

INTERNATIONAL PASSIVE HOUSE CONFERENCE 2010

The Passive House in all dimensions – Conference Report from Dresden

Dresden/Darmstadt, 10 June 2010 – Kamakura (Japan), Whistler (Canada), Tramore (Ireland) and Shanghai (China) have already shown that Passive Houses are gaining more recognition at the international level than ever before. The construction standard that was conceived in Germany and that is now well-known all over the world proves that it is possible to build or refurbish buildings in a sustainable, comfortable and affordable way today. The standard's popularity was confirmed by the more than thousand participants who attended the 14th International Passive House Conference in Dresden last month. "The Passive House Standard is spreading rapidly all over the world. The great potential of the concept has been quickly recognised, especially in areas where actual practical experience has been gained with the implementation of Passive Houses. The Passive House concept can be adapted to the various climates and regional construction methods and for this, the tools are available," explained Prof. Dr. Wolfgang Feist who is the Scientific Director of the Passive House Institute and a building physicist at the University of Innsbruck in Austria. The Passive House Institute estimates that 20,000 Passive Houses have already been built worldwide, 13,500 of them in Germany alone.

The internationally renowned Conference took place in the new Federal States of Germany for the first time and was hosted by the Free State of Saxony. "I'm very pleased that this Conference not only underlined the commitment of the government of Saxony for the promotion of this energy-optimised construction method, but that it will also serve to establish ties with Eastern European countries," said Frank Kupfer, State Minister for the Environment and Agriculture and patron of the Conference.

In the plenary session, Burkhard Schulze Darup demonstrated how climate neutrality in the building sector can be achieved by the year 2050. Martin Treberspurg, Roman Smutny and Alexander G. Keul presented the results of the monitoring and user experiences from residential Passive House complexes in Vienna, where the measured energy consumption was reduced by two thirds compared with new buildings constructed according to national standards, even though the statistics do not even show an increase in the construction costs. Prof. Dr. Wolfgang Feist's contribution showcased "growth in all dimensions."

Regional development – Passive Houses in Saxony

The progress of the Passive House standard in Saxony was one of the focal points of the Conference. In a practice-oriented lecture, Olaf Reiter and Günther Rentzsch presented two kindergarten projects in Dresden and Heidenau where a close cooperation with the ventilation system planners had been the key to achieving the desired outcome. The principle behind the successful double-field Passive House sports hall in Dresden-Weixdorf was explained by Karsten Vietor in his report: the concept includes temperature adjustment with concrete core activation and optimised use of daylight to reduce artificial lighting to a minimum, thus keeping the energy consumption low. Cornelia Ködderitzsch and Emmerich Seibel studied the economic feasibility of refurbishing pre-fabricated concrete buildings. Using the example of a sports store, Jerzy Timm pointed out the special Passive House Standard requirements for sales outlets, for example the optimisation of the store's lighting as well as the cooling which is necessary due to the high internal heat loads. High requirements also had to be met for the planning and implementation of Saxony's State Archive in Dresden in accordance with the Passive House Standard with regard to air humidity and temperatures. Ideal conditions could be created for the preservation of cellulose and other similar materials using minimum energy. Conference participants also had the opportunity to visit some of these Passive House projects on Sunday in one of seven organised excursions.

"The Conference was a complete success as shown by the positive reaction of the participants regarding the practical experiences in Saxony as well as the opportunity to meet other participants from 46 different countries," concluded Christian Micksch, Director of SAENA GmbH, the Energy Agency of Saxony and co-organiser of the Conference.

Energy efficiency and preservation of historical buildings

A separate Working Group dealt with the energy-efficient refurbishment of listed historical buildings in particular. Günther Gantioler, Christian Conrad, André Zaman and David Wohlgemuth presented their experiences with planning and implementation as well as the initial results of utilisation. Improved thermal protection helps control problems caused by moisture build-up; in historical buildings, ventilation is of great importance for good indoor air quality and for controlling humidity. In short: high quality with regard to building physics means the best possible preservation of the protected building. If planned and carried out well, building preservation and high level energy efficiency can be compatible.

Latest research and developments

Results of the latest scientific studies concerning the Passive House Standard were presented at the Conference. Benjamin Krick presented the criteria for the certification of curtain wall facades, the current requirements for the certification of skylights and the new efficiency categories for Passive House windows. The measured values from a refurbishment project using interior insulation were presented by Berthold Kaufmann and Sören Peper. The focus was on the performance of conventional vapour retarders in comparison with moisture-adaptive vapour retarders. Jürgen Schnieders indicated approaches for restricting the moisture in basements after insulation of the basement ceiling in modernisations. Marc Großklos provided the answer to the question of optimising both distribution losses and energy expenditure for hot water generation in Passive Houses: short and well-insulated pipework. Oliver Kah presented measurement results concerning the air quality in school buildings. It was shown that controlled ventilation in classrooms leads to a considerable improvement of the air quality in comparison with window ventilation. The previous recommendations by the Passive House Institute for the dimensioning of ventilation systems were thus confirmed.

Non-residential Passive Houses

What are the requirements the Passive House standard sets for non-residential buildings? This topic was addressed by the experts Susanne Theumer, Ludwig Rongen, Günter Limberger, Gernot Vallentin, Martin Treberspurg, Claus P. Baumeister, Max Noack, Volker Kylau, Pia Regner and Anne Huse. The requirements depend on the building's use. For sales outlets such as the world's first Passive House supermarket in Tramore (Ireland), the cooling and lighting aspects need special consideration. Projects like the fitness centre in Donaueschingen also highlighted the subject of cooling.

Sustainability and affordability are also significant criteria for constructions according to the Passive House Standard, as shown by a kindergarten project presented at the Conference. The example of a triple-field sports hall confirmed that, apart from careful planning, it is important to provide support for the maintenance of the building after completion, in order to optimise its operation. A newly planned office building was used as an example to verify the affordability of the Passive House Standard for non-residential buildings in comparison with the requirements of the EnEV 2007 and the EnEV 2009. The overall life-cycle costs of the building were taken into consideration; very strong conclusions could be drawn regarding the cost-effectiveness in contrast with parameter variations.

Passive Houses - globally

Passive House experiences in various climates were the topic of the Working Group for the "Global Passive House." Christoph Begert presented solutions for the climatic conditions in Melbourne. Miwa Mori described the first certified Passive House in Japan and compared the Passive House standard

with the requirements of the energy standards for buildings currently valid in Japan. Stefano Avesani presented a parametric study for the Passive House, taking into consideration various Italian climatic conditions. Examples of refurbishments in countries outside the German-speaking world were presented by Cathal Stephens of Ireland, Michael Klinski of Norway, Robert Cohen and Robert Prewett of England. These stand out for their extremely low energy use despite the climatic difficulties. Refurbishments must be well-planned. Using concrete examples, Mario Bodem warned of ill-considered measures which can make it necessary to "refurbish refurbishments."

Passive Houses in Central and Eastern Europe

The Passive House goes regional: Georgi Nikolov related how Bulgaria organised its first regional Passive House Conference in 2009 and established a network for the Passive House community. Progress is also being made in Latvia: Ervins Krauklis presented the first Latvian building constructed using Passive House components. A systematic analysis of energy and resource-saving construction was presented by Christina Victoria Ochinciuc from Romania. Pavel Kolacek reported on a two-storey timber building on a concrete basement in the Czech Republic that was built on the side of a hill. The construction of Passive Houses is subsidised by the national government and the Standard is gaining more and more attention from the public, as Jan Tywoniak reported. The experiences of residents of certified Passive Houses with passive cooling in Hungary were presented by Enikő Sariri-Baffia. A survey showed that passive cooling, as found in Passive Houses, is perceived as being more comfortable than ordinary air conditioning systems. Günter Schlagowski presented a church and a sports hall built according to the Passive House Standard in Poland and concluded his presentation with valuable information about the dedicated Passive House community there. The extreme temperature differences in Croatia and their effects on the development of the Passive House Standard in the region were explained by Ljubomir Miscevic.

Refurbishment using Passive House components

The wide variety of contributions concerning refurbishment projects highlighted the significance of this subject. Martin Teigeler presented the successful implementation of the Passive House Standard in a densely developed multi-storey construction area. In spite of very difficult conditions, the project was cost-effective. Edit Varga and Andreas Drechsler studied the energy and acoustic refurbishment of residential buildings. Tobias Timm's contribution dealt with heat distribution systems in modernisations and recommended that the heating technology be optimised only after the renovation of the building's envelope. Eberhard Hinz studied the cost of energy-retrofits of existing residential buildings. The special features of an energy-oriented modernisation of a church were presented by Werner Haase, who showed that it is mainly the short period of use that has an influence on the solutions. Anke Unverzagt related experiences with the modernisation of old buildings using Passive House components in Hannover. Ludwig Rongen reported about experiences with the refurbishment of a secondary school using the Passive House Standard. Raimund Rainer presented the refurbishment of a community centre and stressed the importance of the preliminary planning stage for the success of a project. An exciting refurbishment project of a high-rise building in Freiburg was the subject of Florian Kagerer's contribution.

EnerPHit

Besides the exchange of knowledge, the Conference served as a platform for introducing the latest developments for the constant optimisation of the Passive House Standard. PHI's new EnerPHit certificate was introduced by Wolfgang Feist, a pioneer in the development of this construction Standard and Zeno Bastian, a scientist at the Passive House Institute. A certificate for the modernisation of old buildings using Passive House components was presented by Prof. Feist at the Conference to ABG Frankfurt Holding GmbH for its Tevesstraße (Frankfurt am Main) project and to GAG Ludwigshafen for its Hoheloostraße (Ludwigshafen) project.

The 2010 Passive House Architecture Award

Another highlight of the Passive House Conference was the first ever presentation of the 2010 Passive House Architecture Award under the auspices of Dr. Peter Ramsauer, Germany's Federal Minister of Transport, Building and Urban Development. Sixty projects were submitted for the competition, two-thirds of which were single-family and two-family houses. Among the submissions were also some schools, kindergartens and office buildings. The award recognises outstanding designs which have been built according to the Passive House Standard. Contributions from Japan, China, the USA, Poland, Switzerland, Hungary, Italy, Denmark, Austria and Germany were submitted. All types of national and international buildings that had been realised and certified as Passive Houses were considered for this award. The winners were announced on Saturday in the Plenary Session and the projects were presented to the public in the trade exhibition.

The **1st prize**, worth €3,000, went to Halle 58 Architects, Bern, Switzerland for their "Multi-Family House in Liebefeld"; project ID 1793.

The **2nd prize**, worth €1,500, went to Cukrowicz Nachbaur Architects, Bregenz, Austria for their "New St. Gerold Municipal Centre"; project ID 1711.

Another **2nd prize**, worth €1,500, went to Key Architects, Kamakura, Japan for their "New Single-Family House in Kamakura"; project ID 1718.

The **3rd prize**, worth €1,000, went to Schweger Associated Architects, Hamburg, Germany for their "Dresden National Archives Extension"; project ID 1716.

The **special award for multi-storey buildings** awarded by the Federal Ministry of Transport, Building and Urban Development, worth €3,000, went to Huke-Schubert Berge Architects, Hamburg, Germany for their "Erdmannstraße – Two New Buildings in Hamburg-Ottensen"; project ID 1562.

The **special award for non-residential buildings** awarded by the Federal Ministry of Transport, Building and Urban Development, worth €3,000, went to D'Inka Scheible Hoffmann Architects BDA, Fellbach, Germany for their "Modular Passive House Gym System for Frankfurt Schools"; project ID 1628.

4 recognition awards, worth €500 each, went to the architects passivhauseco® bucher + hüttinger, Herzogenaurach, Germany for their "New Residential Building and Alternative Practitioner's Practice in Bräuningshof"; project ID 1200; din a4 and teamk2 Architects, Innsbruck, Austria for their "Lodenareal – New Housing Estate in Innsbruck"; project ID 1225; Olav Langenkamp, architekt eth-maa, Ebeltoft, Denmark, for the "New Passive House Building in Ebeltoft, Denmark"; project ID 1351, and BDA Stein + Hemmes Architects, Kasel, Germany for their "New Office/ Residential Building in Kasel"; project ID 1740.

Fully booked Trade Exhibition

Covering an area of 3,100m², renowned manufacturers presented the latest products, systems and procedures in the field of energy-efficient construction at the leading trade fair of the branch. Visitors took advantage of the trade fair to obtain neutral information about this subject at the information booths of the IG Passive House Germany, the Passive House Institute, the Passive House Services GmbH and the newly founded International Passive House Association. The visitors were able to browse through technical literature focusing on various topics, get information on the fundamental principles of the Passive House concept and pick up the latest copy of the "Active for more comfort: The Passive House" brochure. Experts provided information on a wide range of topics from architecture to certification at the Manufacturers' Forum taking place at the exhibition. Prof. Feist presented Passive House Component certificates to manufacturers at the exhibition.

The 14th International Passive House Conference was organised by the [Passive House Institute](#) and [SAENA GmbH](#), the Energy Agency for Saxony.

The next International Passive House Conference will take place in Innsbruck, Austria, on 27 and 28 May 2011. From 12 to 14 November 2010, Passive House residents all over the world will open their homes to the public during the 7th Passive House Days. Further information can be found on the following website: www.passivehouse-international.com. A list of the houses will be available as of September 2010 at: www.passivhausprojekte.de

Media Contact

Passive House Institute
Ana Krause
Rheinstraße 44/46
D-64283 Darmstadt
Telefon: +49 6151 / 82699-25
Fax +49 6151 / 82699-11
E-Mail: ana.krause@passiv.de
www.passivhaustagung.de

For further information see also:
The international Passive House Association



Opening session of the 14th International Passive House Conference in Dresden.
Speaking: Mr. Miksch, CEO, SAENA (Photo: PHI)



Well earned certificate “EnerPHit” for refurbishment of a block of flats from the 60s, saving more than 85% of the heating consumption to project-leader Kramer, GAG Ludwigshafen, Germany (right). On the left hand side: Prof. Dr. Wolfgang Feist (Photo: Ebel, PHI)



Press Conference at the Congress Center: 14th international Passive House Conference, 28 to 30 May in Dresden. From left: DI Olaf Reiter, Architect in Dresden; Prof. Dr. Wolfgang Feist, Innsbruck; Christian Miksch, CEO SAENA, Staatsminister Frank Kupfer, Prof. Dr. Jan Tyvoniak (Prague). (Photo: Sebastian Bratge)



One building from the guided tours: Passive House Kindergarten, Design by DI Olaf Reiter, architect. The energy savings are higher than 75% compared with average new buildings. (Photo: Ebel, PHI)