

Index and Programme

Friday, 17th April 2015

Plenary Session 09:00 – 12:00 Hall 1

9:00 Opening and Greeting

Wolfgang Feist

Energy Efficient Building at the University of Innsbruck and
Scientific Director of the Passive House Institute
Organizer of the International Passive House Conferences

Sigmar Gabriel

Federal Minister for Economic Affairs and Energy

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Burkhard Jung

Lord Mayor of the City of Leipzig

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Alf Furkert

President of the Saxon Chamber of Architects

13

Ruairi O'Brien

Board member of the Saxon Chamber of Architects

9:25

Philippe Moseley

Passive House and EU Support: Past, Present and Future
This paper explores the link between EU funding, in particular the
Intelligent Energy Europe (IEE) programme, and the evolution of
Passive House, and also the contribution that Passive House has
made to transform the market for energy efficiency in buildings.

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9:45

Wolfgang Feist

Shaping the future: Passive House components

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Session I:		Hall 1
NZEBs and The economics of Passive House		
13:00	Sibille, Elisabeth; Malzer, Harald Konrad How energy-conscious planning lowers construction costs This study demonstrates that the Passive House Standard leads to significant energy savings and a reduction in greenhouse gases for very low costs. It also clearly shows that a design based on energy-conscious, integrated planning is key for construction cost optimization.	79
13:40	Stein, Britta; Loga, Tobias National approaches to Nearly Zero-Energy Buildings in Europe The EU's EPISCOPE project surveyed the status of national plans for nearly-zero-energy building standards for residential buildings to be rolled out starting in 2021 in 17 countries. The energy balances of example buildings show what efficiency levels are planned and can probably be reached.	85
14:15	Bähr, Annette Optimizing the lifecycle costs of day care centers - the potential of standardization in planning and construction Standardized day care centers with individual building components have the potential to increase quality while reducing costs thanks to economies of scale in planning and implementation with consideration of investment and energy costs throughout the entire lifecycle.	91
14:40	Riel, Martina; Lohse, Rüdiger; Kaufmann, Berthold; Ottinger, Oliver Economic feasibility study of a renovated office complex	97
14:55	Teraž, Nataša; Pucko Maher, Klara Passive House can be affordable: Optimization through development	99
15:10	Höffle, Ingo Affordable Passive House production facilities What are the most important issues, what designs are possible, what can be done about ventilation and internal heat sources, how should primary energy be addressed, where can what be optimized, what has the largest effect, and what has to be taken into account during planning? Our working group answers these and other questions.	101

Session II:		Hall 2
Building services		
13:00	Stärz, Norbert Dimensioning the heat-generator for single-family homes and apartment complexes PHPP cannot be used to calculate the amount of power needed for hot water supply. This paper discusses basic measurement principles for single-family homes and multi-family dwellings and presents an approximation method for calculating heating load in the case of higher indoor temperatures in some rooms.	109
13:25	Pröh, Alexander Should apartment complexes have central ventilation systems or an unit in each apartment By deviating from DIN 1946-6 when designing ventilation systems, airflow volumes can be reduced and energy losses minimized. Whether a distributed or a central ventilation system is better depends on the individual project's conditions. Different conditions and costs are discussed using three case studies.	115
13:50	Schwerdtfeger, Peter Optimizing airflow in non-residential buildings - a case study of kindergartens To reduce airflow in kindergartens, we feed supply air into group rooms. This air then flows into auxiliary rooms and through hallways into bathroom areas. This shows how a well known principle from single-family homes can be translated into kindergartens with the use of ducts and overflow elements.	121
14:15	Rojas, Gabriel; Pfluger, Rainer; Feist, Wolfgang Comfort and affordability with air heating - a comparison of radiators and floor heaters This study uses dynamic building simulations to analyze comfort aspects of different heating systems in a multi-story residential building. It also compares investment costs using cost data from actual Passive House construction projects.	125
14:40	Kah, Oliver Lowering costs with central residential ventilation systems Despite the much documented advantages of residential ventilation with heat recovery, high investment costs continue to be a major obstacle preventing greater implementation of this energy-saving, comfort-focused technology in residential buildings. This report discusses cost reduction possibilities and the latest developments in central residential ventilation.	131

- 15:05 **Ottinger, Oliver; Grove-Smith, Jessica; Schnieders, Jürgen; Hasper, Wolfgang; Kaufmann, Berthold** 137
- The cost-saving potential of water heating systems for drinking water: supply, distribution, and use
- This paper discusses the potential for saving energy in hot water systems, including hot water supply, storage, and distribution, as well as water-saving fixtures and heat recovery. Hygienic aspects are of great importance.

Session III: Leipzig and Saxony		Hall 3
13:00	Wolters, Bernd Implementing the Passive House Standard in the Free State of Saxony The Free State of Saxony has been supporting the implementation of the Passive House Standard within its borders since the beginning of the new millennium with a funding program for new buildings and retrofits with Passive House components, on-site workshops during construction, state-wide events, training courses, and public state projects.	145
13:15	Dubrau, Dorothee What the City of Leipzig is doing With its first municipal Passive House buildings – four schools and two fire stations – the City of Leipzig now has experience with planning, constructing, starting up, and using such buildings. There are a number of special aspects and methods to consider from the viewpoint of a building owner and operator.	149
13:30	Eaton, Thomas; Krumbiegel, Mathias; Haupt, Jörg Planning a Passive House sports high school A sports high school in Leipzig serves as an example for describing the unique aspects of planning a school building to the Passive House Standard. Highlights include solving the competition task, calculating building physics aspects, and planning building services.	153
14:15	Königsdorff, Jörg Thermal energy studies in classrooms, air quality, and thermal comfort This paper presents requirements for ventilation systems in school buildings and uses energy simulations and investigations based on fluid dynamics to discuss design options and optimization possibilities.	161
14:30	Hofmann, Andreas; Heßler, Falko Technical monitoring The paper presents findings from an analysis of the technical monitoring process at three Passive House schools in Leipzig – Wilhelm Oswald High School, Pablo Neruda Elementary School, and Erich Kästner Elementary School – constructed or retrofitted in 2013 and 2014.	171
14:45	von Nordheim, Irmela Social monitoring For a social monitoring project, users of three Passive House schools were surveyed about their satisfaction with the new school and how they use the building, and their responses were analyzed. One of the main topics was how users handled ventilation and their experience with ventilation systems, a core technology for the Passive House Standard.	177

- 15:05 **Reiter, Olaf; Hawemann, Frank** 185
Day-care-centre "Zauberhaus" in Delitzsch by Leipzig
- The Passive House day care center in Delitzsch was affordably built as a solid structure with a wood frame curtain façade. Cross-ventilation with automatically opening windows proved to be a very good solution for heat protection in the summer. Plants in Passive House-suitable holes in the floor provide an excellent atmosphere.

Session IV:		Hall 4
EuroPHit: Components for Refurbishing		
13:00	<p>Krick, Benjamin Passive House windows: Comfortable, profitable, innovative, and futureproof COMPONENT AWARD</p> <p>This paper presents the results of the Component Awards from 2014 and 2015. It shows that Passive House windows are profitable for building owners. Energy costs play a less important role in incremental refurbishment when Passive House windows are used. The investment costs are decisive for lifecycle payback, especially in terms of shading.</p>	193
13:35	<p>Guermanova, Maiia First EnerPHit Conservation Sash window Developed Specifically for the UK Market</p> <p>Sturgis Carbon Profiling is in the process of developing a specialist conservation sash frame with sliding mechanism that will be appropriate for historic refurbishments in the UK and complies with the PHI 'Component' requirements (u-value of 0.80W/m²K). Unique construction techniques and materials were utilised to make this possible, including acetylated wood, super-efficient aerogel insulation and unique sliding clamping mechanism.</p>	201
13:50	<p>Ochs, Fabian; Dermentzis, Georgios; Siegele, Dietmar; Feist, Wolfgang Retrofitting with façade integrated micro-heat pump and MVHR - a European case study</p> <p>A compact MVHR and μHP unit is developed which is integrated in a prefabricated façade. Measurements are performed and used to validate a physical MVHR and HP model. The performance of the system is investigated by means of system simulation for different renovation standards in different climates.</p> <p>AND</p> <p>Dermentzis, Georgios; Ochs, Fabian; Siegele, Dietmar; Feist, Wolfgang Innovative ventilation & heating system for Passive Houses – a European case study</p> <p>The concept of a micro-heat pump in combination with MVHR is presented and its energy performance investigated within dynamic simulations. The results show that the concept can be applied to buildings with very good energy performance such as EnerPHit and Passive Houses in various climates.</p>	205
		211

14:25	Heiduk, Ernst; Mahdavi, A.; Pont, U.; Sustr, C.; Schuss, M.; Ghazi Wakili, K.; Stahl, T.	217
	High-performance aerogel insulating plaster for historic plaster façade Aerogel- High-Performance-Insulating-Plaster for Historical Plaster Facades - provides for the thermal renovation of historic plaster facades an important new option. In combination with other sustainable, soft and object-adequate renovation steps, can now also many historic buildings renovated to low-energy buildings.	
14:40	Schulz, Tanja; Ottinger, Oliver	221
	Recommendations for EnerPHit retrofits with interior insulation Energy-focused retrofits of historical buildings with interior insulation require robust systems and simple detail solutions. Certification of interior insulation systems as suitable for EnerPHit helps designers choose the best systems and components.	
15:05	Sanchez, Isabel; Fernández, Christina; Rico, Elena; Porras, César; Martin, David; del Caño, Teodosia	227
	Building Integrated Photovoltaic (BIPV) in Step by Step Retrofitting projects BIPV solutions are capable of fully replacing conventional construction materials for the building envelope. The passive and active properties of these multifunctional bioclimatic systems can help to achieve the Passivhaus certification.	
15:20	Dekant, Christoph	231
	Newly certified: Passive House loft ladder	

Session V:		Hall 1
Components: Building envelope		
16:00	Freundorfer, Franz Windows of efficiency class pH+ - a further step towards cost efficient PH The first pH+ Passive House window is here. With an impressive total visible width of 58 millimeters, the window is currently being manufactured as a pilot project and will be on the market in 2016. This paper also presents a blinds box integrated into the glazing and removable for repairs.	235
16:25	Ugovšek, Aleš; Šubic, Barbara; Rep, Gregor; Humar, Miha Thermally modified wood - applicable material for passive windows - theory and practice Results of field test research in which window made of thermally modified spruce (TMS) and non-modified spruce (NMS) were compared by means of thermal characteristics. Obtained results were compared and proved that thermal efficiency of TMS window profile is evidently better compared to NMS profile	241
16:40	Schlagowski, Günter; Kwiatkowski, Sławomir Tomasz The production of Passive House Standard windows in a Passive House certified production hall	247
17:00	Rudolph, Andreas; Slawik, Stefan Safety and usability of certified Passive House post-and-beam designs This paper presents the findings of a study on building physics processes (airflow, rebate ventilation, condensation buildup and removal, and energy losses) in post-and-beam structures. The usability of the PH system used is, in turn, demonstrated.	249
17:15	Hülsmeier, Frank Resource-optimized, slender sandwich façades Vacuum-insulated sandwich façades made of textile-reinforced concrete can be used as lightweight, slim, resource-efficient prefabricated components that fulfill the Passive House Standard. They can be affordably used in urban projects, fulfill design and technical requirements, and have a number of ecological benefits.	255
17:30	Ottinger, Oliver Heat losses through chimney systems in Passive House buildings	259

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- 17:40 **Foppe, Johannes** 261
The EMS+SI element assembly system - the easy way to install windows and doors in the insulation level
Certified for Passive House and tested by ift, the EMS+SI element installation system and the SLDS heavy load insulation threshold allow elements to be assembled, supported, and sealed off easily, quickly, and safely within the insulation layer. The frame connector for the installation in front of the wall and on the floor.
- 18:05 **Naumann, Andreas** 265
Timbered Passive House, the 3 G+ construction system from single-family homes to timbered complexes
The 3G+ construction system, another generation of the N+S system that has already been certified, reduces energy demand to 5 kWh/m²a. Highlights include energy-efficient, environmentally friendly production of the construction materials and the excellent technical properties (building physics, soundproofing, and fire protection).
- 18:20 **Clarke, Alan; Grant, Nick** 269
Heat loss via internal drainage vent pipes
This paper examines the theory and practice of heat loss from ventilated internal drainage pipes. The model and experimental results suggest more accurate approximations for estimating the heat loss in building energy models.

Session VI:		Hall 2
Planning, analysis, and training		
16:00	Grove-Smith, Jessica; Feist, Wolfgang The PER sustainability assessment With the new PHPP Version 9 renewable primary energy (PER) is being formally introduced as certification criteria for the new Passive House classes. This article describes the methodology used to derived the PER factors worldwide and their meaning.	273
16:35	Schütze, Alexandre; Kowalski, Miroslaw Consideration of complex shading situations in the PHPP based on light simulation This paper investigates detailed shading factors determined with simulations. The process is validated for simple shading situations with the results of PHPP. More favorable reduction factors can then be taken into account for complex shading situations.	281
16:50	Werner, Matthias; Gopp, Sebastian; Geisler-Moroder, David; Junghans, Bert; Ebert, Oliver Simplified façade planning in terms of demand for artificial lightning, heating, and cooling The online tool DALEC can be used to calculate the effects of different façade configurations. The program can play an important role in evaluating and analyzing the façade as a whole as early as the initial planning stages.	285
17:15	Andreou, Eleni; Pelsmakers, Sofie; Altamirano, Hector; Halliday, Sandy Should the PH standard include the environmental impact of materials in its standard? The paper focuses on whether the environmental impact of materials used in the design of Passivhaus buildings should form part of the Passivhaus Standard, alongside its operational energy requirements. The paper presents results from an investigation of an as-built PH case study located in the UK.	291
17:55	Lewis, Sarah PHPP illustrated	297
18:05	Hasper, Wolfgang Improved teaching materials for Passive House Designer training	299

Session VII:		Hall 3
EnerPHit: Innovative retrofitting concepts		
16:00	Tribus, Michael Step-by-step refurbishment of a school and residence hall in use The project entailed the incremental refurbishment of Frankenberg School in compliance with the EnerPHit standard while the boarding school was being used. The goal was to reach NZEB (nearly Passive House). The building envelope was insulated and optimized to get rid of thermal bridges wherever possible, and high-quality triple glazing was installed along with distributed ventilation units integrated in the façade to produce high energy efficiency. What makes this property special is the incremental retrofit during operation.	303
16:25	Malzer, Harald Konrad; Pfluger, Rainer The first certified EnerPHit office high-rise - modernizing with Passive House components The retrofitting of a former civil engineering building from 1971 at the University of Innsbruck in compliance with the EnerPHit standard shows that the standard is both technically and financially well-suited to producing sustainable retrofits and modernizations of office complexes.	309
16:50	von Meding, Reimar Veilige Veste - the first Passive House office complex retrofit in the Netherlands Veilige Veste ("safe fortress") provides a home for victims of human trafficking and domestic violence. What looks like a new build is actually the Netherlands' first renovation of an empty office building to Passive House standard. Low construction costs and power usage made this special social project possible.	317
17:15	Höfler, Karl Innovative retrofits towards Plus Energy buildings Retrofits using façade and building services modules are an ecological solution for buildings from the 1960s and 1970s. Optimally combining all innovative components and renewable energy sources is essential when retrofitting to a Plus Energy standard.	323
17:40	Stuffer, Oscar; Troi, Alexandra; Cari, Valentina Deep energy retrofit of an architectural heritage building: an historic Villa on Lake Como This paper discusses the energy-focused retrofit of a heritage villa on Lake Como to almost the Passive House Standard. Highlighted topics include the initial record of the pre-retrofit building, the evaluation of structural details critical to the building's physics, and the use of retrofit solutions that are compatible with historical buildings.	329

18:05	Goossen, Carl-Peter	335
	A practical approach for an integrated refurbishment with a scrum team	
	Scrum team is a method of collaboration of parties involved in a retrofit projects. It is also referred to as “Agile” working. Because of the flexibility and process-efficiency reached by collaboration in a scrum-team this way offers great advantages, especially energy-efficient renovation with a high demand of quality and workmanship.	

Session VIII:		Hall 4
China is catching up		
16:00	Kaufmann, Berthold; Hennecke, Christian; Franke, Bernd Singfubao Passive House Building in Urumqi - lessons learnt Since 2014 amongst others very strict standards for energy efficiency for new buildings are in effect. Pilot projects such as Passive House Xingfubao could show that energy efficient buildings can be realized and are economically reasonable, if the governmental subsidies of energy costs are taken into account.	341
16:15	Ruge, Peter Best practice in Southern China - Passive House Bruck Peter Ruge Architekten set new standards of sustainability in Southern China: Passive House Bruck is the first housing of its kind to be realized and completed 2014 in the country's damp, warm, southern climate with approximately 95% energy saving and certificated by the German Passivhaus Institut.	347
16:30	Michulec, David; Schöberl, Helmut Certified Passive House in China with planning and implementation done by Chinese firms Construction of a certified passive house (office and residential building). The special feature of this project is the planning and execution by Chinese companies using local materials. The project was selected as nationwide passive house pilot project for office buildings by the Chinese central government.	353
16:45	Fei, Han; Zhengjie, Yu; Rongen, Ludwig; Cheng, Cheng; Feng Bin, Ding; Lei, Liu Challenges of implementation of Passive House construction in the present stage in China Many challenges on Chinese PH building development are yet present today. The Authors know about that, but Chinese engineers have proven many times in the past to be able to overcome challenges. So we are optimistic, that Chinese market will be able to deliver enough and cost effective products for Passive House buildings soon, so that reasonable and cost effective Passive House construction will be more easily possible within the next few years.	359

- 17:00 **Yi, Yao; Deng, Lanbo** 365
Passive House technology popularization and promoting in China
Abstract: The opportunities and obstacles for the development of Passive House in China have been analyzed based on the situations of the real estate market, building energy conservation, environmental pollution as well as Passive House itself. The development of Passive House will bring about important changes in the building industry in China.
- 17:05 **Wei, Xu; Qiao, Biao; Liu, Yan; Sun, Deyu** 369
The application of high performance envelope in residential building in China
This paper aims to study whether high performance envelope residential building is suitable for different climate zones in China. Some conclusions are got through analysis of calculation results simulated by TRNSYS software. Firstly, it's very suitable to apply high performance envelope residential building in north of China. Secondly, in south of China high performance envelope residential building should be applied with seasonal shading installed. High performance building will play a important role in energy efficiency in China.

Saturday, 18th April 2015

Plenary Session 09:00 – 10:15

Hall 1

09:00 Greeting

Wolfgang Feist

Energy Efficient Building at the University of Innsbruck and
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09:15 **O'Leary, Tomas; Moreira, Mariana**

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Trans-European EnerPHit Case Studies Lead the Way

The EuroPHit project aims to demonstrate that deep retrofitting to the EnerPHit standard can be achieved on a step-by-step basis. This paper presents an overview of case study projects being retrofitted, preparation of phased refurbishment plans, step-by-step retrofit construction details, training for design teams and tradespersons, beta testing of PHP Version 9 and product evaluation for deep retrofit projects.

09:45 **Krick, Benjamin**

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Classic, Plus, Premium: The new Passive House classes and how they can be reached

Examples are used to explain the new Passive House classes and show optimizations for Passive House Plus and Passive House Premium. In addition, renewable energy generation from the building is explained along with biomass PER factors, solar thermal arrays, and cogeneration in the PER system.

Session IX:		Hall 1
Building services engineering		
10:30	Schnieders, Jürgen Active cooling in Passive House - strategies for active cooling systems Even Passive House buildings require active cooling in many climates. Conventional vapor-compression refrigerators are recommended to provide cooling. It may make sense to distribute cooling through supply air, recirculated air, or surfaces, sometimes in combination with separately adjustable dehumidification.	395
10:55	Laidig, Matthias; Zeller, Joachim How well does a compact device with fresh air heating work in practice? Measurement results. The recently developed AEREX PHK 180 compact device is being analyzed based on two and a half years of measurements in an actual occupied single-family home. Once PHPP usage and weather parameters are adjusted to actual conditions, measured consumption closely matches calculated forecasts.	401
11:20	Sibille, Elisabeth; Pfluger, Rainer The use of active overflow systems for distributing fresh air in apartments Active overflow elements are useful in both new buildings and refurbishments, especially when the fresh air duct network is to be kept as small as possible. This paper presents measurements of air quality and noise protection. In addition, a validated simulation model was used to reveal optimization potential.	407
11:45	Kierulf, Bjorn Advantages of a wall integrated centralised ventilation unit By placing a ventilation unit directly in the wall, ducting becomes simpler and installation space can be saved. This can lead to easier installation and significant cost reduction. No cold ducts inside reduce the overall heat losses.	413
12:10	Siegele, Dietmar; Ochs, Fabian; Feist, Wolfgang Critical analysis of solar domestic hot water and solar space heating algorithms in PHPP This project validates the algorithm for solar tap water supply with solar auxiliary heating using Matlab/Simulink and the CARNOT toolbox.	419

- 12:35 **Gilliland, Allen** 425
- Asynchronous Air Circulation for Simplified Ventilation and Space Conditioning
- This paper presents research findings from a study of two Passive Houses using combined distribution of heating, cooling and ventilation air using common areas, minimal ductwork and continuously operating fans. Very limited use of air ducts is required, but there are limitations in meeting occupant thermal comfort goals.

Session X:		Hall 2
Non-residential Passive House buildings		
10:30	Hässig, Werner; Wyss, Sara Optimization of thermal bridges in buildings subject to earthquake loads This project examines conflicts between thermal bridges and structural elements for earthquake resistance in highly energy efficient buildings. Existing solutions are gathered, analysed and summarized in a leaflet as a design aid for all involved in building design.	433
10:55	Keller, Michael; Keller, Steven Multistory Passive House office complexes The new office complex for the municipal utility is a four-story timbered Passive House building that fulfills the F60 fire standard. Ed. Züblin AG completed the turnkey building in only 13 months – on schedule and within budget.	439
11:20	Tywoniak, Jan; Calta, Vítězslav; Staněk, Kamil Education and office complex of the Partnerstvi Foundation in Brünn Education and office building consists of two different parts (new and refurbished, approx. 1000 m ² each) with common technical system. New part should reach the passive standard and use renewable energy to high extend. Experience from monitoring and possibilities of improvements are discussed.	445
11:45	Plessner, Stefan; Görtgens, Adrian; Ahrens-Hein, Oliver-N.; Wussler, Maik Evaluation of eight Passive House day-care centers in Hanover In 2014, eight newly constructed and almost identical day care centers in Hanover were investigated. The results revealed that the energy parameters can vary greatly despite intensive quality assurance even in such similar non-residential buildings. Continued quality management during operation is therefore highly recommended.	451
12:30	Herklotz, Dietmar Experience as a Passive House auditor Including an experienced Passive House auditor during planning and construction and for warranty issues and disputes in and out of court is an affordable way of producing high-quality Passive House buildings with low operating costs. The expert can detect flaws in planning and construction and propose remedies.	457

Session XI:		Hall 3
PassREg – Regions take on their leading role		
10:30	Fujara, Marianne Lessons learnt from the project - the PassREg idea remains valid Information for politicians, trainees, architects, and tradespeople help make Passive House in combination with renewable energy common practice for nearly-zero-energy, zero-energy, and Plus Energy buildings, as do incentives for investors and building owners.	467
10:40	Genchev, Zdravko The Passive House concept leads to the NZEB The PassREg project aims to support the introduction of NZEB as regular design and construction practice throughout EU. The article offers detailed argumentation and policy recommendations for the selection of the PH Standard supplied by RES in the national NZEB definitions as the most efficient approach to achieve this goal.	471
10:55	Tzanev, Dragomir The New Passive House Regions Take On the Energy Revolution The article aims to describe and analyze the driving principles for large-scale establishment of PassREg's new "passive regions" throughout Europe in line with EU's 2020 goals, substantiating the thesis that PH concept is the shortest and most effective way to national NZEB definitions.	475
11:45	Bermich, Ralf Passive House performance on a large scale: Experience from the Passive House district Heidelberg-Bahnstadt Passive house district Heidelberg-Bahnstadt is arising on the area of the former freight yard. By January 2015 heated floor space of 153,000 square metres has been completed – including residential buildings, student homes, kindergarten, retail stores, offices and laboratories. 145,000 square metres are under construction or in advanced planning stage.	479
12:10	Moreno-Vacca, Sebastian What does Passive House Brussels 2015 and beyond... How, in the context of explosion in Passivehouse projects in Brussels Region, A2M started to get a glimpse of new path in the architecture narrative. Contemporary tools as Parametric Design enable the architect to reconsider the physical composition of the environment as an integral part of the work on the project.	485

12:35	Rose, Clarence Passive goes NZEB, barriers and solutions in building regulations The implementation of the EPBD into national policies creates the opportunity to introduce PH-technology as the perfect blueprint for NZEBs. Lessons learned in regions where the PH-standard was in effect for a while could further the successful out-roll of highly energy-efficient building standards with RES.	491
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Session XII:		Hall 4
EuroPHit – Step-by-Step Retrofits		
10:30	Bastian, Zeno; Pedersen, Søren; Arnăutu, Dragos Stepwise EnerPHit retrofit: New Certification Scheme and Online Platform PHI is introducing a new quality assurance concept for step-by-step renovations to EnerPHit standard. As stepwise retrofits progress over many years, in addition a new online platform is being created which helps organize and store the information uploaded by the design team for the certifier.	501
10:55	Camal, Simon Practical implementation of step by step retrofit to EnerPHit standard Case studies from the EuroPHit project show that step-by-step EnerPHit can be applied successfully to different types of buildings, even if these are partially insulated. PHPP9 helps defining refurbishment plans and assessing cost-effectiveness.	507
11:20	Robinson, Adam EuroPHit: Models for Financing Step-by-Step Refurbishments Financing retrofits is a significant issue, but step-by-step retrofits can help. This session discusses the economic benefits of step-by-step retrofits, and the potential for financing schemes that reflect the improved running costs and lifecycle benefits.	513
11:45	Theumer, Susanne; Rivero Arias, Maria del Carmen Cost-optimised Standard for Social Housing retrofit in Mexico: EnerPHit The study shows that the EnerPHit Standard is the most comfortable, sustainable and cost-efficient solution for all Mexican climates. In addition, a step-by-step approach can be successful in terms of optimal comfort, energy performance and costs if the EnerPHit methodology is pursued. This means that highly efficient components, known also as Passive House components, are being used for each retrofit step, following an overall refurbishment plan.	519
12:10	Baeli, Marion Lessons learned from 20 UK residential retrofits The presentation of post occupancy results from 20 UK residential retrofits together with the detailed strategy of 4 projects aim to help understand the challenges met by most teams, primarily achieving an airtight building. Also included: Actual primary energy demand in relation to airtightness.	525
12:35	Rodrigues, Fernanda; Parada, Marlene; Oliveira, Rui; Alves, Ana; Vicente, Romeu Energy retrofit of a XIX century building in Portugal	531

Session XIII:		Hall 1
The path towards Nearly Zero Energy Buildings		
14:30	Großkloß, Marc; Schaede, Margit Passive House with surplus energy or Efficiency Passive House Plus? Path towards surplus energy This paper uses the PHPP to study factors that influence whether a building achieves an annual energy surplus. The buildings investigated are a single-family home and a 20-unit multi-family building, analyzed as existing buildings, new EnEV buildings, and Passive House buildings.	537
14:55	Hensel, Christoph; Bretzke, Axel A comparison of the Passive House concept and the Solar House with a further development towards Plus Energy House This paper compares and evaluates the Passive House and Solar House building concepts in terms of technology design, energy figures, and financial data. It also investigates whether the building types can be affordably further developed to a Plus Energy House with a simple PV array.	543
15:20	Tepe, Rainer; Büttner, Christoph Solar-wood heating concept for Passive House System concepts combining a wood-fired furnace and a solar thermal or solar power system were simulated and studied for two Passive House buildings in Hanover's "zero:e park" neighborhood. Both concepts are suitable for providing heat, although systems with a manually fed furnace require more work from users.	549
15:45	Schöberl, Helmut; Bednar, Thomas Austria's largest Plus Energy office concept at Getreidemarkt, TU Vienna The building is the world's first Plus Energy office high-rise that takes account of use-specific points of consumption (office devices, kitchen appliances, servers, etc.). The project focused on a dramatic reduction of energy consumption for all components that consume power.	555
16:10	Nikolaev, Boris A. Passive House and active buildings will be constructed in Russia! In 2014, ABN built Russia's first active building, which generates more energy than it consumes. A group of qualified specialists was formed to implement similar projects. Suitable conditions for researching energy-efficient residential construction were also created.	561

16:35	Colclough, Shane; Redpath, David; Griffiths, Philip Seasonal Thermal Energy Storage and the Passivhaus - lessons from 5 years of monitoring	567
16:45	Thurrott, Joseph Meeting the heating energy demand using a local, renewable, inexpensive fuel: wood logs	569

Session XIV:		Hall 2
PassREg – Passive House neighborhoods		
14:30	Beckmannshagen, Lars; Gerbitz, Jan Passive House as a cornerstone of energy-efficient urban district With the International Building Exhibition (IBA Hamburg) in 2013 and a Passive House funding program unlike anything else in Germany, Hamburg has done a lot to promote energy efficiency in new builds over the last few years. In the process, many projects have focused on the special aspects involved.	573
14:55	Schwarz, Dietrich The Neugrüen Mellingen neighborhood, Minergie-A-Eco and -P-Eco Neugrüen is the first neighborhood in Switzerland that fulfills the Minergie-A-Eco and P-Eco energy standards. The new neighborhood's energy concept follows the premises of energy efficiency: well insulated façades, properly designed building services, on-site energy generation, and energy recovery. A photovoltaic array provides power for the building services.	579
15:20	Wohlfahrt, Matthias; Harhausen, Gunnar Zero-emissions strategy for a neighborhood built in the 50s and 60s Achieving zero emissions overall can be easy in the case of a high-efficiency retrofit with PV. The technical and financial challenges are designing supply concepts with limited roof space and ensuring the sale of power generated on site.	585
15:45	Stelzer, Friedemann Wilhelminian Style building in the EnerPHit-Standard with renewable raw materials	591
16:00	Raji, Saed; Pauly, M.; Henon, A.; Lopez, J. Comparative analysis between the PHI standard and current French efficiency regulations	593
16:10	Vekemans, Etienne; Camal, Simon French energy efficiency regulations compared to PHPP	595

Session XV:		Hall 3
Energy efficiency in warm and hot climates		
14:30	Wassouf, Micheel Comfort and Passive House in the Mediterranean summer - monitoring of two detached homes in Spain Passive Houses have been proved to function excellent in cool temperate climate. In the actual phase of diffusion of the standard, it's important to analyze real behavior of these buildings in different climates. This paper analyses two Passive Houses in Mediterranean summer and shows that even light weight buildings with residential use are able to guarantee a perfect interior climate under extreme weather conditions.	599
14:55	Prieto, Silvia; Bunyesc, Josep Several examples of monitored Passive House homes from the Mediterranean to the Pyrenees Several simple and affordable examples of monitored passive houses placed between the Mediterranean Sea and the Pyrenees are presented in order to confirm its efficiency and its benefit of our comfort, our economy and the global saving of resources.	605
15:20	Berger, Wolfgang; Nitsch, Bernd An EnerPHit retrofit of an apartment in a complex in Bilbao, Spain A single apartment in an apartment building in Spain has been successfully rehabilitated and charged with the PHPP. It meets the highest standards of comfort and the criteria of EnerPHit standards. Solutions were sought and found for the calculation and in meeting the standards by the gas installation.	611
15:45	Salman Gürcan, Tugba Cost-effective retrofitting in Turkey by adapting EnerPHit standards to a warmer climate The study investigates whether the EnerPHit standards could be a cost effective solution for retrofitting in Turkey. A survey conducted on a renovation project in Gaziantep which has a warm climate. The project is funded fully by the Government of Turkey, and implemented by GAP RDA and UNDP.	617
16:10	Figueira, José; Figueiredo, António; Vicente, Romeu; Rodrigues, Fernanda; Oliveira, Rui Thermal Comfort Analysis of LSF Passive House Dwellings for Southern European Climates	623
16:20	Figueiredo, António; Vicente, Romeu; Rodrigues, Fernanda; Figueira, José Overheating and Optimization of Indoor Thermal Comfort of Passive House Buildings in Warm Climates	625

16:30	Zedillo Velasco, Carlos Systems for the evaluation of energy & environmental efficiency of housing in Mexico	627
16:40	Kolsuz, Timur Techstyle Haus a passive house prototype in lightweight construction Techstyle Haus is the first attempt to build a passive house in membrane construction. Solar Decathlon Europe 2014 is the best-known student competition in energy efficiency architecture. German and American students worked 3 years as Team INS on a passive house prototype in membrane construction.	629

Session XVI:		Hall 4
Innovative Projects from all over the World		
14:30	Grant, Nick; Clarke, Alan Building a better Passivhaus school This paper outlines how lessons from building three of the first Passivhaus Primary schools in the UK were fed into the design, construction and operation of the fourth. Many improvements resulted in both improved comfort and energy performance as well as reduced cost.	637
14:55	Barabás, Béla; Arnăutu, Dragos Case study - EvoHouse - Ecopassive concept from Romania EvoHouse, the first (pre)certified eco-passive house in Romania. It is a project built by 40 students, in the pitoresque Transylvania. It all started with a clear and challenging vision. Béla Barabás wanted to build a passive house, with eco-friendly materials and prefab elements.	643
15:20	Cohen, Adam Integrated Project Delivery of Passivhaus, a pathway to high performance at market rate For many teams, it is difficult to deliver high performance at market rate. Employing Passivhaus principles with Integrated Project Delivery has proved a viable model for delivery of cost efficient Passivhaus buildings.	649
15:45	Harrmann, André; Armstrong, Lukas A Multi-Generation Triplex Passive House in the Canadian Rocky Mountains Two brothers designed and build this house for their families. It is the first multifamily dwelling in Canada to be Passive House certified. The paper will focus on how to (1) create a low impact dwelling by (2) evolving local construction techniques and (3) achieve the goals on a modest budget.	655
16:10	O'Malia, Matthew Warren Woods Ecology Field Station: 1st certified laboratory in North America The Warren Woods Ecology Field Station is the first Passive House certified laboratory in North America, certified through the PassiveHaus Institut. Designed and built by GO Logic for the University of Chicago.	661

16:35	Steinmetz, Nico New office building for the Centre of Ecological Movement in Luxembourg- Pfaffenthal	667
16:45	Hagerman, Sam An Economical Passive House "Package" for the Pacific Northwest	669

Plenary Session 17:15 – 18:00

Hall 1

17:15	Wolfgang Feist Energy Efficient Building at the University of Innsbruck and Scientific Director of the Passive House Institute Organizer of the International Passive House Conferences The plenary session "Shaping the future: Passive House components" on page 63 contains the closing speech from Wolfgang Feist.
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