Index and Programme

Friday, 4\textsuperscript{th} May 2012

Plenary Session 09:30 - 11:15  Kuppelsaal

09:30  Opening and greeting

\textbf{Prof. Dr. Wolfgang Feist}
University of Innsbruck and scientific director of the Passive House Institute

\textbf{Stephan Weil}
Lord Mayor of the City Hannover

\textbf{Harald Noske}
Technical Director Stadtwerke Hannover AG

10:00  \textbf{von Weizsäcker, Ernst Ulrich}
Profitable Green Technologies Can Break the Impasse at Climate Talks

10:45  \textbf{Feist, Wolfgang}
Passive House Conference 2012: Climate – Culture – Concept

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The topics covered at the 16th Passive House Conference can be summed up as: climate – optimal comfort from passive technology in all outdoor climates; culture – building on traditions with input from science and technology; and concept – general guidelines for the energy-efficient planning of a sustainable building.
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<tr>
<td>13:30</td>
<td>Schulze Darup, Burkhard</td>
<td>Strategies for climate neutrality with existing buildings – a case study of Nuremberg</td>
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<td>13:55</td>
<td>Schulz, Tanja; Bastian, Zeno; Sariri, Vahid</td>
<td>EnerPHit insulation system</td>
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<td>14:20</td>
<td>Kraus, Dietmar</td>
<td>Passive House renovation of small rural schools</td>
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<td>14:45</td>
<td>Freundorfer, Franz</td>
<td>Passive House windows of energy efficiency class A in heritage buildings</td>
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Consistent use of existing efficiency technology in the Passive House segment with reductions in final energy demand of 75 percent for all existing buildings by 2050 is an important foundation for achieving climate neutrality in existing buildings. Renewable energy can cover most of the remaining demand.

Insulation systems with EnerPHit certification help planners renovate old buildings to reduce energy consumption. Solutions are thus provided for connection details that have been tested and are recommended in terms of construction physics; their thermal conductivity coefficients can also be directly entered in PHPP.

Two schools from the 1960s were renovated to the Passive House level in two lighthouse projects. The buildings are equipped with comprehensive measurement technology. An analysis of measurements from the first two years reveals sources of flaws and optimization potential in building services.

A new window system was developed for heritage buildings as part of the 3encult project. A single-glazing exterior window frame combined with a triple-glazing, particularly narrow interior window frame creates a Passive House window of energy efficiency class A with a heritage appearance.
13:30 **Peper, Søren; Pfluger, Rainer**  
Air-quality and ventilation behavior

A study of air quality and ventilation behavior in 15 apartments. Air flow volumes were adjusted as need be, but no trend was found. CO2 concentrations produced good to very good indoor air quality and only moderate quality in exceptional cases. Airflows can easily be adjusted to prevent low humidity levels and high CO2 concentrations.

13:55 **Hässig, Werner; Streit, Simon**  
Compact building service units in residential complexes: Measurements and experience

A study based on measurements shows how compact units combining indoor heating, ventilation, and hot water actually perform in three apartment buildings. On average, Passive House energy values are met. Of particular interest are the differences between individual apartments.

14:20 **Krauß, Bernd**  
Lustenau Wiesenrain Complex: New control components provide utmost ventilation efficiency

A ventilation unit in a residential complex with 24 units has special air volume controllers that use a novel orifice plate without a fixed measurement element. The system is networked to produce excellent power efficiency.

14:45 **Kah, Oliver**  
Optimizing drive energy for ventilation based on demand

Ventilation systems that adjust to demand are a good way of reducing energy consumption in non-residential Passive Houses. Optimized control concepts also help lower drive energy for partial loads. This article discusses the potential of these ideas.
13:30  Hasper, Wolfgang  
Passive Houses in cold climates

This paper looks at how Passive Houses in cold climates can be designed and what influence various parameters have. From those findings, special requirements for Passive House components and notes for planning Passive Houses at such locations are derived.

13:55  Coulson, Carly  
NewenHouse: Cost effective, sustainable, healthy, Passive House Kit Home for cold climates

The NewenHouse Kit Home in Viroqua, Wisconsin, USA is a Passive House Certified, Energy Star Certified, LEED® Platinum single-family home that is cost-comparable to the average U.S. home, incorporates healthy and sustainable features, and uses quality components and finishes.

14:20  Pearson, Alexander  
Defining the energy efficiency design envelope for regional Scottish Passivhaus dwellings

The aim of this research is to achieve regional solutions to Passivhaus in Scotland by quantifying the effects of varying key architectural parameters - orientation, typology and roof form, on the energy performance of three prototype house typologies across the different climate data regions.

14:45  Wesslund, Tommy; Kreutzer, Simone  
Passive House tennis hall – Stefan Edberg promotes active climate protection in Sweden

In June 2011, construction of the first Passive House tennis hall in the world began, and in May 2012 it will open its doors for business all day, 365 days a year. Some 300,000 kWh of energy for heating and cooling per year will be saved simply by minimizing heat losses and optimizing heat recovery.
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<tr>
<td>13:30</td>
<td><strong>Moreno-Vacca, Sebastian</strong></td>
<td>Passive House and high design architecture</td>
<td>The presentation attempts to show how a very contemporary architecture integrates Passivhaus techniques, or how Passivhaus techniques are used in high architectural value projects through iconic architects in Belgium.</td>
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<td>13:55</td>
<td><strong>Hermans, Thibaut</strong></td>
<td>Brussels 2007-2011: From 0 to 250,000m² of Passive House buildings.</td>
<td>Since 2007, the Region of Brussels-Capital launches an annual call for projects of exemplary buildings with regard to energy efficiency and environmental aspects. From 0 to 250,000 m² of Passive building in 4 years, leading the building energy performances to the Passive standard within the new legislation by 2015, Brussels Capital Region shows that what was considered as an utopia can be a reality when the necessary means are implemented and used.</td>
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<td>14:20</td>
<td><strong>Barry, Bronwyn; Simmons, Kristen</strong></td>
<td>Evolution of the grassroots Passive House community in the US – a tale of four regions</td>
<td>This paper investigates where, how, and why the oldest and largest Passive House interest groups formed in the United States. It concludes that these grass roots, regionally controlled organizations are working as successful models for the spread of Passive House in the U.S.</td>
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<td>14:45</td>
<td><strong>Simmonds, Andrew</strong></td>
<td>EnerPHit UK case study: Lessons for UK Green Deal Programme</td>
<td>The performance of Grove Cottage, the first certified EnerPHit home in the UK, illustrates the technical success of the Passivhaus methodology as applied to hard to treat solid walled existing dwellings. The presentation also compares the EnerPHit measures with measures and performance likely under the UK's proposed Green Deal retrofit programme.</td>
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15:45 **Felkner, Michael**
AlpSeeHaus – Sustainability and energy conservation in a case study of a natural park building

Not only was the building envelope of the AlpSeeHaus built to the Passive House Standard, but all building materials were chosen according to comprehensive ecological criteria. The two-story building was therefore built completely as a timber structure. A simple ventilation system was also possible thanks to a clever fire protection concept.

16:10 **Grobe, Carsten**
Non-residential buildings as affordable plus-energy buildings

Four descriptions of non-residential projects. Steps in energy efficiency and affordable, sustainable energy supply were studied and implemented. Three of the projects comply with the Passive House Standard. One Passive House and one non-Passive House even reached the Plus Energy level in terms of primary energy.

16:35 **Berner, Florian**
Values and tools

Construction firm L. Gasser & Co AG set up a new headquarters on its own production yard outside of Zurich. The site and the building are to embody the firm’s essence, work ethic and values. From the outset, a Passive House planner was involved; nonetheless, energy design was conscientiously made an equal priority with organization, impact and structure.

17:00 **Herz, Dieter; Lang, Florian; Blaas, Joachim; Schmerker, Simon**
Passive hotels – a success story

How did a Passive House hotel with 76 rooms become the first one certified, and what else is in the pipeline? What obstacles do energy-efficient Passive House hotels face, and what are the opportunities?

17:25 **Bretzke, Axel**
Greater quality from simplicity in Passive Houses

Passive Houses must have acceptable investment and maintenance costs and a reasonable degree of complexity compared with energy costs and the gains in comfort. Elevated error rates and operating errors, the associated increase in energy consumption, and lower user acceptance should be considered when choosing more complex building services, instrumentation and control technology and building management systems. We should thus reward simple, creative solutions.
15:45  **Hansen, Meinhard**  
**How to convince a municipality about Passive Houses**  
In 2008, the City of Freiburg adopted a new energy standard for new buildings. In two stages, energy consumption was reduced nearly to the Passive House level. How can Freiburg's success be transferred to other municipalities?

16:10  **Wüsten, Estelle**  
**The Passive House Standard in the City of Frankfurt – Experience in planning and management**  
The City of Frankfurt am Main has completed a total of 45 public buildings meeting the Passive House Standard to this day. The Energy Management Department is currently investigating whether actual energy consumption differs from projected figures. It is already clear that user behavior plays an important role in management and thus in consumption.

16:35  **Friemert, Peter-M.; Beckmannshagen, Lars**  
**Passive House certification and quality assurance: Market insights in Hamburg**  
Since 2008, Hamburg's subsidies for residential construction have insured quality in more than 17,000 apartments with stricter energy targets. More than 72 percent of them only reached these ambitious QA targets after some reworking. Hamburg's Passive House Standard increases quality for the long term thanks to its focus on quality assurance – towards innovative building quality at the highest level.

17:00  **Großhans, Stefan**  
**Experience in building Passive Houses in state-owned buildings**  
This paper presents Landesbetrieb LBB's experience with Passive House projects in the public sector from 2007-2011. The structures are an office building, an annex for tax authorities, a residence for a boarding school, and a building for a mathematics institute.

17:25  **Bähr, Annette; Grübbel, Bianca**  
**Passive House Standard in public-private partnership (PPP) projects**  
In PPP projects with the Passive House Standard, the life cycle concept is systematically implemented from the project development stage through operation. Affordability and sustainability are therefore the results of quality assurance and integrated planning supported by information and communication management integrated in each project and process.
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<td>15:45</td>
<td>Stanford, Jonah</td>
<td>Breaking the cost barrier</td>
<td>The first generation of Passive Houses in Santa Fe, New Mexico, demonstrates that the PH approach can achieve both affordability and energy-use reduction in the USA. Comparison with regional building costs indicates that both projects were completed for below the cost of code built home.</td>
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<td>16:10</td>
<td>Cohen, Adam J.</td>
<td>Realizing full potential in the US Commercial Passivhaus makes sense (dollars and cents)!</td>
<td>Inexpensive energy and lack of political will to address climate change through legislation, forces a non-legislative approach for wide scale Passivhaus adoption in commercial construction. The return on investment model for Passivhaus makes wide scale adoption possible, provided that the correct design parameters and controls are used by the early adopters.</td>
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<td>16:35</td>
<td>Miščević, Ljubomir</td>
<td>The first ten realizations of Passive Houses in Croatia – experience in design, construction and financing</td>
<td>Some of the first ten presented projects were realized in recession times. It is proved that Passive House Standard is real option in a private and the State social housing program in Croatia. There is a necessity of further organizing EU programs about energy efficiency, establishing of licensed designing, testing and certification.</td>
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<td>17:00</td>
<td>Newmann, Nick; Whidborne, Richard</td>
<td>A line by line cost comparison between a Passive House and a house built to comply with current UK building regulations</td>
<td>Detailed Cost comparison between a Passivhaus and an equivalent to UK 2010 Building Regulations. Under low interest rate scenario the Passivhaus investment in the study presented a more economically viable solution for a prospective home owner. Future market incentives and implications are explored.</td>
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<td>17:25</td>
<td>Hines, Jonathan</td>
<td>Delivering the UK’s first Passivhaus schools at no extra cost</td>
<td>An outline of the collaborative approach adopted, and technical solutions developed, to meet the challenges of achieving the UK’s Passivhaus first schools at no extra cost, whilst maintaining a commitment to the highest design quality and creation of inspiring environments for teaching and learning.</td>
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Hennicke, Peter; Moore, Christopher; Shritu, Shrestha
Relationship between Passive House concept and green buildings

This paper discusses the interlinkages of green buildings and Passive Houses based on environmental, economical and social aspects for different climate zones and countries. It is further elaborated on the case studies and ongoing simulation results of the bigEE project of the Wuppertal Institute.

Musall, Eike; Voss, Karsten
The Passive House Concept as Suitable Basis towards Net Zero Energy Buildings

While suitable balancing methodologies for zero energy buildings are lacking up to now, the analysis of 300 worldwide constructed projects with the aim of an equalized energy balance shows that the passive house concept serves as efficiency basis and how the demands are balanced by renewable energies.

Grant, Nick
Is net Zero the right target for buildings?

This paper suggests that the idea of net zero energy or carbon applied at the building boundary is a flawed concept that is best abandoned in favour of separate accounting of consumption and generation.

Krick, Benjamin
Supplying buildings with sustainable energy

This paper discusses the reasonableness of current approaches to assessing buildings' sustainability and suggests a more suitable system.

Ochs, Fabian
Pilot Project "Aktivhaus"-residential estate in Kramsach, Austria

In Kramsach, Tirol, a new estate with passive house apartments (15 terraced house and three multi-family houses) in timber-loam-construction with on-site energy production is actually built. Two aspects are addressed: healthy indoor climate and net-zero energy buildings.
Tywniak, Jan
Passive and Zero-Energy-Buildings: on the way in the same direction

Czech technical standard brings the definitions in a unified way: The zero-energy buildings are passive buildings with increased use of renewable energy production, partially for (limited) export. The classification system should be flexible to a maximum extend to support the best overall solutions.

Thiel, Christoph
Integration of Electric Mobility into Passive Houses

Sustainable energy supply and Passive Houses should not only cover the building itself, but also mobility. It turns out that electric mobility is an ideal complement to domestic power supply in a networked holistic system. As a part of the NRW Target 2 Program, planners and building owners were asked to state their preferences about energy supply and electric mobility. The goal is to integrate Passive House architecture in a comprehensive approach for sustainable energy supply for both mobile and stationary applications in our modern society.
Saturday, 5th May 2012

Plenary Session 08:45 - 10:00  Kuppelsaal

08:45  **Fujara, Marianne**
PassREg – Regions lead the way towards EU climate goals

To start implementing the new version of the European Energy Performance of Buildings Directive, the European Union has given funding to a project initiated by the Passive House Institute that introduces politicians in other European regions to pioneer regions in Germany, Austria and Belgium in order to encourage them to develop and implement concepts adapted to their own regions. The idea is to create Passive House regions supplied with renewable energy that, as much as possible, is produced locally or close by. The project, called PassREg for short, aims to "give visibility to pioneers and give support to followers."

09:15  **Schnieders, Jürgen**
Passive Houses in various climate zones – technical and economic aspects

Studies of the technical and financial feasibility of Passive Houses based on satellite data show that Passive Houses are feasible and economically interesting in almost all climates. But the building services equipment needed can vary greatly depending on the climate.

**Krick, Benjamin; Feist, Wolfgang**
Passive House requirements for transparent components in various regions of the Earth

The [Passivhäuser Weltweit – Schnieders et.al. 2012] and [3ENCULT] research projects identified cost-optimized glazing types with respect to Passive House criteria for hygiene and comfort. Global certification criteria for Passive House glazing and transparent building components were then derived from these findings. This paper presents the results.

**Schulz, Tanja; Zieba, Anna**
Assessment of wall and roof constructions in various climate zones based on hygrothermal simulations

In the "Passivhäuser in verschiedenen Klimazonen" (Passive Houses in various climate zones) project, the hygral response of wall and roof constructions was studied in five different climate zones. Structures that work well were identified for cold, humid-warm, humid-hot, and dry-hot climates.
Pfluger, Rainer
Climate-dependent dimensioning of air exchange rates and moisture recovery – regional design recommendations based on global climate data

Based on site (METEONORM) and coordinate (EOS) climate data across the globe, design recommendations are made for residential ventilation systems to ensure good indoor air quality, not only in terms of indoor air hygiene, but also with consideration of indoor air humidity.

Li, Min
The influence of boundary conditions in China on Passive House Standard
10:15  Brunn, Martin
From old buildings to Plus-Energy Buildings
As part of an evaluation of a renovation project, an assessment method has been developed that can be used for new replacement buildings, new buildings, renovations and even mixed-construction projects. This paper presents findings and thoughts on the project.

10:40  Ronacher, Herwig
Metamorphosis of an historic farmhouse to a Passive House and a Plus-Energy house
As a part of the House of the Future Plus and New Energy 2020 campaigns, the focus in renovating the 160-year-old "vulgo Weber" farmhouse was on using Passive House components to produce a Plus Energy home in a heritage building.

11:05  Steinmüller, Bernd
Bringing the Passive House Standard down to zero in a City Hall renovation: Will it pay for itself in the long run?
Is a city hall renovated to comply with the Passive House Standard for new buildings just nice to have or a financially sound, sustainable undertaking? This question is answered based on a typical office building from the 1960s/70s. The use of renewable energy would bring energy consumption in the building down towards zero.

11:30  Külich, Alexander
Residential comfort, ventilation, and building physics – Passive House renovation of a terminal row house
In renovating a terminal row house to comply with the Passive House Standard, special attention was paid not only to utmost design quality, but also to an individual ventilation concept and solutions that are certain both in terms of technology and construction physics to produce optimal living comfort.

11:55  Ludwig, Sebastian; Kühl, Lars
AS Solar, Hannover – existing plus-energy industrial building
A former manufacturing building from the 1950s has been turned into a plus-energy industrial building. The building houses offices, production lines and storage on its approximately 13,000 m² of gross floor area. The various areas have different types of insulation depending on what they are used for, and the sun and biomass provide most of the energy.
Session X:

Timber or solid construction – both are possible!

10:15 **Oehler, Stefan**
Climate-neutral residential buildings

The D10 residential building has a large share of glazing and pursues a sustainability concept. It attains the status of a "climate-neutral" Plus Energy building. D10 is an impressive example of an architecturally demanding building that produces more energy than its tenants consume.

10:40 **von Heeren, Stefanie; Kiehl, Carmen**
Hybrid construction in single-family homes

The standalone single-family house was planned as a two-story Passive House with a hybrid structure on a narrow plot. The load-bearing structure consists of a steel skeleton with reinforced-concrete ceilings, and the wooden façade hangs in front of it. The result is a modern architectural design.

11:05 **Horn, Gerrit**
Inexpensive timbered structures for Passive Houses

11:30 **Waldeck, Dietmar; Leiter, Alois; Lugger, Klaus**
Multi-story timbered residential Passive House

In the community of Jenbach, NEUE HEIMAT TIROL built a multi-story residential complex made of wood. A total of 67 Passive House apartments were constructed across five buildings.

11:55 **Friedl, Werner**
Practical designs with functionally separate building subcomponents in solid construction

Solid-construction Passive Houses will take on an important role as European legislation is implemented. Functionally separating building component layers ensure that a building’s various usage requirements are fulfilled. A solid building's thermal storage mass can also function as a load buffer for the grid.
Session XI: Warm and hot climates

10:15 **Theumer, Susanne**
Passive Houses in warm climates
Lessons learnt from first certified Passive House projects in various countries in warm climates. For cost effective Passive Houses in warm climates, optimized component performance and the incorporation of Passive principles from the beginning should be in the focus of all stakeholders.

10:40 **Prieto, Silvia; Bunyesc, Josep**
Passive House in a Mediterranean climate
With the construction of a terraced house in Lleida, Spain, following the Passive House standard and its monitoring system we study how the house behaves both summer and winter in a Mediterranean climate also taking into account the climate effects of its semi-enclosed patio. It is a lightweight construction with a balloon frame structure and low thermal mass.

11:05 **Oettl, Fritz**
The green Austrian Embassy in Indonesia
The new building for the Austrian embassy in Jakarta adopts the Passive House Standard to hot and humid climates. This new approach combines high indoor climate comfort, reasonable costs for construction and operation and high standards in terms of energy efficiency and environmental responsibility.

11:30 **Kaufmann, Berthold; Lepp, Laszlo; Schnieders, Jürgen; Schulz, Tanja; Feist, Wolfgang**
A Passive House for hot and humid Southern China
Feasibility study of a Passive House Building in hot and humid climate regions (Shanghai). Most important question: thermal behaviour of indoor climate. Besides the design of building envelope components a conceptional study is given for cooling and dehumidification via supply air with a very small additional circulation air flow rate (2/h).

11:55 **Ott Reinisch, Irene**
Climatic conditions and options for Passive House Technology in Bhutan, Himalaya, Asia
The nearly ideal climatic conditions have increased the governments interest on Passive House technology. In the actual political and economic situation of Bhutan the prototypic concept for the training hotel of the RITH project offers a very promising basis for future sustainable development.
10:15  **Imkeller-Benjes, Ulrich; Kurtze, Sonja**

Design of Plus Energy Buildings based on PHPP

This (Excel based) ‘toolbox’ for project planning and calculation of variants of high efficiency buildings. It is based on results of PHPP and integrates results from simulations of other supply systems (photovoltaic/ solar thermal systems, micro- CHP or large co-generation plants, etc.). It enables cost & carbon calculations for single or multiple buildings and entire housing blocks.

10:40  **Henriksen, Kristian; Romby Larsen, Martin**

Integrating PHPP with BIM

Digital building models (BIM) are gaining ground in many companies providing better alternatives to design with PHPP as an integrated analysis/design tool during the design phases. With BIM as the focal point for the design phase, the scope of manual work in connection with PHPP is greatly reduced.

11:05  **Röthele, Erik**

Energy consulting with the PHPP

Clients are often not sure which standard they want to achieve when carrying out the refurbishment of a building. Energy Consulting using PHPP can provide reliable information to help clients make a decision, by analysing various standards and evaluating their cost effectiveness.

11:30  **Heiduk, Ernst**

Methodology for a software tool to integrate erection and lifecycle costs in architectural competitions

For good, interdisciplinary and life-cycle-oriented architectural planning a tool for LCC- optimization during first design phases is under development. It will allow an estimation of erection and follow-up costs and also a cost comparison of design alternatives and architectural competitions.
13:45  **Lütkemeyer, Ingo**
Sustainable school buildings with a future
The elementary school and gymnasium in Hohen Neuendorf is the first new Plus Energy school in Germany. The concept of this school, which has three homerooms for each grade, is exemplary not only in terms of its energy demand but also, in particular, because of the comprehensive integration of architectural, pedagogical, and technical measures.

14:10  **Michel, Ute; Behme, Markus; Grobe, Carsten**
Sustainability criteria and a study of different heat delivery methods in a sports boardingschool
In building a sports boarding school with a gymnasium for LandesSportBund Nds. e.V., great store was placed on the sustainability of building materials in addition to energy-efficient construction. Three different heat supply systems are being monitored in operation and evaluated.

14:35  **Clarke, Alan; Grant, Nick**
Passivhaus school kitchens
Design of UK Passivhaus primary school kitchens to minimise heat emission and kitchen ventilation rate. Use of heat recovery to eliminate need for heating of supply air to kitchen. Monitoring of kitchen and ventilation temperatures, and of energy use for cooking and for dishwashing.

15:00  **Rongen, Ludwig**
New building at the LVR Psychiatric Outpatient Clinics in Köln-Chorweiler
The building under review houses two psychiatric day care clinics that fulfill the Passive House Standard. The building has a double-shell external brick wall with a 15-20 cm gap in between. The extra costs for Passive House compliance added around 5.5 percent to the total cost of 5.5 million euros above what would have been needed for EnEV 2009.

15:25  **Schumacher, Roland**
Passive House hospitals – boundary conditions for the design
In Frankfurt-Höchst, a new hospital is being built as a Passive House. As part of a basic research study, the Passive House Institute is looking into the applicability of the Passive House concept in hospitals. A holistic approach is to increase the efficiency of all of the hospital's energy services.
13:45  **Bräunlich, Kristin**  
Energy assessments of large ventilation systems – the first findings from certification  
This paper introduces a certification procedure for ventilation units that can also be used to calculate realistic energy parameters for ventilation units > 600 m³/h to determine a building’s energy balance.

14:10  **Schöberl, Helmut; Hofer, Richard**  
Negative maintenance costs  
Ventilation systems with heat recovery are an important component of Passive Houses and Plus Energy Houses. For residential Passive Houses, the ventilation system specifications in maintenance contracts were itemized, compared based on cost, and analyzed for optimization potential.

14:35  **Kah, Oliver**  
Infiltration and heat losses in highly frequented entrance areas  
Entranceways with a lot of traffic can lead to significant infiltration heat losses in public buildings. This paper discusses various entryway solutions based on calculations from the literature and our own measurements.

15:00  **Peper, Søren; Bangert, Armin; Bastian, Zeno**  
Inserting the ends of wooden beams in the airtight layer  
This paper discusses a study of different possibilities for sealing wooden beams in renovations based on measurements. The study covers a range of leak flows that can be expected. The paper concludes with application recommendations.

15:25  **Walther, Wilfried**  
Strategies for the planning and implementation of airtightness on existing sloped roofs  
When the roof of a former rural boarding school built in 1925 was renovated, e.u.[z.] tested a number of airtightness concepts in practice. A measurement of the building’s air permeability before renovation helped in the planning of the airtight level, and a calculation of the target value q50 for renovation supported quality assurance. In this way, the success of the work done could be compared directly with the measurement value.
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<td>Bere, Justin</td>
<td>Operational performance of a Community Centre in London refurbished to the Passivhaus Standard</td>
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<td>Operational performance of a Community Centre in London refurbished to the Passivhaus Standard; graphs showing 95% operational energy savings; comparing the investment cost with a minimum standard refurbishment; and demonstrating the clear financial benefits of investing in the passivhaus standard.</td>
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<td>James, Mary</td>
<td>Deep energy retrofits in the San Francisco Bay Area: Measuring Success</td>
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<td>Lawrence Berkeley National Laboratory monitored 10 Northern California deep energy retrofits, including 3 PH retrofits. Superinsulation and extreme air tightness were unnecessary in this climate to achieve 50% energy savings, but did reduce heating energy, allowing for flexibility in user behavior.</td>
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<td>14:35</td>
<td>Seo, Ji-won</td>
<td>The methods for Passive Renovation, suitable for Korean apartments</td>
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<td>It will be essential to apply Passive House components to renovate old apartment buildings in Korea. A variety of Passive House components, applicable to Korean apartment buildings, were selected and energy-saving potentials were analyzed when these solutions were applied to the case apartment building.</td>
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<td>15:00</td>
<td>Cohen, Robert; Prewett, Robert</td>
<td>C80 retrofit: Measuring is believing</td>
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<td>An 1830 dwelling in a Conservation Area in London has been refurbished to near the PassivHaus level. Energy use in 2011 was 39 kWh/m2 gas and 13 kWh/m2 electricity (79% from PV) giving emissions of 1.1 tonnes of CO2, an 84% reduction. The house needs little energy to be comfortable, but the low energy use depends on supportive occupant behaviour.</td>
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<td>15:25</td>
<td>Willem, Julie; Moreno-Vacca, Sebastian</td>
<td>Experience in non-residential building renovations in Brussels and 'Real' zero energy</td>
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<td>Further and deeper, not only the constructions but also the renovations can reach higher levels in energy saving, including real zero energy. From renovation projects to real zero energy buildings, we'll explore some specificity and key points with cases of housing and office programs.</td>
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Colclough, Shane; Clark, Joshua; McLeskey Jr., James T.; Griffiths, Philip
One Passivhaus search for zero carbon
This presentation quantifies the contribution of an Inter Seasonal Solar Energy Store in meeting the heat demand of a house constructed to the Passivhaus Standard in a Temperate Maritime Climate. The analysis encompasses theoretical and recorded performance in addition to Life Cycle Cost and Carbon Analysis.

Jun, Bokyung
From nothing to zero – Passive House in Korea
When we started this project, there was almost “nothing” of useful resources regarding Passive House here. However, we wish that our passion for Passive House will be the starting point – “zero” – of another Passive House project in Korea.

Björn, Kierulf
PH with prefabricated straw bale panels
The use of abundant natural materials, such as straw and clay, will play an important part in a truly sustainable world. Several new solutions were experimentally developed during the building of two PH from prefabricated straw bale panels. The buildings are proof that passive houses can be achieved with natural building materials.

Firlag, Szymon
Airtightness of Polish passive and very low-energy buildings – measurement results
This paper compares the airtightness requirements for passive and very low-energy buildings with measurement results. The measurements were made in five single-family buildings with three types of construction. The paper presents what was done improperly and how to avoid errors in the future.

Kostka, Antoni
New generation of windows: Linear thermal bridge-reduced frames and convection-free insulated glazing.
Our research question focuses on blocking gas thermal convection in the inner space of an new generation IGU (insulated glass units). The new solution significantly increases the energy performance of IGU with no harm to its optical parameters. It is estimated that the new IGU makes it possible, regardless of its significant thickness, to achieve a Ug lower than 0.1 W/m2K.
Passive Houses – the practical way to sustainable building

The Passive House Standard can be fulfilled almost everywhere with currently available products and expertise. For the most important regions, there are already a number of successful example projects (documented in these proceedings). The standard pays for itself financially and offers a number of benefits to building owners, building users, the construction sector and national economies.
Poster contribution

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In use performance of the 1st Passivhaus education building in the UK

Barry, Bronwyn 625
PHI and NFRC Window testing protocols for the United States – lost in translation?

Conzelmann, Kenneth 627
Passivhaus: Approaching a net zero energy architecture

Crema, Luigi 629
Integration of a novel small scale concentrated solar power cogeneration plant in a Passive House

Hall, Monika 631
Embodied energy of net Zero-Energy buildings

Hughes, David 633
Iarnród Éireann (Irish Rail) Train Drivers Building

Kamenders, Agris 635
Cost optimal building performance in renovation

Krebs, Mark 637
Double Passivhaus in Oslo – Norway

Lewis, Sarah 639
Comfort benefits for London’s first Passivhaus occupants

Marcelino, João 641
The first Passive House in Portugal: the path to self-sufficiency in energy, water and food.

Mennicken, Titus 643
Enerbuild – Networking in the Alpine space

Riis Dietz, Søren 645
Brickwork design for Passive Houses – a new building system

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Overflow elements for ventilation of residential buildings: Layout data and design ideas
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