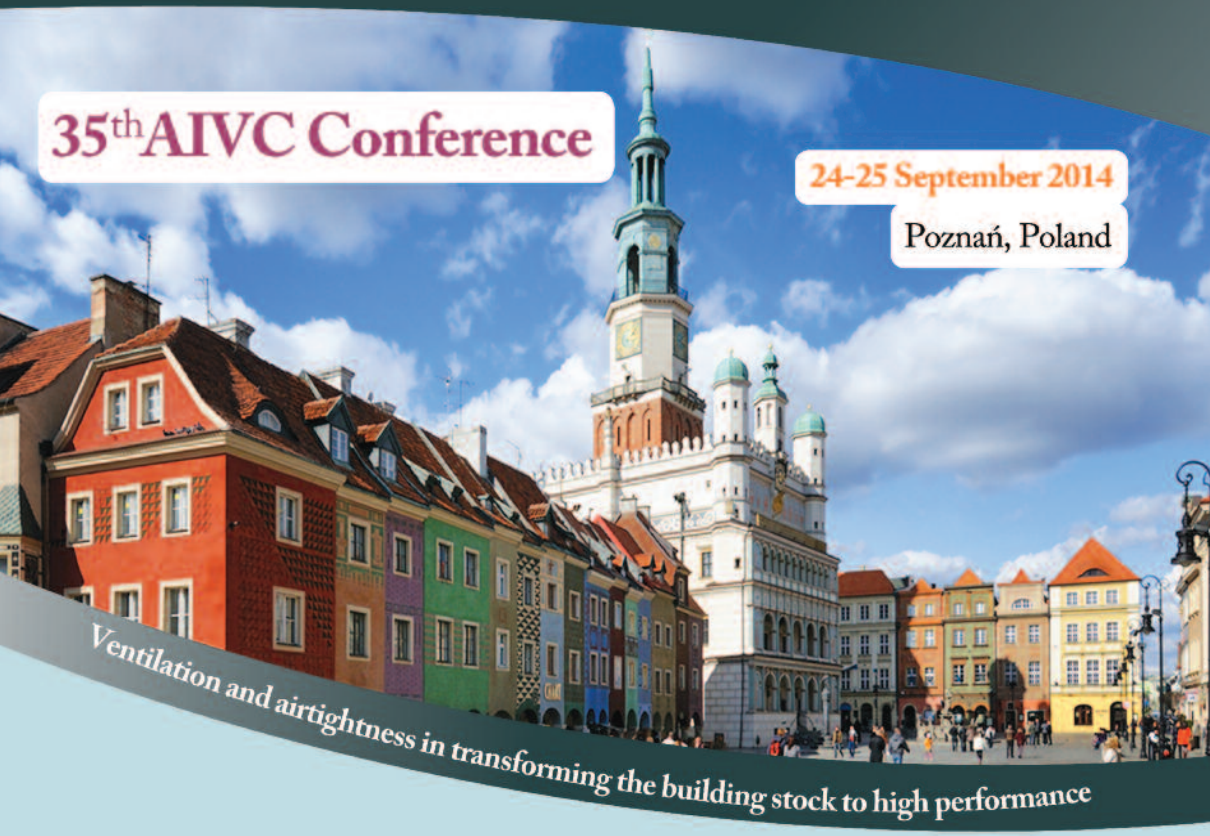
35th AIVC Conference

24-25 September 2014

Poznań, Poland



Ventilation and airtightness in transforming the building stock to high performance

4th TightVent Conference

2nd venticool Conference

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AIVC

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the international platform for ventilative cooling

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BUILDING AND DUCTWORK AIRTIGHTNESS PLATFORM

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Federation of European Heating, Ventilation and Air-conditioning Associations

ISIAQ
INTERNATIONAL SOCIETY OF INDOOR AIR QUALITY AND CLIMATE

International BUILDAIR Symposium

FINAL PROGRAMME

Wednesday 24 September 2014

08:00 Registration

ROOM A

09:00-10:45 Opening – Plenary Session *(part 1)*
Chairpersons: ***Peter Wouters, Tomasz Mroz***

- **Welcome on behalf of AIVC, venticool, TightVent**
  Peter Wouters, Manager of INIVE EEIG, Belgium
- **Welcome on behalf of PUT**
  Tomasz Lodygowski, Rector, Poznań University of Technology, Poland
- **Ventilation and airtightness in Poland. Status and perspectives**
  Tomasz Mroz, Professor, Poznań University of Technology, Poland
- **Recent advances on factors influencing human responses and performance in buildings and potential impacts on ventilation requirements**
  Pawel Wargocki, Associate Professor, Technical University of Denmark, Denmark (Invited Speaker) *(p. 532)*

10:45-11:15 Coffee break

11:15-12:45 Plenary Session *(part 2)*
Chairpersons: ***Yun Gyu Lee, Max Sherman***

- **Outcome of Annex 55 "Reliability of energy efficient building retrofitting-Probability assessment of performance & cost (RAP-RETRO)**
  Carl-Eric Hegentoft, Professor, Chalmers, Sweden (Invited Speaker)
- **The Indoor Air Quality Observatory-outcomes of a decade of research and perspectives**
  Severine Kirschner, Health and Comfort Division CSTB, France (Invited Speaker) *(p. 760)*
- **Potential and limitation to ventilative collong**
  Per Heiselberg, Professor, Aalborg University, Denmark (Invited Speaker)

12:45-13:45 Lunch Break

13:45-15:15 Parallel Session 1A: Topical Session – Quality issues in airtightness testing
Chairpersons: ***Max Sherman, Masaki Tajima***

- **Comparison of building preparation rules for airtightness testing in 11 European countries**
  Valerie Leprince, France *(p. 501)*
- **Belgian framework for reliable fan pressurization tests for buildings**
  Clarisse Mees, Belgium *(p. 406)*
- **Large buildings airtightness measurements using ventilation systems**
  Michał Szymański, Poland *(p. 712)*

- **Model error due to steady wind in building pressurization tests**
  François Rémi Carrié, France *(p. 770)*

ROOM B

13:45-15:15 Parallel Session 1B: Topical Session – Ventilative cooling and Annex 62
Chairpersons: ***Per Heiselberg, Peter Holzer***

- **International research on ventilative cooling in IEA EBC Annex 62**
  Per Heiselberg, Denmark (Invited Speaker)
- **Design and analysis methods for ventilative cooling**
  Annamaria Belleri, Italy
- **Experiences with ventilative cooling in practical application based on experiences with completed active houses**
  Peter Foldbjerg, Denmark *(p. 180)*
- **Ventilative cooling in national energy performance regulations: requirements and sensitivity analysis**
  Ivan Pollet, Belgium *(p. 378)*
- **Experimental characterization of dominant driving forces and fluctuating ventilation rates for a single sided slot louver ventilation system**
  Paul O' Sullivan, UK *(p. 547)*

ROOM C

13:45-15:15 Parallel Session 1C: Topical Session – Demand - controlled ventilation strategies for residential / commercial buildings
Chairpersons: ***Tomasz Mroz, Jelle Laverge***

- **Requirements and hand-over documentation for energy-optimal Demand-Controlled Ventilation**
  Mads Mysen, Norway *(p. 53)*
- **Monitoring of an innovative room-by-room demand controlled heat recovery system on four locations**
  Madeline Colette, France *(p. 142)*
- **Development of an evaluation methodology to quantify the energy potential of demand controlled ventilation strategies**
  Samuel Caillou, Belgium *(p. 587)*
- **Multi-zone demand-controlled ventilation in residential buildings: An experimental case study**
  Arefeh Hesaraki, Sweden *(p. 614)*

15:15-15:35 Coffee break

ROOM A

15:15-16:45 Parallel Session 2A – Topical Session: Durability of airtightness
Chairpersons: ***Arnold Janssens, Paula Wahlgren***

- **Durable airtightness in single-family dwellings: field measurements and analysis**
  Wanyu Chan, USA *(p. 7)*
- **Durability of air tightness solutions for buildings**
  Magnus Hansén, Sweden *(p. 268)*
- **Assessment of the durability of the airtightness of building elements via laboratory tests**
  Clarisse Mees, Belgium *(p. 738)*
- **Airtightness of building penetrations: Air sealing solutions, durability effects and measurement uncertainty**
  Wolf Bracke, Belgium *(p. 488)*
- **Seasonal variation in airtightness**
  Paula Wahlgren, Sweden *(p. 621)*

ROOM C

15:15-16:45 Parallel Session 2C – Topical Session: EPBD Ventilation standards and regulations Revision Status
Chairpersons: ***Jaap Hogeling, Gerhard Zweifel***

- **The second generation CEN-EPBD standards**
  Jaap Hogeling, The Netherlands (Invited Speaker) *(p. 786)*
- **Indoor enviromental parameters: Revision of EN 15251**
  Bjarne Olesen, Denmark (Invited Speaker) *(p. 786)*
- **Calculations methods: Revision of EN 15241-15242-15243**
  Gerhard Zweifel, Switzerland (Invited Speaker) *(p. 786)*
- **Inspection of ventilation systems and air conditioning systems**
  François Rémi Carrié, France *(p. 786)*

16:45-17:10 Coffee break

ROOM A

17:10-18:40 Parallel Session 3A- Short oral presentation session – Building Airtightness:field characterization, energy and IAQ impacts
Chairpersons: ***Wouter Borsboom, Michal Szymański***

- **The Energy impact of envelope leakage. The Chilean case**
  Ariel Bobadilla, Chile *(p. 25)*
- **Estimating the impact of incomplete tracer gas mixing on infiltration rate measurements**
  Peter McDowall, New Zealand *(p. 371)*
- **The 10 steps to conceive and build airtight buildings**
  Clarisse Mees, Belgium *(p. 398)*
- **Breathing features assessment of porous wall units in relation to indoor air quality**
  Yuncu Başak, Turkey *(p. 703)*
- **ACH and air tightness test results in the Croatian and Hungarian border region**
  György Polics, Hungary *(p. 680)*

ROOM B

17:10-18:40 Parallel Session 3B- Short oral presentation session – Ventilative cooling
Chairpersons: ***Peter Holzer, Ivan Pollet***

- **Summer performance of residential heat recovery ventilation with an air-to-air heat pump cooling system**
  Bart Cremers, Poland *(p. 130)*
- **Indoor climate in a Danish kindergarten built according to active house principles: measured thermal comfort and use of electrical light**
  Peter Foldbjerg, Denmark *(p. 188)*
- **Strategies for exploiting climate potential through ventilative cooling in a renovated historic market**
  Annamaria Belleri, Italy *(p. 257)*
- **Airflow modelling software development for natural ventilation design**
  Poh Hee Joo, Singapore *(p. 287)*
- **Passive Cooling Through Ventilation Shafts in High-Density Zero Energy Buildings: A Design Strategy to Integrate Natural and Mechanical Ventilation in Temperate Climates**
  Luca Guardigli, Italy *(p. 436)*

17:10-18:40 Parallel Session 3C- Short oral presentation session – Ventilation, indoor air quality, health and comfort

Chairpersons: ***François Durier, Mads Mysen***

- **Derivation of equation for personal carbon dioxide in exhaled breath intended to estimation of building ventilation**
  Masaki Tajima, Japan *(p. 427)*
- **Impact of a photocatalytic oxidation layer covering the interior surfaces of a real test room: volatile organic compound mineralisation, risk assessment of by-product and nanoparticle emissions**
  Franck Alessi, France *(p. 16)*
- **Use of DCV for heating and the influence on IAQ in passive house buildings**
  Vegard Aslaksen, Norway *(p. 71)*
- **A Study of Carbon Dioxide Concentrations in Elementary Schools**
  John Sifnaios, Greece *(p. 557)*
- **The effect of enthalpy recovery ventilation on the residential indoor climate**
  Bart Cremers, Poland *(p. 78)*
- **Air renewal effectiveness of decentralized ventilation devices with heat recovery**
  Fabien Coydon, Germany *(p. 83)*
- **Demand-Controlled Ventilation- 20 years of in-situ monitoring in the residential field**
  Jean-Luc Savin, France *(p. 119)*
- **Heating "passive house" offices in cold climate using only the ventilation system – comparison of two ventilation strategies**
  Hugo Lewi Hammer, Norway *(p. 137)*
- **Cleanliness of air filters in the experimental passive house**
  Malgorzata Basinska, Poland *(p. 154)*
- **Air heating of passive house office buildings in cold climates – how high supply temperature is acceptable?**
  Axel Cable, Norway *(p. 198)*
- **Energy-optimal ventilation strategy outside of the operating time for passive house office buildings in cold climates**
  Per Magnus Holth, Norway *(p. 207)*
- **Can air heating alone be used in passive house office building in cold climates? Review of the obtained results**
  Kari Thunshelle, Norway *(p. 217)*

- **Impact of the use of a front door on thermal comfort in a classroom in a passive school**
  Hilde Breesch, Belgium *(p. 226)*
- **Development of a Unique Thermal and Indoor Air Quality Probabilistic Modelling Tool for Assessing the Impact of Lowering Building Ventilation Rates**
  James McGrath, Ireland *(p. 730)*
- **A protocol for assessing Indoor Air Quality in retrofitted energy efficient homes in Ireland**
  Aine Broderick, Ireland *(p. 315)*
- **CFD simulation of an office heated by a ceiling mounted diffuser**
  Bård Venås, Norway *(p. 655)*
- **Optimal positioning of air-exhaust openings in an operating room based on recovery test: a numerical study**
  Sasan Sadrizadeh, Sweden *(p. 665)*
- **The influence of traffic emissions on IAQ, especially in street canyons**
  Zbigniew Bagieński, Poland *(p. 352)*

18:30-19:30 Poster and Industry Exhibition

ROOM A

08:45-09:45 Parallel Session 4A: Topical Session – Characterization of airtightness products

Chairpersons: ***Tormod Aurlien, Targo Kalamees***

- **Temperature and pressure corrections for power-law coefficients of airflow through ventilation system components and leaks**
  François Rémi Carrié, France *(p. 778)*
- **Testing for building components contribution to airtightness assessment**
  Nuno M. M. Ramos, Portugal *(p. 322)*
- **Performance of airtightness products: characterization of sealants and expanding foams**
  Filip Van Mieghem, Belgium

ROOM B

08:45-09:45 Parallel Session 4B: Long Oral Presentation Session – Ventilative cooling

Chairpersons: ***Gerhard Zweifel, Jarek Kurnitski***

- **Do existing international standards support ventilative cooling?**
  Bjarne Olesen, Denmark (Invited Speaker) *(p. 351)*
- **Perception of a cooling jet from ceiling - a laboratory study**
  Henna Maula, Finland *(p. 94)*
- **Coupling hygrothermal whole building simulation and air-flow modelling to determine strategies for optimized natural ventilation**
  Matthias Pazold, Germany *(p. 537)*

09:45-10:05 Coffee break

ROOM A

10:05-11:35 Parallel Session 5A: Long oral presentation Session – Airtightness improvements in existing buildings

Chairpersons: ***Paula Wahlgren, Benjamin Jones***

- **Air leakages in a retrofitted building from 1930: measurements and numerical simulations**
  Par Johansson, Sweden *(p. 341)*
- **Airtightness improvement of structures to improve indoor air quality**
  Katariina Laine, Finland *(p. 36)*

- **Experiences in the airtightness of renovated tertiary Exemplary Building in the Brussels Capital Region**
  Bram De Meester, Belgium *(p. 457)*
- **Strategies for the planning and implementation of airtightness on existing sloped roofs**
  Wilfried Walther, Germany *(p. 671)*

ROOM B

10:05-11:35 Parallel Session 5B: Topical Session – Comfort in sustainable buildings

Chairpersons: ***Hannu Koskela, Karsten Duer***

- **Self-evaluated thermal comfort compared to measured temperatures during summer in three active houses where ventilative cooling is applied**
  Peter Foldbjerg, Denmark *(p. 171)*
- **Control of indoor climate systems in Active Houses**
  Peter Holzer, Austria *(p. 747)*
- **Comfort in naturally ventilated offices**
  Ivan Pollet, Belgium
- **Human comfort in Active House,learning's from ModelHome2020**
  Moritz Fedkenheur, Germany

ROOM C

10:05-11:35 Parallel Session 5D: Topical Session – Residential cooker hoods and kitchen ventilation

Chairpersons: ***Peter Wouters, Wouter Borsboom***

- **Boundary conditions and challenges for cooker hoods in low energy buildings**
  Peter Wouters, Belgium
- **Cooker hoods in the American context-Standardized method for Capture Effiency**
  Max Sherman, USA
- **Cooker hoods in the European standardization and legislative context**
  Willem de Gids, The Netherlands
- **Overview of some developments in practice**
  ATAG, ITHO
- **Strategies for efficient kitchen ventilation**
  Wouter Borsboom, The Netherlands *(p. 534)*

11:35-11:50 Coffee break

ROOM A

11:50-12:50 Parallel Session 6A: Topical Session – Ductwork airtightness in new and renovated buildings

Chairpersons: ***Arnold Janssens, Jarek Kurnitski***

- **Demand controlled Ventilation in renovated buildings with reuse of existing ductwork**
  Mads Mysen, Norway *(p. 46)*
- **Ductwork airtightness: reliability of measurements and impact on ventilation flowrate and fan energy consumption**
  Sylvain Berthault, France *(p. 478)*
- **Practical solutions for airtight ductwork**
  Lars-Åke Mattsson, Sweden

ROOM B

11:50-12:50 Parallel Session 6C: Long oral presentation session – Field performance of demand controlled ventilation

Chairpersons: ***Pilar Linares Alemparte, Hannu Koskela***

- **Comparison of two ventilation control strategies in the first Norwegian school with passive house standard**
  Axel Cable, Norway *(p. 163)*
- **Monitoring the energy & IAQ performance of ventilation systems in Dutch residential dwellings**
  Rob Van Holsteijn, The Netherlands *(p. 467)*
- **System for controlling variable amount of air ensuring appropriate indoor air quality in low-energy and passive buildings**
  Kamil Szkarlat, Poland *(p. 597)*

12:50-13:50 Lunch Break

ROOM A

13:50-15:25 Parallel Session 7A: Long oral presentation session – Building airtightness: Test methods, optimum levels
Chairpersons: ***Max Sherman, Andrzej Gorka***

- **Predicting the optimum air permeability of a stock of detached English dwellings**
  Benjamin Jones, UK *(p. 575)*
- **Measurement of infiltration rates from daily cycle of ambient CO2**
  Joao Dias Carrilho, Portugal *(p. 568)*
- **The impact of air-tightness in the retrofitting practice of low temperature heating**
  Qian Wang, Sweden *(p. 511)*
- **A nozzle pulse pressurisation technique for measurement of building leakage at low pressure**
  Edward Cooper, UK *(p. 236)*
- **Tips for Improving Repeatability of Air Leakage Tests to EN and ISO Standards**
  Colin Genge, Canada *(p. 758)*

ROOM B

13:50-15:25 Parallel Session 7C: Long oral presentation session – Ventilation, indoor air quality, health and comfort
Chairpersons: ***Pawel Wargocki, Samuel Caillou***

- **Proposed change in Spanish regulations relating to indoor air quality with the aim of reducing energy consumption of ventilation systems**
  Pilar Linares-Alemparte, Spain *(p. 1)*
- **Simulation of static pressure reset control in comfort ventilation**
  Chrysanthi Sofia Koulani, Denmark *(p. 305)*
- **Co-heating test and comfort assessment of a coupled system made by a ventilated window and a heat recovery unit**
  Ludovico Danza, Italy *(p. 417)*
- **Numerical simulation of Indoor Air Quality - Mechanical ventilation system supplied periodically vs. natural ventilation**
  Ewelina Kubacka, Poland *(p. 638)*
- **Measured moisture buffering and latent heat capacities in CLT test houses**
  Ivana Katavic, Norway *(p. 691)*

ROOM C

13:50-15:25 **Parallel Session 7D: Long oral presentation session – Integrated design, MaTrID project**
Chairpersons: ***Klemens Leutgöb***

- **Welcome and objectives of the workshop**
- **The IED tool-kit, lessons learned and policy recommendations**
  Klemens Leutgöb, Austria (Invited Speaker)
- **Simulation of night ventilation performance as a support for an integrated design of buildings**
  Jerzy Sowa, Poland *(p. 361)*
- **Integrated approach as a prerequisite for nearly zero energy schools in Mediterranean region- ZEMedS project**
  Elzbieta D. Ryńska, Poland (Invited Speaker)

15:25-15:40 **Break**

ROOM A

15:40-17:10 **Closing Session**
Chairpersons: ***Peter Wouters, François Durier***

- **Best paper and poster award**
- **Summing up of "ventilative cooling" track**
  Per Heiselberg, Professor, Aalborg University, Denmark (Invited Speaker)
- **Summing up of "ventilation, indoor air quality health and comfort" track**
  Willem de Gids, VentGuide, The Netherlands (Invited Speaker)
- **Summing up of "airtightness" track**
  Arnold Janssens, Professor, University of Ghent, Belgium (Invited Speaker)
- **Indoor Environmental Quality-Global Alliance: The value chain of IEQ**
  Bjarne Olesen, Professor, Technical University of Denmark, Denmark (Invited Speaker) *(p. 350)*

17:10 **End of conference**

CONFERENCE Venue

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Plac Andersa 3, 61-894 Poznań, Poland
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