

Renovation of buildings

Building simulation

Indoor environment and health

Room: 1

Room: 2

Room: 3

13:00	1111: Energy Efficient Construction Materials for Cold Climate Homes Gül Nihal Gügöl	1121: Assessment of thermal bridging heat loss by means of the infrared thermography technique Malgorzata O'Grady, Agnieszka Lechowska, Jacek Schnotale, Annette Harte	1131: Assessment of indoor air quality and hygrothermal conditions of boarders during autumn, winter and spring in two of Estonian straw-bale houses Jane Raamets, Aime Ruus, Mari Ivask
13:18	1112: Tenants' priority of renovation measures and their willingness to pay higher rent to implement these Kristina Mjörnell, Carolina Hiller	1122: An Evaluation on the Effect of Window Shading on Thermal Mass to Reduce Overheating Carlos Jimenez-Bescos	1132: Study on the Concentration Level and Influence Factors of the Indoor Particles in the Office Building Liang Yu, Ji Jia
13:36	1113: Upgrading of a Typical Scandinavian Existing Wooden House According to the EnerPHit-Standard Bozena Dorota Hrynyszyn, Laurina Cornelia Felius	1123: Method for probabilistic energy calculations – Passive house case study Stephen Burke, Johnny Kronvall, Magnus Wiktorsson, Per Sahlin, Anders Ljungberg	1133: Assessment of the thermal environment of grade school classrooms using recommended temperature zones: a case study in Sweden Despoina Teli, Jan-Olof Dalenbäck
13:54	1114: Adding glazing as an energy saving renovation measure in cold climates Birgitta Nordquist, Kimmo Hilliaho, Petter Wallenten	1124: Validation of a zonal model to capture the detailed indoor thermal environment of a room heated by a wood stove Martin Thalfeldt, Laurent Georges, Øyvind Skreiberg	1134: Indoor temperature variations in Swedish households: implications for thermal comfort Despoina Teli, Sarka Langer, Lars Ekberg, Jan-Olof Dalenbäck
14:12	1115: The most cost-effective energy solution in renovating a multi-family house Elaheh Jalilzadehazhari, Krushna Mahapatra	1125: TEKNOsim 6 Test Results according to CIBSE TM33 Tests for Software Accreditation and Verification Marwan Abugabbara	1135: Wood as an exposed building material for indoor climate adaptation Kristine Nore, Dimitrios Kraniotis

Efficient HVAC components

Buildings in operation

Trans disciplinary connections and social aspects

Energy and power efficiency and low energy buildings

Moisture safety and water damage

Room: 1

Room: 2

Room: 3

15:00	1211: Passive house construction above the Arctic Circle Stefan Dehlin, Catrin Heincke, Peter Koskinen	1221: Inverse model identification of the thermal dynamics of a Norwegian zero emission house Pierre Vogler-Finck, John Clauß, Laurent Georges, Igor Sartori, Rafael Wisniewski	1231: Determination of Maximum Moisture Zone on Enclosing Structures Владимир Гагарин, Владимир Козлов, Кирилл Зубарев
15:18	1212: In-situ thermal resistance testing of a high performance building envelope in the Canadian Arctic Carsen Banister, Michael Swinton, Travis Moore, Dennis Krys	1222: Sustainable architecture in northern subarctic and arctic climate Ulf Nordwall, Thomas Olofsson	1232: Moisture Safety of Tall Timber Facades Joakim Norén, Anna Pousette, Karin Sandberg
15:36	1213: Sol-air thermometer measurement of heat transfer coefficient at building outdoor surfaces Anders Ohlsson, Ronny Östin, Thomas Olofsson	1223: When buildings become intelligent – a network analysis of building automation, operation and competencies Marianne Forman, Nils Lykke Sørensen	1233: Business model analysis of Geo-TABS buildings with predictive control systems Qian Wang, Suleyman Dag
15:54	1214: What should the minimum ventilation rate be in a Demand Controlled Ventilation strategy? Mads Mysen, Aileen Yang, Sverre Holøs, Kari Thunshelle, Peter Schild	1224: Achieving Required Operational Performance in Refurbished Facilities-A Case Study of Briefing for Design and Construction Brian Atkin, Radhlinah Aulin, Elna Jönsson	1234: Atrium in residential buildings – a design to enhance social interaction in urban areas in Nordic climates Itai Danielski, Malin Krook, Kerstin Veimer
16:12	1215: Dynamic thermal performance and controllability of dry fan-coil unit Taha Arghand, Anders Trüschel, Saqib Javed, Jan-Olof Dalenbäck	1225: Does the Obligatory Ventilation Control fulfill its Purpose? Kristina Fyhr, Caroline Markusson, Svein Ruud	1235: Comparative evaluation of residents perspectives on household energy use based on housing tenure: survey results from Northern Sweden Gireesh Nair, Thomas Olofsson, Annika Nordlund, Christine Hudson

Energy and power efficiency and low energy buildings

Heat pump and geothermal systems

Buildings in operation

Building simulation

Room: 1

Room: 2

Room: 3

10:00	2111: Increasing buildings automation systems efficiency with real-time simulation through improved machine self-learning algorithms Andris Krūmiņš, Nikolajs Bogdanovs, Romualds Beļinskis, Kristīne Mežale, Miks Garjāns	2121: Design of Horizontal Ground Heat Exchangers in Sub-Arctic Conditions Robbin Garber-Slaght, Jeffrey Spitler	2131: Vertical temperature gradients in apartments with hydronic radiator heating Mats Dahlblom, Birgitta Nordquist, Petter Wallentén, Lars-Erik Harderup, Lars Jensen
10:18	2112: Analysis of various ventilation solutions for residential and non-residential buildings in Latvia and Estonia Jurgis Zemitis, Anatolijs Borodinecs, Kalamees Targo	2122: Baby, It's Cold Outside: Lessons Learned From Geothermal Heat Pump Installations in the United States Katherine Johnson	2132: Renovation of an office building with prefabricated wooden element - Case Hedensbyn Karin Sandberg, Anders Gustafsson, Mohsen Soleimani-Mohseni
10:36	2113: Performances of gas-water direct-contact heat transfer Feng Li, Lin Duanmu, Lin Fu, Xiling Zhao	2123: Artificial Neural Network Analysis of the Solar-Assisted Heat Pumps Performance for Domestic Hot Water Production Alireza Zendeheboudi, Xianting Li, Siyuan Ran	2133: How to extend the service-life of a school building Antti Knuuti
10:54	2114: Impacts of Energy Efficient Constant Output Heating on the Moisture Conditions of Unoccupied Summer Cottages in Finland Juha Vinha, Jarkko Piironen, Mihkel Kiviste	2124: Evaluation of Two Ground Source Heat Pump Systems in Nearly Zero Energy Buildings Caroline Haglund Stignor, Ola Gustafsson, Jon Persson	2134: A Net ZEB case study – Experiences from freezing in ventilation heat exchanger and measured energy performance Björn Berggren
11:12	2115: Setback efficiency of limited-power heating systems in cold climate Tuule Mall Kull, Raimo Simson, Jarek Kurnitski	2125: Cold Climate Heat Pump using Tandem Vapor-Injection Compressors Bo Shen, Omar Abdelaziz, Van Baxter, Edvard Vineyard	2135: Real Time Measurement of Dynamic Metabolic Factor (D-MET) Jakub Wladyslaw Dziedzic, Da Yan, Vojislav Novakovic

Renovation of buildings

District and city energy systems

Building simulation

Room: 1

Room: 2

Room: 3

13:00	2211: Operational characterisation of neighbourhood heat energy before large-scale building retrofit Paul Beagon, James O'Donnell	2221: Smart EV Charging Systems to Improve Energy Flexibility of Zero Emission Neighbourhoods - A state-of-the-art for Norway Åse Lekang Sørensen, Inger Andresen, Igor Sartori	2231: Impacts of common simulation assumptions in Sweden on modelled energy balance of a multi-family building Ambrose Dodoo, Uniben Tettey, Leif Gustavsson
13:18	2212: Potentials and challenges for integrating PV in roof renovation of multi-residential houses – a questionnaire survey Liane Thuvander, Paula Femenias, Johan Gren, Peter Kovacs	2222: Hydronic Heating Pavement with Low Temperature: The Effect of Pre-Heating and Fluid Temperature on Anti-icing Performance Raheb Mirzanimadi, Carl-Eric Hagentoft, Pär Johansson	2232: A comparison between four dynamic energy modeling tools for simulation of space heating demand of buildings Amir Vadiee, Ambrose Dodoo, Leif Gustavsson
13:36	2213: Improving the indoor climate and energy saving in renovated apartment buildings in Estonia Anti Hamburg	2223: Life City - A Climate-Conscious Concept for Smart and Sustainable Built Environment Jussi Rönty, Paula Ala-Kotila, Riikka Holopainen	2233: Fast simulation platform for retrofitting measures in residential heating Philipp Schütz, Rossano Scoccia, Damian Gwerder, Remo Waser, David Sturzenegger, Peru Elguezabal, Benat Arregi, Marcello Aprile, Jörg Worlitschek
13:54	2214: Building Refurbishment from a Life Cycle Perspective -An Environmental Return on Investment Approach Helena Nydahl, Staffan Andersson, Anders Åstrand, Thomas Olofsson	2224: Energy Pathways for Future Residential Building Areas in Norway Natasa Nord, Ola Skrautvol, Stian Fossmo Eliassen	2234: Calibration of a high-resolution dynamic model for detailed investigation of the energy flexibility of a zero emission residential building John Clauß, Pierre Vogler-Finck, Laurent Georges
14:12	2215: Optimizing the life cycle costs of building components with regard to energy renovation Abolfazl Sousanabadi Farahani, Jan-Olof Dalenbäck	2225: Assessing the potential of energy retrofitting and renewables in the campus of Lund University Vahid Nik	2235: Simulation of Ventilation Rates and Heat Losses during Airing in Large Single Zone Buildings in Cold Climates Abolfazl Hayati, Jan Akander, Magnus Mattsson

Renovation of buildings

Other aspects of buildings in cold climates

Codes, regulations, standards and policies

Indoor environment and health

Room: 1

Room: 2

Room: 3

10:00	3111: The challenge of energy efficiency in Kiruna's heritage buildings Andrea Luciani, Sofia Lidelöw, Shimantika Bhattacharjee, Tomas Örn	3121: User related input data for building energy usage calculations of low energy schools in Sweden Branko Simanic, Dennis Johansson, Birgitta Nordquist, Hans Bagge	3131: Needs of support for Swedish property owners to implement more energy-efficiency improvements during renovations Åsa Wahlström
10:18	3112: Renovating the housing stock built before 1945: Exploring the relations between energy efficiency, embodied energy and heritage values Paula Femenias, Liane Thuvander, Pär Johansson, Paula Wahlgren, Petra Eriksson	3122: Sensitivity analysis of melting and freezing of snow on roof Anker Nielsen	3132: Criteria for Sustainable Buildings in Sweden Åsa Wahlström, Catarina Warfvinge
10:36	3113: How low can the district heating supply temperature be in residential neighborhoods in Norway? Maria Justo Alonso, Igor Sartori	3123: The method of determining climatic loads on the enclosing structures taking into account global climate change Dmitry Zheldakov, Vladimir Gagarin	3133: Normalisation of measured energy use in buildings – a review of the Swedish regulations Maria Wall, Henrik Davidsson, Niko Gentile, Björn Berggren
10:54	3114: An assessment of the QUB/e method for fast in situ measurements of the thermal performance of building fabrics in cold climates Johann Meulemans	3124: Determination of Clay-Sand Plaster Hygrothermal Performance: Influence of Different Types of Clays on Sorption and Water Vapour Permeability Erik Altmäe, Aime Ruus, Jane Raamets, Ernst Tungal	3134: Sustainable building criteria for an Open Classification System Nicolas Francart, Eje Sandberg, Martin Erlandsson, Björn Berggren
11:12	3115: People as part of the energy system in residential buildings – challenges in transdisciplinary research for integrated understanding of technical installations, Eja Pedersen, J. Borell, H. Caltenco, M. Dahlblom, C. Gao, L.E. Harderup, Y. Li, B. Nordquist, K. Stålné, P. Wallentén, A. Wierzbicka	3125: Hygrothermal Performance of Timber External Walls Insulated with Natural and Industrial Materials Martti-Jaan Miljan, Jaan Miljan	3135: Black Carbon Concentrations Inside and Outside Occupied Residences Aneta Wierzbicka, Hamza Licina, Yuliya Omelekhina, Patrik T. Nilsson, Anders Gudmundsson

Energy and power efficiency and low energy buildings

Heat pump and geothermal systems
Construction management

Indoor environment and health

Room: 1

Room: 2

Room: 3

13:00	3211: Integration of BIPV/T system with HRV for improved performance under extreme cold climates Riccardo Toffanin, Hua Ge	3221: Detailed performance assessment of variable capacity inverter-driven cold climate air source heat pumps Jeremy Sager, Tom Mackintosh, Martin Kegel, McDonald Eric, St-Onge Guillaume	3231: Influence of the Thermal Environment of a Bathroom after Renovation on Blood Pressure of Residents Chiemi Iba, Shuichi Hokoi, Nobuyuki Masugi, Daisuke Ogura, Satoru Takada, Kenji Iida
13:18	3212: Demand controlled ventilation in residential buildings Huijuan Chen, Caroline Markusson	3222: Utilisation of Ice Rink Waste Heat by Aid of Heat Pumps Juris Pomerancevs, Jörgen Rogstam, Agnese Lickraстіņa	3232: Assessment of the effects of using wood stoves on indoor air quality in two types of Norwegian houses Mathieu Hamon, Guangyu Cao, Øyvind Skreiberg, Laurent Georges, Morten Seljeskog, Roger Khalil, Alexis Sevault, Hans Martin Mathisen
13:36	3213: Is it possible to build near zero energy single family buildings in very cold arctic climate? Svein Ruud	3223: Creating a state of the art, passive house, university hospital north of the polar circle Christian koch, Martine Buser	3233: How does low relative humidity affect perceived air quality, thermal comfort and symptoms in modern office buildings in cold climates? Merethe Lind, Sverre Holøs, Kari Thunshelle, Aileen Yang, Mads Mysen
13:54	3214: The energy performance of green roof in sub-arctic climate Jutta Schade, Farshid Shadram	3224: Mixing Hot and Cold: Fiery soul Architects creating Sustainable Buildings in the Arctic Thongchai Lapthananchaiwong, Christian Koch	3234: Effect of filter type in ventilation systems on NO2 concentrations in classrooms Aileen Yang, Kristian Fredrik Nikolaisen, Sverre Holøs, Kari Thunshelle, Franck René Dauge, Mads Mysen
14:12	3215: Performance evaluation of a passive house in sub-arctic climate Shimantika Bhattacharjee, Sofia Lidelöw, Jutta Schade	3225: Communicating the Acoustic Performance of Innovative HVAC Solutions Soheila Bahrami, Juan Negreira, Stefan Olander, Anne Landin	3235: Should we differentiate ventilation requirements for different user groups? Nora Holand, Aileen Yang, Sverre Holøs, Kari Thunshelle, Mads Mysen