



Group photo in front of the successfully completed SINFONIA project in Innsbruck: with its four excursions, the 27th International Passive House Conference offered to view highly energy-efficient projects in detail. © Passive House Institute

Energy retrofits work. Really well.

27th International Passive House Conference presents solutions for renovations & much more

Darmstadt, Germany /Innsbruck, Austria. "It's the existing buildings that matter!" From the start of the 27th International Passive House Conference in Innsbruck, the Passive House Institute emphasised the importance of highly energy-efficient renovations for climate protection. Diana Ürge-Vorsatz from the IPCC also called for renovations and new builds to focus exclusively on high energy efficiency. The international speakers presented successful projects and showed solutions for unusual challenges such as special climatic conditions or monument protection. The Passive House exhibition, evening events, workshops and four excursions rounded off the conference with the focus: "Retrofit. Have an impact."

"Passive House and EnerPHit work really well. We need a high level of energy efficiency more than ever, especially in building retrofits, because this is the only way can renounce fossil fuels," explained Jan Steiger from the management of the Passive House Institute. At the opening ceremony at the University of Innsbruck, Diana Ürge-Vorsatz, Vice-Chair of the Intergovernmental Panel on Climate Change (IPCC), emphasised that highly energy-efficient buildings built to the Passive House standard make a significant contribution to climate protection: they reduce CO₂ emissions thanks to their low heating and cooling requirements, thereby slowing down global warming. At the same time, they offer a high level of living comfort all year round. This is also important in view of increasingly hotter summers, said Ürge-Vorsatz.



The 27th International Passive House Conference took place on the Technology Campus of the University of Innsbruck. The opening ceremony took place in the large lecture hall. © Passive House Institute



At the event venue, participants had a good view of Innsbruck's mountain panorama (left). At the Passive House exhibition, companies presented their components for highly energy-efficient construction and refurbishment to an international audience of experts from 42 countries (right). © Passive House Institute

Renewable Heat Act

The climate scientist demanded that we rethink aesthetics and beauty in architecture and reduce the immense use of concrete and steel by using sustainable building materials and integrating more greenery into buildings and cities. Climate Protection Minister Leonore Gewessler gave an insight into Austrian climate policy to the more than 450 participants at the 27th International Passive House Conference. She explained that the ban on fossil-fuelled heating systems had been extended with the Renewable Heat Act that had just come into force. At the same time, financial support has significantly increased so that deep renovations are no longer a question of income.



Climate scientist and Vice-Chair of the Intergovernmental Panel on Climate Change IPCC, Diana Ürges-Vorsatz. © PHI

Strong municipal housing construction

Mayor Georg Willi explained that due to its Alpine location, Innsbruck had already reached the temperature increase of 2°C. The city already started highly energy-efficient building construction at an early stage and, therefore, has a high density of buildings built to the Passive House standard. Strong partners in municipal housing construction are important for this.

Efficiency & renewables

Laszlo Lepp of the Passive House Institute in Innsbruck, together with other speakers, emphasised the future-oriented combination of high energy efficiency and the generation of renewable energy. Among other things, he reported on successful EnerPHit renovations in Innsbruck as part of the EU project SINFONIA. The residential buildings were gradually modernised using Passive House components while they were inhabited, and comfort ventilation systems were also retrofitted. PV systems were also installed. The comprehensive renovation of two school buildings was carried out in one go. All buildings achieved the EnerPHit standard and are also certified.



Austria's Climate Protection Minister Leonore Gewessler at the International Passive House Conference. © PHI



The elementary school Neuarzl in Innsbruck achieved the EnerPHit standard following a retrofit. The advantages are a greatly reduced heating demand and significantly increased thermal comfort for all users in both winter and summer. A large-scale PV system and a ventilation system are installed on the roof. © Passive House Institute

The heating demand is greatly reduced

Following a deep retrofit, the savings in heating energy are considerable: in the SINFONIA residential projects, this reduction averages 77%. At the same time, the renovated buildings offer a much higher level of living comfort. According to Lepp, this illustrates the enormous potential of energy-efficient renovations for saving energy and protecting the climate. A total of four excursions to highly energy-efficient projects on the third day of the conference provided the opportunity to view the refurbished SINFONIA projects in detail. The participants also visited many new construction projects in Innsbruck and Tyrol.

"We can still succeed!"

The Passive House Institute clarified that large-scale renovations are essential for the heat transition. Only buildings that require significantly less energy for heating and cooling can easily be supplied with renewable energy and free capacities in the energy grid. "We can still succeed in ensuring that global warming is not quite so extreme. To achieve this, we need to reduce the heating demands of our buildings significantly," demands Jan Steiger. The numerous presentations on deep retrofit projects showed that things are already moving in a positive direction worldwide. Some of the EnerPHit renovations were carried out as part of the EU project [outPHit](#), which aims to use Passive House components in addition to thorough planning and quality-assured implementation of the renovation steps.

Building retrofits around the globe

In Bergamo, Italy, a renovated apartment received pilot certification for the first EnerPHit Unit. The small French town of Saint-Priest-en-Jarez had school buildings from the 1960s renovated to the EnerPHit standard using prefabricated components and built extensions to the Passive House standard. In Vienna, a late-nineteenth-century building was also renovated to the EnerPHit standard. A former coach house in New York also offers comfortable living space after its renovation, as well as very low energy costs. In Connecticut, USA, an office building was transformed into a climate-friendly hotel.



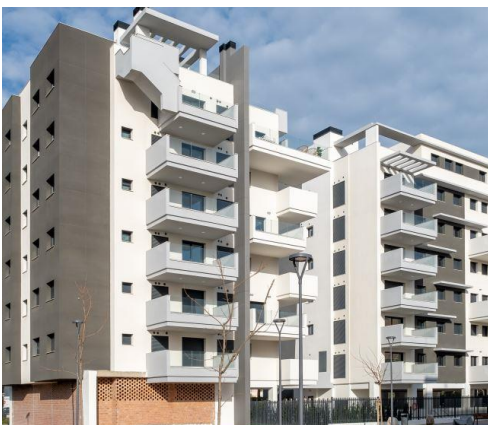
Passive House Institute staff, recognisable from the red ribbon, together with guests who conducted plenary sessions and lecture series: (from left) Bernd Steinmüller, Elena Reyes, Laszlo Lepp, Stefan Pallantzas, Martin Ploß, Susanne Theumer, Jan Steiger, Dirk Mober, Benjamin Krick, Anne Vogt, Helmut Krapmeier, Rainer Pfluger (University of Innsbruck), Witta Ebel and Jessica Grove-Smith. © Passive House Institute

International new builds

The 27th International Passive House Conference also featured presentations on optimal planning of energy-efficient building renovations combined with the installation of a heat pump. A separate series of lectures dealt with building services concepts, also for highly energy-efficient renovations. The presented new building projects included another Passive House guesthouse of the Austrian Agency for Further Education (OeAD) in Innsbruck, which is due to be completed in 2025, Passive House schools in Sweden, a kindergarten built as a timber construction in Zaragoza, Spain, public buildings built to the Passive House standard in Poland and the first Passive House Plus in Taiwan.

It also works long term

Various monitoring projects demonstrate that high energy efficiency also works very well in the long term. Studies carried out relating to a renovated school in France, a Passive House sports hall in Paderborn built 15 years ago, and a detached house in Lithuania prove that the buildings continue to have low energy demands and that the components have a long service life. This is also confirmed by ten projects in the UK, which were re-assessed ten years after their extensive modernisation.



In Malaga in southern Spain, the planners of this Passive House complex implemented comprehensive protection against overheating because of the high summer temperatures. © Exxacon

Warm climate and hot summers

Warm climates and increasingly hot summers also pose a particular challenge for planners. In Innsbruck, the Passive House Institute presented recommendations for summer strategies in schools. Due to the high occupancy and the associated high internal heat gains, educational facilities in particular need to take strategic countermeasures, including effective shading. This can also keep the active cooling requirement low or avoid it altogether. To prevent overheating in two apartment buildings built to the Passive House standard in Malaga in southern Spain, the architect paid attention not only to effective shading but also to a very low energy transmittance for windows, light colours for

façades and roofs, and a thicker insulation thickness for the roof.

It all depends on the policymakers

The extent to which highly energy-efficient buildings and refurbishments are built depends largely on the political landscape. The British Passive House Trust network reported from Scotland at the conference. Due to the positive experiences with various Passive House projects, the Scottish government is currently working on drafting national legislation for the building sector based on the Passive House standard. The US state of Massachusetts is now also focusing on high energy efficiency intending to reduce heating requirements and heating loads significantly. To this end, the building guidelines have been updated, and within a short space of time, several cities have decided to adopt the requirements.



Mexico, Zambia, Nepal

To provide a Passive House subsidy for residential buildings in Mexico, a simplified tool for assessing the sustainability of housing projects was developed in a cooperation between the BBVA bank, the consultants GOPA and CAPSUS, and the Passive House Institute. In addition to energy efficiency, water consumption is also taken into account. The state of Zambia sent two members of its national building council to the 27th International Passive House Conference. Zambia wants to define regulations for high energy efficiency in the building sector and educate specialists. Two female architects from Nepal took part in the conference as part of the EU-funded BEEN project led by the University of Innsbruck. The project goal is to establish highly energy-efficient and resource-conserving construction in Nepal.



ENBIL and easyPH

The trade exhibition with Passive House components was once again an essential part of the conference. Numerous exhibitors took the opportunity to present their components for highly energy-efficient construction and renovation to an international audience of experts from 42 countries. The University of Innsbruck, which co-hosted the conference, presented its research projects on high energy efficiency. The Passive House Institute presented two innovations: with the **ENBIL** program (in German), those wishing to renovate a building receive an initial overview of possible renovation steps for their building, including a cost estimate. The result is a sound basis for taking



Top: Passive House new build of the municipal housing development company Neue Heimat Tirol with more than 150 apartments and a kindergarten in Innsbruck. © PHI **Centre:** Evening event during the 27th International Passive House Conference. ©PHI **Bottom:** The striking former office building in Connecticut, USA, is now a climate-friendly hotel. © Seamus Payne Hobhouse

further steps together with an energy consultant. The new **easyPH** tool was developed to simplify the certification of single-family homes. It is based on the PHPP energy balance tool and can be used to certify new buildings with just one or two residential units and a ventilation system.

Existing buildings matter

"Passive House works. The Passive House Conference has once again demonstrated this impressively. It works just as well in Lithuania as in Latin America. It works for residential buildings, schools and swimming pools, for new buildings and renovations. The task now is to bring our existing buildings up to a high level of energy efficiency. This will benefit each and every individual in the building as well as us as a society," concludes Jürgen Schnieders, a member of the management board of the Passive House Institute.



Dragos Arnautu of the Passive House Institute (left) presents the certificate for a Passive House in the Romanian capital of Bucharest to Cristina Târțâu und **Marius Soflete**. © Edward Negrea

Passive House on Tour

The digital proceedings of the **27th International Passive House Conference** with all presentations can be purchased in the **literature shop** of the Passive House Institute. The **28th International Passive House Conference** will take place in 2026. In addition to the conference, the Passive House Institute is also organising **Passive House on Tour**. Several one-day events in various cities are aimed at local authorities and institutions in order to support the regional realisation of highly energy-efficient buildings in existing and new buildings.



This press release is available in different formats [here](#) together with images.

27TH INTERNATIONAL PASSIVE HOUSE CONFERENCE 2024

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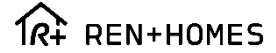
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General Information



Society: 1. The **Passive House for everyone** campaign (photo) demonstrates the commitment of even young schoolchildren to high energy efficiency and climate protection. 2. The impressive Passive House journey of two Swedish activists is published on Instagram under #PassiveVoyage. This journey will soon enter its second round.



Passive House Award: That's how diverse Passive House is! Finalists and winners are presented in this **Flipbook**.



#EfficiencyNOW: The aim is to reduce fossil energy consumption. The Passive House Institute has started the #EfficiencyNOW campaign. All information on **Passipedia**.



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

Passive House buildings: The heat loss that typically takes place in buildings through the walls, windows and roof is drastically reduced. By applying the 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 little energy for heating and cooling.

Passive House buildings can therefore dispense with a *traditional* heating system. A major part of its remaining low heating demand is largely met through "passive" sources such as solar radiation or the heat emitted by occupants and technical appliances. The Passive House concept works well also in deep retrofits of existing buildings. The Passive House Institute has developed the EnerPHit standard for this purpose.

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. Socially fair: low energy costs mean low utility costs – which is the basis for affordable homes and social housing.

Passive House and renewable energy: The Passive House standard and generation of renewable energy is an excellent combination and represented in the building classes *Passive House Plus* and *Passive House Premium*. The world's first Passive House in Darmstadt has also been generating renewable energy after it was retrofitted with a photovoltaic system in 2015 and therefore received the Passive House Plus certificate.



In 2021, the world's first Passive House building in Darmstadt celebrated its 30th anniversary!
© Peter 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. In Frankfurt am Main, the Passive House certificate was awarded for the first Passive House hospital in the world.

PHPP: The planning tool **PHPP** (Passive House Planning Package) was developed by the Passive House Institute for energy balance calculation of highly energy efficient buildings. The energy demand is reliably calculated with this Excel-based tool during the planning phase.



Prof. Dr. Wolfgang Feist
© Peter Cook

Passive House Institute: Founded by Professor Wolfgang Feist in 1996, the Passive House Institute is independent and holds a leading position in research and development relating to highly energy efficient construction and retrofits.

iPHA: The purpose of the membership based International Passive House Association (iPHA) is the dissemination of knowledge as well as networking.

Social Media:



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Linkedin: @passive-house-institute

Contact: Katrin Krämer / Press Officer / **Passive House Institute** / www.passivehouse.com
E-mail: presse@passiv.de // Tel: (+49) (0)6151 / 826 99-25