Index and programme

Friday, 22 April 2016

Plenary session

Session 1: Passive House Plus — Hall Spectrum

15:05 **Krick, Benjamin** 117

A Passive House Plus building made of bales of straw

This paper presents the construction and operation of a straw bale house, largely constructed by the author himself, and energy balances from PHPP and designPH. It also focuses on embodied energy demand based on the example of a straw bale wall. The PHPP results for energy demand were found to correlate quite accurately with measured energy consumption. Energy demand for operation makes up the largest share of embodied energy demand for common Passive House insulation thicknesses. However, the current way that embodied energy is generally calculated is misleading. The method needs to be revised to produce useful conclusions.

Session 2: Hall Titanium
New projects and components

13:00 **Zielke, Georg W.** 129
Ecological homes: Ambitious yet affordable

Ecological timbered architecture offers a wide range of options, especially for residential buildings. Great residential quality can be achieved here without particular additional costs. The solutions for the Passive House Standard have been proven in practice and are available. Coordination with tradespeople is especially important.

13:25 **Kreutzer, Simone** 135
Circuitus – What goes around comes around

Villa Circuitus is a single-storey detached home made with sustainable materials and excellent components that fulfils the Passive House Standard for the Swedish climate. This presentation includes discussion of “fossilised” timber, a solar cell balustrade and a cellular glass floor slab.

13:50 **Werneke, Klaus** 141
Affordable and sustainable: A timbered Passive House row house for rent

“Wolke 7” is a completely timbered row of seven rowhouses built in 2012-2013 in Lüneburg in compliance with the Passive House Standard. The result is a very affordable, sustainable rental complex thanks to planning across disciplines in close coordination with construction workers and some special aspects of production.

14:15 **Hasper, Wolfgang** 147
A government building annex overcomes all challenges

The keys to an annex built for the Ministry of Finance of the German State of Hesse in Wiesbaden with ca. 3,070 m² of treated floor area were handed over in the spring of 2016. The building was planned and built in compliance with Passive House. This paper describes how various challenges were solved in the project.

14:40 **Rongen, Ludwig** 153
Passive House today and beyond 2015: Developments and trends

Passive House is recognised worldwide as the highest standard for energy-saving construction. But as a standard that implies quality, it has to go beyond mere consideration of energy data and start requiring high quality in other aspects if it wants to remain successful globally.

15:05 **Böttrich, Nadine** 159
Large variety of balcony connections in Passive House

Session 3: Hall Europium
EnerPHit-latest retrofit projects-

Session 4:
Warm climates

Hall Helium 2

13:00 **Style, Oliver** 201
Measured performance of a lightweight straw bale Passive House in a Mediterranean heat wave

The summer performance of Passive Houses must be fully addressed if quality assurance associated with the Passive House standard is to be maintained. The measured results of the Larixhaus during the 2015 heat wave indicate that lightweight, super-insulated, airtight Passive Houses can be passively cooled with adequate external shading devices, good natural night ventilation, and careful operation by occupants, to provide a comfortable indoor climate during heatwaves.

13:25 **Pallantzas, Stefan; Roditi, Athanasia** 207
Passivistas: The House Project

Passivistas: TheHouseProject is a stepping stone on the road to the Greek NZEB. We, all engineers and Passive House designers and members of the Hellenic Passive House Institute, want to show to the people, to the engineers, to the market, to the government that energy efficiency is achievable and cost effective.

13:50 **Pardo Calderon, Esteban** 213
First Steps in Passive House Public Buildings in Spain

Recently, the first steps in Passive House public buildings have taken place in Spain. Reaching the Passive House Standard, however, presents some difficulties and regulatory barriers that must be overcome. Two case studies are discussed: a public library and a public office building.

14:15 **Salman Gürcan, Tuğba; Gülec, Seda** 219
A comparison of LEED and Passive House certification on a built example: Gaziantep Yeşil Ev

The Yeşil Ev project of Gaziantep Metropolitan Municipality is the first Certified Passive House of Turkey and was also awarded by the US Green Building Council with LEED's highest certificate level – Platinum. The two certification schemes are compared with regards to costs and feasibility.

Session 5:
Long-term experiences

Hall Spectrum

18:05 **Feist, Wolfgang; Ebel, Witta; Peper, Søren; Hasper, Wolfgang** 273

Long-term experience and measurements from the first Passive House building in Darmstadt-Kranichstein

The first Passive House building in Darmstadt-Kranichstein has consistently had extremely low heating energy consumption. Twenty-five years after it was completed, the building and its main components were studied in greater detail. The findings show that the structures and components used are durable and have maintained their value. Their service lives are expected to be at least as long as those of conventional options.

Session 6: Hall Titanium
Non-residential buildings

Session 7: Hall Europium
Cost-effective Passive House buildings

16:00 **Schild, Robert** 321
"Does residential comfort have to pay for itself?"

The Passive Health concept offers users excellent comfort at an affordable price even as it reduces resource consumption. Nonetheless, architects and investors still need to highlight the right motives between additional comfort, sustainability and profitability.

16:25 **Clarke, Alan; Grant, Nick** 327
Simple and cheap heating systems for individual Passive Houses

Simple heating systems for single-family houses using standard gas boilers or heat pumps with simplified radiator or floor heating systems suit the low heat load of Passive Houses with reduced installation cost. The performance was demonstrated with monitoring of room and heating system temperatures.

16:50 **Bodem, Mario** 333
Passive House school project: Lowering costs with the Passive House Standard

Minor but clever changes allowed the Passive House Standard to be met in a school project where the standard was previously considered impossible. Intelligent optimisation and improvement of the insulation standard considerably reduced construction costs below the level originally planned.

17:15 **Branders, Aline; Moreno-Vacca, Sebastian** 339
Large-scale total Passive House renovations in Brussels

Three case studies – the renovation of a brewery into a hotel, of a high-rise office building and of a high-rise social housing block – verify that large-scale retrofits can achieve full Passive House Standard. Two of these retrofits are beacon projects in the Brussels Region and have been awarded.

17:40 **Fasouli, Myrtia; Levey, Mike** 345
First privately rented EnerPHit homes in London,
Whole-Life Carbon story

Sturgis Carbon Profiling have been monitoring the first privately rented EnerPHit retrofits in London. The results show that EnerPHits achieve a further 40 % reduction in whole-life carbon emissions compared to a conventional UK refurbishment. Adopting low-embodied carbon strategies in EnerPHit upgrades makes them more cost-effective and paves the way to a zero-carbon future.

Session 8: Hall Helium 2
Experiences from UK and Ireland

Saturday, 23 April 2016

Plenary Session

09:00 Greeting

Wolfgang Feist
Unit of Energy Efficient Construction at the University of Innsbruck and Scientific Director of the Passive House Institute

Ernst Ulrich von Weizsäcker
Club of Rome
Politics as a partner

Heinrich Bottermann
Secretary General of the German Federal Environmental Foundation (DBU)

09:45 **Scott Foster**
Director, Sustainable Energy Division, United Nations Economic Commission for Europe

Session 9:
Ventilation solutions

Hall Spectrum

10:30 **Bräunlich, Kristin** 405
Component Award 2016: Affordable ventilation solutions for retrofits

The Component Award 2016 focuses on affordable ventilation solutions for retrofits. The participants submit ventilation solutions for a typical building from the 1960's, and the assessment is based on lifecycle costs and scores from a jury of experts. The award aims to highlight, promote and help disseminate affordable and practical Passive House ventilation units.

10:55 **Pfluger, Rainer** 411
Reducing ventilation duct networks: Retrofit of the Siegmair School as part of the EU project SINFONIA

As a part of the EU project SINFONIA, a demonstration project at the Siegmair School in Innsbruck, Austria, shows how a central ventilation system with active overflow elements can be easily integrated, complete with a reduced supply and extract air duct network, even in a retrofitted heritage school building.

11:20 **Stärz, Norbert** 417
Central stairwell ventilation in multi-family houses

Stairwells in multi-family houses must have controlled aeration and de-aeration to produce pleasant indoor air quality. Window ventilation leads to high losses; systems with heat recovery are better. Various solutions are presented and compared in an analysis.

11:20 **Martin, Bernhard** 423
More efficient ventilation with intelligent active overflow systems

Intelligent active overflow elements allow additional rooms to be connected to living room ventilation without additional air ducts based on the principle of controlled cascading. As a result, less effort is required and costs and energy consumption are reduced, making this solution an especially efficient one for energy retrofits.

11:45 **Farr, Andrew; Godber, Sally; Warm, Peter** 429
MVHR in the UK – Lessons Learnt from Commissioning and a Suggested New "Final Protocol Sheet" for Domestic Use

Mechanical ventilation and heat recovery (MVHR) and airtight construction is still a relatively new technology in the UK. It has been accepted as part of the UK Building Regulations for some time now, but experience has shown many systems to be poorly designed and installed. This paper looks at lessons learnt from UK installations and makes recommendations for design criteria, delivery process and commissioning methods.

Session 10: Components for retrofits and new constructions — Hall Titanium

Session 11: Hall Europium
Tools – new features and latest developments

Session 12: Hall Helium 2
Passive Houses in North America and cold climates

10:30 **Harrmann, André**
Passivhaus in Vancouver: Made Possible by PHPPv9 and the City

10:55 **Zouari, Sonia; Isaacs, Malcolm** 519
Reaching for the Passive House Standard in Canadian Social Housing

The 42-apartment Salus Clementine project in Ottawa's cold climate is Canada's first social housing project targeting the Passive House Standard. The project successfully demonstrates the feasibility of achieving Passive House in a challenging climate and an unsupportive building culture, and it can serve as an inspiration for many other building owners, tenants and regulatory agencies across North America.

11:20 **Paulsen, Monte** 525
Factory-built Passive House: An affordable solution for remote Canadian communities

The Bella Bella Passive House is a row house terrace comprised of prefabricated modules constructed near Vancouver and assembled in a remote First Nations community 760 km north. Constructed for less than the cost of a site-built project, it provides a prototype for affordable delivery of energy-efficient buildings to off-grid communities.

11:45 **Lindgren, Tomas; Granit, Simon** 531
Högåsskolan – a Passive House school

Högåsskolan in Knivsta is the first school in Sweden built according to the International Passive House definition and is financed entirely with Green Loans. With reference to measured values taken so far, the school shows impressive Passive House qualities and is nominated as "The Building of the Year", the finest price of its category in Sweden.

12:10 **Päätalo, Juha** 537
Onnelanpolku: The first Passive House retirement home in Finland

A retirement home shows that Passive House is no problem for multi-storey residential buildings even in the Finnish climate. While planners have to use every strategy they can find for single-family homes in Finland to stay within the limits, this retirement home complies using building components and costs that are already standard.

Session 13: Hall Spectrum
Passive House districts and major projects

Session 14: Hall Titanium
Passive House and renewables

Session 15: Step-by-step retrofits — Hall Europium

14:15 **Steiger, Jan; Vahalova, Eva** — 627
Overall retrofit plan for step-by-step retrofits to EnerPHit Standard

As of April 2016 it will be possible to pre-certify deep retrofit processes, even if the implemented efficiency improvements only consist of a single step towards EnerPHit. With the new EnerPHit Retrofit Plan, a separate output file is added to PHPP as a comprehensive document for the building owner to illustrate the whole retrofit process with specific parameters and considerations for each retrofit step.

14:40 **McCormack, Art; Moreira, Mariana** — 633
Step-by-Step EnerPHit Retrofit: Coordinated Design and Build

Retrofitting to the EnerPHit Standard (as part of the EU funded EuroPHit project) is challenging, but becomes particularly complex where the house concerned comprises three different wall construction, is located on an exposed site and has curtailed exposure to the south sun.

15:05 **Brown, Helen; Traynor, James; Newman, Nick** — 639
Large scale EnerPHit – Whole life costs and lessons learnt on high rise retrofit

Retrofit strategies and whole life costing analysis, together with a study on whole life cost of heat supply and barriers to certification. The subject of the study is Wilmcote House in Portsmouth, UK, a 1960's 11-storey large panel concrete system building containing 107 properties.

15:30 **Norwood, Zack; Theoboldt, Ingo; Archer, Dan-Eric** — 645
Step-by-step deep retrofit and building integrated façade/roof on a 'million program' house

Kollektivhuset Stacken is a building from the 'miljonprogrammet' – the housing program implemented in Sweden from 1964 to 1975 to ensure everyone could have an affordable home. Step by step, it achieves Passive House Standard, building integrated solar photovoltaics covers its electricity demand, and the indoor comfort is improved.

Session 16: Hall Helium 2
China goes passive!

Plenary Session Hall Spectrum

17:15 **Feist, Wolfgang; von Weizsäcker, Ernst Ulrich; Alt, Franz** 729

Sustainable energy for all. Panel discussion on the Passive House anniversary

To conclude the 20th International Passive House Conference, Ernst Ulrich von Weizsäcker, Franz Alt and Wolfgang Feist will take part in a panel discussion on the economic and social implications of the energy transition along with its effects on society, the economy and the environment. The Passive House concept brings together the decisive foundations of a sustainable energy trend: high energy efficiency and the use of renewables.