

Press Release

28 March 2023



In addition to presentations and workshops, the 26th International Passive House Conference in Wiesbaden, Germany, offered the around 600 participants a varied EnergyEfficiency Forum (left), a good-humoured Infopoint (centre) and five excursions. On the right: Excursion to the energy retrofit of the Hessenwaldschule in Weiterstadt. © Passive House Institute

Efficiency promotes social justice

26th International Passive House Conference shows how we all profit from better buildings

Darmstadt/Wiesbaden, Germany. Highly energy-efficient buildings are indispensable for climate protection. The 26th International Passive House Conference demonstrated that a high energy efficiency is also necessary for other reasons: social justice, good air quality for example in schools and health care buildings, and protecting the power grid against overloading are other good reasons to build and retrofit buildings in a better way. Presentations on municipal Passive House projects in Germany, Europe and North America also left a lasting impression. Around 600 international participants attended the three-day conference, which was held in Wiesbaden and online. Excursions took visitors to impressive projects such as the Passive House district Bahnstadt Heidelberg and the first certified Passive House hospital in Frankfurt.



Participants during the plenary session of the 26th International Passive House Conference. © Passive House Institute

"It is motivating to see that a high level of energy efficiency is having a ripple effect around the world. Here we have heard about impressive large projects, also in the area of energy retrofits, which are changing lives for the better for inhabitants in the long term," explains Jan Steiger, member of the management board of the Passive House Institute. It is now well-known that a high level of energy efficiency is indispensable for actually meeting climate targets in the building sector.



The conference and the EnergyEfficiency Forum, where manufacturers presented components for highly efficient construction and retrofiting, were held at the RheinMain CongressCenter in Wiesbaden. © Passive House Institute

"Must be enormously accelerated"

Nora Steurer of the Global Alliance for Buildings and Construction (GlobalABC), a network associated with the United Nations, pointed out that global CO₂ emissions in the building and construction sector rose by five per cent in 2021 compared with the previous year. The decarbonisation of this sector must therefore be "enormously accelerated." This requires a structural change, according to Steurer. Wolfgang Feist, founder of the Passive House Institute, and Benjamin Krick of the research institute highlighted the urgency of **Efficiency NOW!**, the focal theme of the conference. "Unless the heating demand of buildings is reduced, the power grid won't suffice if the majority of our buildings are equipped with heat pumps", explained Krick. In Germany, for example, experts called for higher energy efficiency

requirements for effective climate protection in the next revision of the Building Energy Act (GEG), which is planned for 2025.



Kate de Selincourt from Great Britain showed how Passive House is changing people's lives for the better. © PHI

Social justice

Kate de Selincourt from Great Britain focussed on another important aspect of a high level of energy efficiency: social justice. Highly energy efficient buildings also allow lower-income communities to live in a healthy environment. "So much of the Passive House is about health and well-being," said

de Selincourt. Because energy has been so expensive for a long time already, many are unable to heat their homes properly. Low-income families and elderly people have been living in winter in cold and damp buildings with room temperatures of 15 degrees, sometimes even below 10 degrees Celsius.

"Lives are changed"

Their health is suffering enormously, explained de Selincourt further. She also told the audience about the gratitude of residents when they move into an energy-efficient building that meets the Passive House standard. "The heat stays in the house for a long time, and the demand for heating energy is generally low. The whole lives of these people are changed," de Selincourt said. A separate series of lectures was devoted to the topic of social housing, with projects from around the world.



Social housing for 160 families in Saragossa, Spain. The four buildings are equipped with PV systems and are certified as Passive House Plus. © Grupo Lobe

Huge potential of retrofits

Large-scale energy retrofits are part of the solution for more climate protection and better living conditions. Graeme Stewart from Canada reported on the EnerPHit retrofit of the Ken Soble Tower. The City of Hamilton is able to provide 146 healthy and affordable apartments with low energy costs to the predominantly elderly residents after the retrofit. In northern Mexico, where summer temperatures can reach 52 degrees Celsius, one project provided crucial information on the feasibility and cost-effectiveness of energy retrofits in emerging economies.



The 1960s Ken Soble Tower after retrofitting to the EnerPHit standard.
© Courtesy Double Space & ERA Architects

72 % less heating energy is consumed

Søren Peper of the Passive House Institute presented the energy retrofit of three apartment blocks in Giessen, Germany, where heating consumption has been reduced by 72 per cent. Here too, tenants can now benefit from significantly improved living comfort. A better living standard - this also applies for retrofits of private properties. As explained by several conference speakers, a building's market value also increases as a result. Other speakers offered presentations about deep retrofit projects in Ireland, Spain, Poland, Denmark and Greece, among others. The workshop on the EU project outPHit focused on large-scale and fail-safe deep retrofits, also by using prefabricated components.

Municipal authorities invited

During the 26th International Passive House Conference, municipalities were invited to attend a workshop specifically tailored to their needs. The workshop also presented the outPHit concepts for quality assurance in retrofits to the EnerPHit standard. Subsidy programmes, for example the one offered by the German state of Hesse for modernisations using Passive House components, were also presented. Another series of lectures provided an overview of highly energy-efficient municipal buildings. Presentations included the new Passive House training centre of the Trier Chamber of Crafts and a community building project on a municipal site in Munich. Rainer Pfluger of the University of Innsbruck gave a presentation on the advantages of ventilation systems with heat recovery in school buildings and showed various ways of installing them in new builds and retrofits.



The Trier Chamber of Crafts implemented its new training centre to the Passive House standard. The high level of energy efficiency of the building is confirmed by a certificate.
© BIBB Rothbrust

Imperative of economic viability

The county district of Darmstadt-Dieburg in Germany presented experiences gained with energy efficient modernisation of school buildings. "If the savings in energy costs as well as the subsidies are taken into account, then one is well-advised to strive for the highest standard that can be subsidised, simply because of the need for economic viability, which the public sector is subject to," explains Oliver Ottinger of the county district. Climate policy reasons are naturally also a strong argument in favour of the Passive House concept. On the third day of the conference, Ottinger took participants on an excursion to three renovated schools in Weiterstadt. The buildings have become flagship projects, not only in terms of their energy efficiency but also with regard to their appearance.

Canada: "Passive House as an opportunity"

Andrew Arifuzzaman gave a presentation in Wiesbaden on the new 746-bed student residence hall that includes a 400-seat dining hall of the University of Toronto Scarborough. Investors were initially sceptical due to the lack of experience with a large-scale, highly energy-efficient project, explained Arifuzzaman. Now, as the project nears completion, Michael Faustini of the project partner Pomerleau explained: "We learned that unpredictabilities can easily be overcome with proper planning and



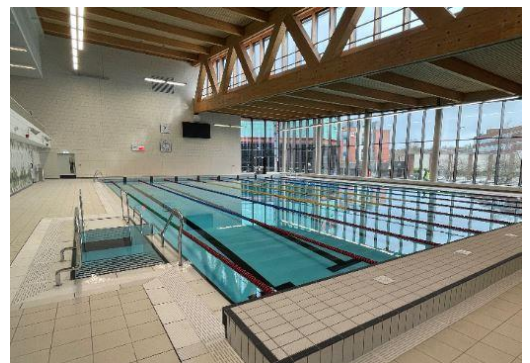
Andrew Arifuzzaman of the University of Toronto Scarborough gave a presentation on the construction of the new 746-bed student residence hall built to the Passive House standard. © PHI (left) / Pomerleau (right)

guidance from experts. We now see Passive House projects as opportunities rather than risks." Stuart Hood described experiences with the operation of two other Canadian projects: the Passive House fire station in Vancouver and the Passive House community centre in Clayton. Brad Mahoney from the USA reported on the 200-metre-tall Winthrop Center in Boston.

Indoor swimming pool in Exeter

Emma Osmundsen and Tomas Gaertner spoke on the approach adopted by the southern English city of Exeter towards the

first highly energy efficient indoor swimming pool in the UK, a path which was not always easy. The city already had experience with Passive House residential buildings and was building a retirement home at the same time as the indoor swimming pool. The sports and leisure centre should guarantee low costs for energy and water treatment, as well as being a resilient building with a healthy environment. The speakers stressed the importance of having an experienced and integrated team of planners.



The city of Exeter implemented the first Passive House indoor swimming pool in the UK. © Exeter City Council

Planning with the PHPP

In his presentation, Passive House designer Jason Fitzsimmons explained the thermal modelling and planning with the PHPP for the complex pool project. The planning tool also takes into account the energy demand for water treatment, the influence of evaporation and heat transfer between areas. Fitzsimmons explained that the project stakeholders had previously looked at the success of Passive House indoor swimming pools in Bamberg and Lippe in Germany.

Passive House for the healthcare sector

The Passive House Institute dedicated a special workshop to highly energy-efficient buildings in the healthcare sector. In addition to the low energy consumption of the buildings, speakers also addressed advantages such as good air quality and a high level of comfort. Hospital patients benefit from this as well as senior citizens and people needing nursing care in buildings constructed with these vulnerable groups in mind.



There are other highly energy efficient healthcare buildings besides the Passive House hospital in Frankfurt, Germany. © PHI

Efficiency Forum & networking

The 26th International Passive House Conference, under the patronage of the Hessian Minister of Economics, also included the EnergyEfficiency Forum. For two days, manufacturers of highly energy efficient components, the German Association of Energy Consultants (GIH), the international Passive House Association (iPHA) as well as IG Passivhaus and Passivhaus Austria were on hand to answer questions from conference participants and private visitors. The energy agency of the German state of Hesse (LEA) provided information about possible subsidies at the trade exhibition. The two evening events of the conference were completely booked out. On the last day of the conference, five



The EnergyEfficiency Forum was open to conference participants as well as private visitors. © PHI

excursions showed how many highly energy-efficient Passive House projects exist in the Rhine-Main region alone. Conference participants also had the opportunity to visit the Frankfurt hospital.



Networking in a festive atmosphere is a part of every International Passive House Conference. © PHI

"Facilitator for sustainable solutions"

In his presentation, Passive House expert Raphaël Vibert described the certification of buildings as a "powerful tool for quality assurance". Benjamin Krick and Jessica Grove-Smith of the Passive House Institute concluded the conference by emphasising that a high level of energy efficiency in buildings is indispensable for becoming acutely less dependent on fossil energy and for enabling the sustainable supply of renewable energy in the medium term. "Here, we have also seen, based on the example of the Shetland Islands, that a Passive House building can be combined well with renewable energy even in a cool climate and with a northern orientation to boot. The effects of climate change are becoming increasingly clear and there is greater pressure to take action. A high level of energy efficiency is the facilitator for sustainable solutions," Grove-Smith explained in the conclusion.



The heating energy consumption of the Albrecht-Dürer-Schule in Weiterstadt in Hesse (Germany) has been reduced considerably after the retrofit (left, © Passive House Institute); picture of the 200 metre tall Winthrop Center in Boston, USA (centre, © MP Boston) and the world's first certified Passive House hospital in Frankfurt (© Klinikum Frankfurt Höchst).

General information

Passive House Award: That's how diverse Passive House is! Finalists and winners of the international architecture competition are presented in this [Flipbook](#). Click and see!



#EfficiencyNOW! The call of the hour is to save fossil energy. To achieve this, the Passive House Institute has started the **#EfficiencyNOW** campaign. All information can be found on the platform [Passipedia](#).



Passive House buildings: With the Passive House concept, the heat loss that typically takes place in buildings through the walls, windows and roof is drastically reduced. By applying the following five basic principles 1. Excellent thermal insulation, 2. Windows with triple glazing, 3. A ventilation system with heat recovery, 4. Avoidance of thermal bridges, 5. An airtight building envelope, a Passive House building needs very little energy for heating and cooling.



A major part of its heating demand is met through "passive" sources such as solar radiation or the heat emitted by occupants and technical appliances. SINFONIA and other projects around the world have demonstrated that the Passive House concept works well also in deep retrofits of existing buildings. The Passive House Institute developed the EnerPHit standard for this purpose.

Socially compatible and highly energy efficient apartment blocks built to the Passive House standard.
© Neue Heimat Tirol

Other advantages of the Passive House & EnerPHit standards: 1. Increased thermal comfort. 2. In winter the heating demand is very low; the heat escapes out of the house very slowly. 3. The cooling demand of Passive House buildings in the summer is low. 4. The utility costs are predictable due to the low energy costs – which is the basis for affordable homes and social housing.

Pioneer project: The first Passive House building in the world was built over 30 years ago in Darmstadt, Germany, by four private homeowners. Prof Wolfgang Feist was one of them. Ever since the families moved in in 1991, these terraced houses have been regarded as a pioneer project for the Passive House standard.



Passive House and renewable energy: The Passive House standard and the generation of renewable energy is an excellent combination. The Passive House Institute has also introduced the building classes *Passive House Plus* and *Passive House Premium*. The pioneer project in Darmstadt was equipped with a photovoltaic system in 2015 and therefore received the *Passive House Plus* certificate.

The first Passive House building celebrated its 30th anniversary. © P. Cook

Building uses: There are now Passive House buildings for all types of building uses. In addition to residential-use and office buildings, there are also kindergartens, schools, sports halls, swimming pools and production facilities built to the Passive House standard. The highly efficient first Passive House hospital in the world started operations in February 2023.

PHPP: The Passive House Planning Package (PHPP) is available for realistic and reliable energy balance calculation and planning of highly energy efficient buildings. This Excel-based tool is routinely used worldwide for planning and quality assurance of Passive House buildings and EnerPHit deep retrofits.

Passive House Institute: The Passive House Institute (PHI) in Darmstadt was founded by Professor Wolfgang Feist in 1996 in Darmstadt. Since 2010, the Institute also has a branch in Innsbruck. The PHI is an independent organisation holding a leading position in research and development relating to highly energy efficient construction and building retrofits.



Prof. Dr. Wolfgang Feist
© Peter Cook

iPHA: The purpose of the intern. Passive House Association is the dissemination of knowledge relating to highly energy efficient construction as well networking.

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