NSB 2011 - Sessions on Monday 30th May

Monday 8:15 - 8:45

Symposium Opening
Juha Vinha, Place: Small Auditorium

Monday 8:45 - 10:00

Keynote session 1, *Chair: Juha Vinha, Place: Small Auditorium*
Forty years of building physics research – for what benefit?
Ingemar Samuelson

Monday 10:30 - 12:00, Session 1

A1 - Air-tightness of buildings *Chair: Miimu Airaksinen, Place: Small Auditorium*	**B1 - Computational fluid dynamics simulations** *Chair: John Grunewald, Place: Sopraano conference room*	**C1 - Thermal bridge calculations** *Chair: Berit Time, Place: Studio auditorium*
Dwelling air-tightness in a 55 years old estate ***Hugo Hens***	Simulation and Experimental Validation of Chaotic Behavior of Airflow in a Ventilated Room ***Jos van Schijndel***	Evaluation of the thermal bridges of prefabricated concrete large-panel and brick apartment buildings in Estonia ***Simo Ilomets, Targo Kalamees & Leena Paap***
Usability of data from commissioned tests for estimating trends and distribution of air tightness in the building stock ***Sverre Bjørn Holøs, Thor-Oskar Relander & Sverre Inge Heimdal***	Numerical Simulation of Building Components - Towards an Efficient Implementation of Air Convection in HAM-models ***Jelle Langmans, Andreas Nicolai, Ralf Klein, John Grunewald & Staf Roels***	A Parametric study of the thermal performance of embedded Vacuum Insulation Panels ***Kjartan Gudmundsson***
Important factors to achieve an airtight building ***Paula Wahlgren***	Influence of ambient air speed on convective heat transfer coefficient at natural convection regime ***Peter Mihálka, Milan Držík & Peter Matiašovský***	New Developments in Mitigation of Thermal Bridges Generated by Light Gage Steel Framing Components ***Peter Engelmann, Bryan Urban & Jan Kosny***
Measurements and modelling of airflows in houses using passive sampling and HAM software ***Emmanuel Adu Essah***	Numerical modeling of wind-induced cavity ventilation for a low-rise building ***Kristine Nore, Bert Blocken & Jan Vincent Thue***	Arranging Insulation for Better Thermal Resistance in Concrete and Masonry Wall Systems ***Bryan Urban, Peter Engelmann, Elisabeth Kossecka & Jan Kosny***
Air tightness of structural elements and internal air leakages in a multi-apartment building ***Anu Aaltonen, Kimmo Lähdesmäki & Juha Vinha***	Influence of wind direction and urban surroundings on natural ventilation of a large football stadium ***Twan van Hooff & Bert Blocken***	

Monday 13:15 - 14:45, Session 2

A2 - Regulations and air-tightness of constructions *Chair: Jan Vincent Thue, Place: Small Auditorium*	**B2 - HAM transport in porous material** *Chair: Thomas Bednar, Place: Sopraano conference room*	**C2 - Thermal bridge standards and calculations** *Chair: Staf Roels, Place: Studio auditorium*
Air leakages through cross laminated timber (CLT) constructions ***Hans Boye Skogstad, Lars Gullbrekken & Kristine Nore***	Towards a Semi-Generic Simulation Framework for Mass and Energy Transport in Porous Materials ***Andreas Nicolai & John Grunewald***	The importance of a common method and correct calculation of thermal bridges ***Björn Berggren & Maria Wall***
Recent Changes in the Building Envelope Air Leakage Regulations and Practices in the US ***Maria Spinu & Brian Erickson***	Hygrothermal behaviour of a hemp concrete wall: influence of sorption isotherm modelling ***Yacine Aït Oumeziane, Marjorie Bart, Sophie Moissette, Christophe Lanos, Sylvie Prétot & Florence Collet***	Current calculation rules for thermal bridges and resulting problems for the practical use ***Kai Schild, Wolfgang Willems & Georg Hellinger***
How to ensure low radon concentrations in indoor environments ***Ida Wraber & Torben Valdbjørn Rasmussen***	Sensitivity analysis of total pressure gradient on wood drying ***Kamilia Abahri, Rafik Belarbi, Mahfoud Tahlaiti & Boudjemaa Remki***	Practical implementation of a harmonic conductance model in thermal simulation software ***Tomasz Kornicki***
Energy implications of different infiltration models ***Matthias Haase***		Sensitivity analyses of thermal bridges: confrontation with the new Belgian EPB-methodology ***Marc Delghust, Willem Huyghe & Arnold Janssens***
Experimental testing of rain tightness of wind barrier and sealing of window joints ***Hans Boye Skogstad, Sivert Uvsløkk & Ola Asphaug***		A pragmatic approach to incorporate the effect of thermal bridging within the EPBD-regulation ***Staf Roels, Mieke Deurinck, Marc Delghust, Arnold Janssens & Dirk Van Orshoven***

Monday 15:15 - 16:45, Session 3

A3 - Validation of calculation methods and results *Chair: Carl-Eric Hagentoft, Place: Small Auditorium*	**B3 - Material properties and determination methods** *Chair: Phalguni Mukhopadhyaya, Place: Sopraano conference room*	**C3 - Energy standards and life-cycle analysis** *Chair: Svend Svendsen, Place: Studio auditorium*
Validation of a coupled CFD-HAM model with a climate chamber experiment on a small wall sample ***Marnix Van Belleghem, Marijke Steeman, Arnold Janssens & Michel De Paepe***	Determination of Hygrothermal Properties for Building Materials using Inverse Modeling Techniques ***Jos van Schijndel, Sander Uittenbosch & Tom Thomassen***	Sustainability of Polyurethane Thermal Insulation ***Pasi Käkelä & Janne Jormalainen***
Experimental validation of two simplified thermal zone models ***Pavel Kopecký***	Properties, Requirements and Possibilities for Traditional, State-of-the-Art and Future Thermal Building Insulation Materials and Solutions ***Bjørn Petter Jelle, Arild Gustavsen, Berit Time, Hans Boye Skogstad & Arvid Dalehaug***	Life Cycle Analysis as an Effective Instrument to find sustainable solutions and identify Energy- as well as Cost Saving Potentials ***Frank U. Vogdt & Anika Dittmar***
Comparison of measured and calculated temperature and relative humidity with varied and constant air flow in the façade air gap ***S. Olof Hägerstedt & Lars-Erik Harderup***	The Effect of Leakage through the Sealant in the Cup Test Method ***Elina Manelius & Juha Vinha***	Zero Emission Building Envelopes - Comparison of Different Wall Constructions in a Life Cycle Perspective ***Thomas Haavi & Arild Gustavsen***
Comparison of calculated and measured values of wall assembly tests using Delphin 5 ***Anssi Laukkarinen & Juha Vinha***	Correlation between thermal conductivity and elastic modulus of porous building materials – power law functions of porosity ***Peter Matiašovský & Lubomir Bagel***	Method for use of economical optimization in design of nearly zero energy buildings ***Sanne Hansen & Svend Svendsen***
Importance of moisture transport, snow cover and soil freezing to ground temperature predictions ***Huining Xu & Jeffrey D. Spitler***	Hygrothermal Properties of Biobased Polyurethane Foam Insulation for Building Envelope Construction ***Phalguni Mukhopadhyaya, Tri-Dung Ngo, Minh-Tan Ton-That, Jean-Francois Masson & Gordon Sherrer***	Low-energy buildings in Europe – Building envelope performance and energy standards ***Katharina Thullner, Dennis Johansson & Ulla Janson***

NSB 2011 - Sessions on Tuesday 31st May

Tuesday 8:45 - 10:00

Keynote session 2, *Chair: Anker Nielsen, Place: Small Auditorium*
Low energy buildings – the basis for realizing the strategy for independency of fossil fuels in 2050
Svend Svendsen

Tuesday 10:30 - 12:00, Session 4

A4 - Roof and floor simulations *Chair: Shuichi Hokoi, Place: Small Auditorium*	**B4 - Hysteresis effect** *Chair: Peter Matiašovský, Place: Sopraano conference room*	**C4 - Thermal comfort** *Chair: Juhani Heljo, Place: Studio auditorium*
Cool roofing in cold climates: A contradiction or a potential for energy savings? ***Mark Murphy, Steinar Grynning, Bjørn Petter Jelle, Arild Gustavsen & Matthias Haase***	Inverse analysis of the bound water diffusion coefficient in small samples of wood from sorption tests ***Romain Rémond, Giana Almeida & Patrick Perré***	Potential influence of the heating demand by choice of thermal mass and comfort interval ***Fredrik Ståhl***
Proposal for a modified Glaser-Method for the risk assessment of flat timber roofs ***Bernd Nusser, Thomas Bednar & Martin Teibinger***	Sorption behavior of various lignocellulosic building materials ***Giana Almeida, Romain Rémond & Patrick Perré***	Effect of Energy Renovation on Thermal Sensation and Comfort during Heating Season ***Riikka Holopainen & Pekka Tuomaala***
Vapour control design of wooden structures including moisture sources due to air exfiltration ***Hartwig M. Künzel, Daniel Zirkelbach & Beate Schafaczek***	Critical moisture contents – during water absorption and drying ***Peter Matiašovský & Lubomir Bagel***	Field study of the thermal environment created by a radiant heating system in a detached house for sleep thermal comfort ***Christopher Leung & Hua Ge***
Frost insulation of the Finnish slab on ground foundation ***Miimu Airaksinen & Jorma Heikkinen***	Hysteresis and Temperature Dependency of Moisture Sorption –New Measurements ***Carsten Rode & Kurt K. Hansen***	Evaluating Occupant Comfort in Social Housing Following Building Envelope Upgrades ***Kurtis Topping & Philip Parker***
Probabilistic analysis of hygrothermal conditions and mould growth potential in cold attics ***Carl-Eric Hagentoft & Angela Sasic Kalagasidis***	Water vapour sorption of building materials – modelling of scanning curves ***Olga Koronthalyova***	

Tuesday 13:15 - 15:00, Session 5

A5 - Roof solutions in lab and field experiments *Chair: Folke Björk, Place: Small Auditorium*	**B5 - Water vapour transport** *Chair: Hans Janssen, Place: Sopraano conference room*	**C5 - Indoor climate** *Chair: Helmi Kokotti, Place: Studio auditorium*
Experimental and numerical investigations to compare the thermal performance of IR reflecting insulation and mineral wool ***Matthias Kersken & Almuth Schade***	Inverse analysis of water vapour transport in building materials using genetic algorithm ***Jan Kočí, Jiří Maděra, Jaromír Žumár, Zbyšek Pavlík & Robert Černý***	The influence of external wall thermal mass on indoor air parameters stability ***Anatolijs Borodinecs, Baiba Gaujena, Valdis Varavs & Andris Kreslins***
A new method for drying out low pitched cold deck roofs ***Niels Peter Kloch***	Vapour permeability and water absorption of different exterior paint systems ***Ruta Miniotaite***	Indoor Climate and Humidity Loads in Old Rural Houses with Different Usage Profiles ***Üllar Alev, Targo Kalamees & Endrik Arumägi***
Frost Damage in Roof Tiles in Relatively Warm Areas in Japan: Water Absorption and Freezing-Thawing Experiments ***Chiemi Iba & Shuichi Hokoi***	Analysis of the cell wall distribution in a growth ring on the water vapour transport in Spruce wood ***Wolfgang Zillig, Dominique Derome & Jan Carmeliet***	Sustainable Retrofitting Strategies for Museum Buildings - Development and Assessment of Retrofitting Strategies ***Sven Steinbach, Michaela Hoppe, Volker Huckemann, Anke Schenk, Lars Klemm & Heiko Werdin***
Application of risk assessment technique to attics ***Kimmo Kurkinen & Carl-Eric Hagentoft***	A transient method for determination of water vapour diffusion coefficient of building materials as function of relative humidity ***Zbyšek Pavlík, Jaromír Žumár, Milena Pavlíková, Miloš Jerman & Robert Černý***	User behaviour regarding natural ventilation – state of the art and research needs ***Christine Mayer & Florian Antretter***
Study of the thermal performance of an integrated photovoltaic-thermal hybrid air collector coupled with a ventilation device ***Ya Brigitte Assoa, Olivier Flechon, Benjamin Boillot & François Sauzedde***	Thermal diffusion of water vapour in porous materials: true or false? ***Hans Janssen***	Investigation on moisture and indoor environment in eight Danish houses ***Kasper Risgaard Jensen, Rasmus Lund Jensen, Jesper Nørgaard, Rasmus O. Justesen & Niels C. Bergsøe***
Technical analysis of moisture transfer qualities of mildly sloping roofs ***Ari-Veikko Kettunen***		Passive sampling as a method for air exchange measurements for whole building simulation of historic buildings ***Ralf Kilian, Stefan Bichlmair, Barbara Wehle & Andreas Holm***

Tuesday 15:30 - 17:15, Session 6

A6 - ETICS and new wall solutions *Chair: Jesper Arfvidsson, Place: Small Auditorium*	**B6 - Material damages and durability** *Chair: Stig Geving, Place: Sopraano conference room*	**C6 - Cooling and other low energy systems** *Chair: Angela Sasic Kalagasidis, Place: Studio auditorium*
Hygrothermal behaviour of ETICS – Numerical and experimental study ***Eva Barreira & Vasco Peixoto de Freitas***	Effect of variable hygro-thermal conditions on chemical degradation of concrete structures due to alkali-silica reaction ***Dariusz Gawin, Francesco Pesavento, Witold Grymin & Mateusz Wyrzykowski***	A study on the integration of upgraded weather forecast in a predictive control of building cooling systems ***Angela Sasic Kalagasidis***
Vacuum Insulated Glass Sandwiches: Assembly, characteristics and application of the new high insulating facade panel ***Tanja Skottke & Wolfgang Willems***	Setpoint control for air heating in a church to minimize moisture related mechanical stress in wooden interior parts ***Henk Schellen & Jos van Schijndel***	Exergy analysis of cooling systems and strategies ***Marco Molinari & Petra Karlstöm***
Development of a moisture safe connection for stud walls ***Johan Jönsson & Miklós Molnár***	Non-uniform moisture influence on multilayer corrugated plywood shell ***Jānis Šliseris & Kārlis Rocēns***	Relevance of modelling insulation layer in ground storage system design ***Alberto Lazzarotto***
An Innovative Approach to Retrofitting Multi-Unit Residential Buildings Using a Nested Thermal Envelope DesignTM ***Marianne Touchie, Kim Pressnail, Russell Richman & Erin Dixon***	Influence of moisture sorption on deformations of building materials ***Ruta Miniotaite***	Low Exergy Systems for High-Performance Buildings and Communities ***Dietrich Schmidt & Guðni Jóhannesson***
Heated External Insulation Composite Systems to avoid Biological Defacement ***Julia v. Werder, Daniel Kogan, Michael Sack, Helmuth Venzmer & Winfried Malorny***	Characterization of damage-induced evolution of building materials hygric properties ***Simon Rouchier, Monika Woloszyn, Geneviève Foray & Jean-Jacques Roux***	Development of a quasi-steady-state assessment method of night cooling ***Hilde Breesch, Kim Goethals & Arnold Janssens***
Renovation of a detached single-family house into an energy efficient low energy house ***Tine Steen Larsen, Steffen Maagaard & Rasmus Lund Jensen***		Evaluation of the applicability of the quasi-steady-state overheating indicator for offices and schools ***Kim Goethals & Arnold Janssens***

NSB 2011 - Sessions on Wednesday 1st June

Wednesday 8:45 - 10:00

Keynote session 3, *Chair: Ralf Lindberg, Place: Small Auditorium*
Building inspections in Finland – fighting against moulds
Juhani Pirinen

Wednesday 10:30 - 12:00, Session 7

A7 - Walls in field measurements *Chair: Monika Woloszyn, Place: Small Auditorium*	**B7 - Moisture problems and design solutions** *Chair: Juhani Pirinen, Place: Sopraano conference room*	**C7 - Energy efficiency in office buildings** *Chair: Lars-Erik Harderup, P lace: Studio auditorium*
Infrared measurements on a ventilated cladding for assessing its surface temperature and heat transfer calculation ***Matthieu Labat, Geraldine Garnier, Monika Woloszyn & Jean Jeacques Roux***	Methods for investigation of technical status before renovation and evaluation of renovation measures for the building envelope ***Kristina Mjörnell, Thorbjörn Gustavsson & Angela Sasic Kalagasidis***	The potential for energy efficient building design - differences between Europe and the Arctic ***Petra Vladykova & Carsten Rode***
Rehabilitation of basement walls with moisture problems by the use of vapour open exterior thermal insulation ***Stig Geving, Marius Kvalvik & Espen Martinsen***	Interior Mould Growth Risk Reduction - Application of Nonlinear Programming for Envelope Optimisation ***Nuno Ramos, Isabel Ribeiro, João Delgado, Vasco Peixoto de Freitas & Teresa Esteves***	Validation and Analysis of Energy Performance Using Dynamic Simulations and Comparisons with Detailed Measurements ***Azra Korjenic, Tanja Höfer, Christoph Deseyve & Thomas Bednar***
Long-term measurement and hygrothermal simulation of an interior insulation consisting of reed panels and clay plaster ***Paul Wegerer & Thomas Bednar***	Rising damp, a reoccurring problem in basements – a case study with different attempts to stop the moisture ***Eva Birgit Møller & Birgit Olsen***	Impact of Outdoor Climate and Life Style on the Total Energy Use in Office Buildings ***Markus Leeb, Christoph Deseyve, Tanja Höfer, Azra Korjenic & Thomas Bednar***
Moisture and mould in prefabricated timber frame constructions during production until enclosure of the house ***Lars Olsson, Kristina Mjörnell & Pernilla Johansson***	Testing methods for moisture content in concrete, dealing with floor coverings: State-of-the-Art in Finland ***Sami Niemi & Juha Komonen***	Evaluating effects of different scenarios in the design phase on the carbon footprint of an office building ***Pellervo Matilainen & Miimu Airaksinen***

Wednesday 13:15 - 14:45, Session 8

A8 - Wall simulations *Chair: Hua Ge, Place: Small Auditorium*	**B8 - Moisture problems and technical solutions** *Chair: Matti Pentti, Place: Sopraano conference room*	**C8 - Energy efficiency in schools and day-care buildings** *Chair: Guðni Jóhannesson, Place: Studio auditorium*
Assessment of the Risk for Mold Growth in a Wall Retrofitted with Vacuum Insulation Panels ***Pär Johansson***	Humidity Control in Historic Buildings through Adaptive Ventilation - A Case Study ***Tor Broström, Carl-Eric Hagentoft & Magnus Wessberg***	Evaluation and Parametric Optimization of the Heating Load and Comfort Conditions in a School Building ***Ricardo Almeida & Vasco Peixoto de Freitas***
Is ventilation of timber façades essential? ***Daniel Kehl, Severin Hauswirth & Heinz Weber***	Evaluation of the climate for conservation of the adoration of the mystic lamb in the St. Bavo Cathedral in Ghent ***Lien De Backer, Marnix Van Belleghem, Marijke Steeman, Arnold Janssens & Michel De Paepe***	Implementation of realistic boundary conditions – analysis of their effect on the net annual heating demand in passive schools ***Barbara Wauman, Hilde Breesch & Dirk Saelens***
A numerical study of the hygrothermal performance of capillary active interior insulation systems ***Evy Vereecken & Staf Roels***	Control strategies for demand controlled ventilation in dwellings ***Toke Rammer Nielsen & Christian Drivsholm***	Simulation as a Tool for Optimizing Energy Demand of Rooms as a Part of the Strategy "Towards Green Campuses in Egypt" ***Mina Michel Samaan, Ahmed Nabih Ahmed, Osama M.A. Farag & Magdi El-Sayed Khalil***
Walls with Rising Damp Problems: Predicting Water Capillary Rise ***Ana Sofia Guimarães, João Quesado Delgado & Vasco Peixoto de Freitas***	The hygrothermal performance in Hellerup Church, Denmark ***Poul Klenz Larsen***	Investigation of ventilation strategies for the day-care institutions ***Olena Kalyanova Larsen, Alireza Afshari & Per Heiselberg***
Considerations to the hygrothermal behavior of exterior walls in timber frame construction with direct rendering ***Britta Rosenau***		Energy-Surplus Day-care Centre for Children ***Michaela Hoppe, Anna Hoier, Hans Erhorn & Bernhard Asböck***

Wednesday 15:15 - 16:45, Session 9

A9 - Walls in lab tests *Chair: Ingemar Samuelson, Place: Small Auditorium*	**B9 - Effects of climate change simulations** *Chair: Jos van Schijndel, Place: Sopraano conference room*	**C9 - Windows and solar shadings** *Chair: Jarek Kurnitski, Place: Studio auditorium*
Rising Damp in Historic Buildings: The Wall Base Ventilation System ***Ana Sofia Guimarães, João Quesado Delgado & Vasco Peixoto de Freitas***	Modeling multiple indoor climates in historic buildings due to the effect of climate change ***Jos van Schijndel, Henk Schellen & Marco Martens***	Solar Shading Systems and Thermal Performance of Windows in Nordic Climates ***Steinar Grynning, Arild Gustavsen & Berit Time***
Hygrothermal response of highly insulated timber frame walls with an exterior air barrier system: laboratory investigation ***Jelle Langmans, Ralf Klein & Staf Roels***	Effect of hot weather periods in moderate climate regions on approach to slab thermal design in residential buildings ***Anna Staszczuk, Tadeusz Kuczyński & Jan Radoń***	Energy savings potential with electrochromic switchable glazing ***Mark Murphy, Arild Gustavsen, Bjørn Petter Jelle & Matthias Haase***
Tensile cracking of ventilated rendered rain-screen cladding systems ***Miklós Molnár, Carl-Magnus Capener, Johan Jönsson & Kenneth Sandin***	Computational modelling of the impact of climate change on the indoor environment of a historic building in the Netherlands ***Zara Huijbregts, Rick Kramer, Jos van Schijndel & Henk Schellen***	Assimilation of solar heat gains in residential buildings ***Hans Bagge***
An experimental method for assessing heat and moisture response of a massive timber wall exposed to summer climatic conditions ***Helisoa Rafidiarison, Eric Mougel & Alexis Nicolas***	Mould Growth inside an Attic concerning Four Different Future Climate Scenarios ***Vahid Nik***	Heat transfer in ventilated double facades with obstructions ***Matthias Haase***
Water penetration through clay brick veneer wall ***Vera Straka***	An approach to assess future climate change effects on indoor climate of a historic stone church ***Florian Antretter, Teresa Schöpfer & Ralf Kilian***	Assessment of solar shading systems for building envelopes ***Leonardo Marques Monteiro & Anesia Barros Frota***

NSB 2011 - Sessions on Thursday 2nd June

Thursday 8:30 - 10:00, Session 10

A10 - Simulation methods and snow-on-roof models *Chair: Targo Kalamees, Place: Small Auditorium*	**B10 - Mould growth models** *Chair: Hannu Viitanen, Place: Sopraano conference room*	**C10 - Energy efficiency in residential buildings** *Chair: Vasco Peixoto de Freitas, Place: Studio auditorium*
Snow melting and freezing on older townhouses ***Anker Nielsen & Johan Claesson***	Mould growth on building materials in laboratory and field experiments ***Kimmo Lähdesmäki, Kati Salminen, Hannu Viitanen, Juha Vinha, Tuomo Ojanen & Ruut Peuhkuri***	Natural ventilation around open ground floor with pilotis in highrise residential buildings in tropical areas ***Abdul Razak Sapian, Noor Hanita Abdul Majid & Shuichi Hokoi***
Drying out capacity and snow melting risk for ventilated wooden roofs - a parameter study ***Sivert Uvsløkk***	Classification of material sensitivity – New approach for mould growth modeling ***Tuomo Ojanen, Ruut Peuhkuri, Hannu Viitanen, Kimmo Lähdesmäki, Juha Vinha & Kati Salminen***	Holistic energy retrofitting of multi-storey building to low energy level ***Martin Morelli, Henrik M. Tommerup, Morten K. Tafdrup & Svend Svendsen***
Application of ADI Splitting Methods to Two-Dimensional Building Envelope System Solvers ***Anne Paepcke, Andreas Nicolai & John Grunewald***	Modelling reliability of structure with respect to incipient mould growth ***Krystyna Pietrzyk, Ingemar Samuelson & Pernilla Johansson***	Costs of retrofit measures in the Swedish residential building stock – an evaluation for three scenarios on future energy prices ***Érika Mata, Angela Sasic Kalagasidis & Filip Johnsson***
An Extensible Calculation Framework for Climate Data and Boundary Conditions ***Stefan Vogelsang & Andreas Nicolai***	m-model: a method to assess the risk for mould growth in wood structures with fluctuating hygrothermal conditions ***Åse Togerö, Charlotte Svensson Tengberg & Bengt Bengtsson***	The impact of physical rebound effects on the heat losses in a retrofitted dwelling ***Mieke Deurinck, Dirk Saelens & Staf Roels***
Performance Assessment of Interior Insulations by a Stochastic Method ***Jianhua Zhao, Rudolf Plagge & John Grunewald***	Mould Growth in Attics and Crawlspaces ***Pernilla Johansson, Gunilla Bok & Annika Ekstrand-Tobin***	Analyses of sustainability and environmental impacts of steel framed buildings – Example from practice in Romania ***Viorel Ungureanu, Adrian Ciutina & Dan Dubina***

Thursday 10:30 - 12:00, Session 11

A11 - Night-time cooling and moisture buffering experiments *Chair: Hugo Hens, Place: Small Auditorium*	**B11 - Durability of structures** *Chair: Jón Sigurjónsson, Place: Sopraano conference room*	**C11 - Energy efficiency in single-family houses** *Chair: Carsten Rode, Place: Studio auditorium*
Humidity buffering of building interiors by absorbent materials ***Tim Padfield & Lars Aasbjerg Jensen***	Influence of Climate Change to Concrete Buildings – Preliminary study ***Jukka Lahdensivu, Hanna Tietäväinen & Pentti Pirinen***	Integrating Renewable Energy Generation through Demand-Side-Management ***Kai Morgenstern, Herena Torio & Christina Sager***
Initial development of a combined PCM and TABS solution for heat storage and cooling ***Michal Pomianowski, Per Heiselberg & Rasmus Jensen***	Building Envelope Commissioning for Extreme Climates ***David de Sola, Kevin D. Knight & Bryan J. Boyle***	A Low-energy Building under Arctic Conditions - Experiences After Five Years of Operation ***Carsten Rode, Petra Vladykova & Martin Kotol***
Experimental investigation of the influence of different flooring emissivity on night-time cooling using displacement ventilation ***J. Le Dréau, L.Karlsen, M. Litewnicki, L. Michaelsen, A. Møllerskov, H. Ødegaard, L. Svendsen, R. Jensen & A. Marszal***	Deterioration of building envelope of wooden apartment buildings built before 1940 based on external survey ***Paul Klõšeiko, Tõnis Agasild & Targo Kalamees***	Net zero-energy family house – simple approach and built example ***Jan Tywoniak & Kamil Staněk***
Experimental investigation of the influence of obstacle in the room on passive night-time cooling using displacement ventilation ***Michal Pomianowski, Farzad Khalegi, Giedrius Domarkas, Jonas Taminskas, Karol Bandurski, Kit Madsen, Søren Gedsø, Rasmus Jensen***	Modelling of service life and durability of wooden structures ***Hannu Viitanen, Tomi Toratti, Lasse Makkonen, Sven Thelandersson, Tord Isaksson, Eva Früwald, Jöran Jermer, Fin Englund & Ed Suttie***	Implementing zero energy buildings in harsh Nordic climate conditions ***Janne Jormalainen***
Experimental investigation of the heat transfer in a room using night-time cooling by mixing ventilation ***Rasmus Lund Jensen, Jesper Nørgaard, Ole Daniels, Rasmus O. Justesen, Morten S. Madsen, Kenneth B. Mikkelsen & Claus Topp***	Designing Single-ply Membrane “Cool Roof” Systems for Service and Durability ***Thomas Hutchinson***	

Thursday 12:00 - 12:15

Symposium Closing *Juha Vinha, Place: Small Auditorium*