**Press Release** **28 August 2019**

Visually appealing and a masterpiece in terms of energy efficiency: this supermarket in the Austrian town of Prutz received the certificate for energy-relevant modernisation to the EnerPHit standard. The refrigerated display shelves were given specific attention in this modernisation. The roof of the supermarket was also renewed.
© MPREIS, Kathrin Auer

# A new addition: energy efficiency!

**Supermarket in Austria and factory building in Sri Lanka successfully modernised**

***Darmstadt, Germany.*** **The two buildings are used completely differently, but they have one important thing in common: both buildings have achieved the EnerPHit standard after an energy retrofit. The Passive House Institute recently presented the certificate for the EnerPHit retrofit of a supermarket in the Austrian town of Prutz. About 7800 kilometres away, a clothing factory in Sri Lanka also received a certificate for a successful energy efficient modernisation. This pilot project in the tropical climate will be presented in October at the 23rd International Passive House Conference in China.**

The MPREIS supermarket chain was faced with the question whether the company's branch in the town of Prutz in Tyrol should be demolished or refurbished. The family business already realised several new buildings to the highly energy efficient Passive House standard. The company decided in favour of an energy efficient modernisation to the EnerPHit standard, which is the Passive House standard for modernisations.

This factory for clothing manufacture in Sri Lanka was also modernised successfully and received a certificate as an EnerPHit pilot project. © Ganidu Balasuriya


Left: MPREIS has entered new territory with the modernisation of the supermarket in Prutz in Tyrol. The company had already realised several new buildings to the Passive House standard, © ventira architekten. Right: Laszlo Lepp of the Passive House Institute awards the EnerPHit certificate to Paul Mölk and Mario Reich (from left), © MPREIS.

## Thermal protection for refrigeration units

The supermarket in Prutz was given a new timber roof as well as an efficient lighting system. As is the case in the new Passive House buildings, the waste heat from the food refrigeration technology is now utilised for heating the newly modernised building. After the modernisation, the existing gas-fired boiler only ensures supply during peak loads. A $CO_2$-based controlled ventilation system provides fresh air. An excellent standard of thermal protection for the refrigeration units is also important; the standard refrigerated display shelves are now equipped with insulating double glazing, while the freezer units have triple-glazing and doors with seals all around. The bottom, rear wall and sides of the units are also insulated.

## Successful venture into new territory

Cooling is now generated by large-sized condensers. Electronic expansion valves, demand-driven defrosting and optimised fans with EC motors also increase energy efficiency. According to the company, the additional investment will already be amortised after five to seven years through the energy savings alone. "With this energy retrofit, the owners have entered new territory and the energy efficiency of this store has been significantly increased. Many more supermarkets throughout the country can be modernised to an energy efficient standard using these measures", explains Laszlo Lepp of the Passive House Institute. Lepp recently presented the certificate for the EnerPHit retrofit to MPREIS. Since 2012, the company with over 260 grocery stores has realised a total of nine new buildings to the Passive House standard and is planning another four Passive House retail stores.

The Star Innovation Center in Katunayake, Sri Lanka, provides employees a pleasant working environment after the retrofit with efficient systems for ventilation and dehumidification. © Ganidu Balasuriya

## EnerPHit in Sri Lanka

7800 kilometres away from Prutz, on the other side of the globe in the tropical climate of Sri Lanka lies the Star Innovation Center. This building in the town of Katunayake was also successfully modernised and was awarded the certificate for an EnerPHit pilot project from the Passive House Institute. Thus, the textile factory is the first EnerPHit factory building located in a tropical climate. In this project too, the involved parties decided against demolishing the existing building.

## Shortened construction period

"Due to the modernisation, the construction period was shortened and we were able to reduce the $CO_2$ emissions significantly", explains architect and Passive House designer Jordan Parnass in New York. The Star Innovation Center combines offices and industrial facilities for designing and sewing clothing items. During the modernisation, the exterior walls and the roof were well-insulated and a photovoltaic system and solar thermal systems were installed. Excellent ventilation systems with energy recuperation and efficient dehumidification are also essential in the tropical climate. Moreover, double glazed windows and a good quality of doors were installed.


The clothing factory building before (left) and after (right) the modernisation. There is a considerable improvement not only visually but also in terms of energy efficiency. The overall energy demand has been reduced by about 70 percent.
© (Left) Jordan Parnass Digital Architecture, © (Right) Ganidu Balasuriya

## Ventilation and dehumidification

Jordan Parnass further explains that due to the energy efficient retrofit the overall energy demand of the industrial building has been reduced by about 70 percent compared to a conventional modern building. The energy demand for dehumidification has even been reduced by around 90 percent. The running costs are much lower as a result. "For us, it was also important to improve the working conditions", says Jordan Parnass. According to the architect, the employees can now enjoy a pleasant level of air humidity, an indoor temperature of around 24 degrees Celsius and plenty of daylight.

## Tropical climates

"The Star Innovation Center in Sri Lanka demonstrates that energy efficient modernisations to the Passive House Standard are also possible in tropical climates even with energy-intensive uses. After the retrofit, the buildings consume significantly less energy and offer the employees a high level of thermal comfort", says Dragos Arnautu of the Passive House Institute in Darmstadt. Arnautu certified the industrial building in Sri Lanka and is currently working on several Passive House projects in similarly challenging climates.


## Presentation in China

The EnerPHit project in Sri Lanka will be presented in full detail at the **23rd International Passive House Conference** in China. The conference with the theme "**Passive House worldwide!"** will be held from **9 - 11 October 2019** in the city of Gaobeidian which is about 100 kilometres to the south of the capital Beijing. https://passivhaustagung.de/en/

## General Information

### Passive House buildings

**In Passive House buildings, heat loss is drastically reduced - by means of high-quality thermal insulation, an airtight building envelope and windows with triple glazing. In winter, preheated air is introduced into the building by a heat recovery ventilation system. In summer, the excellent level of insulation ensures that the heat stays outside. The five basic Passive House principles allow these highly efficient building to dispense with *classic* building heating. They are called "passive houses" because a major part of their heating demand is met through "passive" sources such as solar radiation, the heat emitted by occupants and technical appliances. A Passive House thus consumes about 90 percent less heating energy than existing buildings and 75 percent less energy than an average new construction.**

### EnerPHit standard for existing buildings

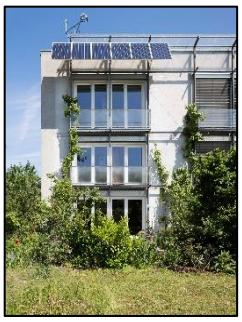
**In 2010 the Passive House Institute developed the EnerPHit standard for existing buildings that attain the Passive House standard. Since then, the EnerPHit standard has been applied worldwide. Specific measures for the cool, temperate Central European climate include thermal insulation of the building envelope with a thickness of at least 20 cm, windows with triple low-e glazing and insulated frames, a ventilation system with heat recovery and the minimisation of thermal bridges among other things. The energy demand of the modernised building is usually slightly higher than that of a new construction built to the Passive House standard on account of remaining thermal bridges, possibly unfavourable building orientation or monument preservation requirements. However, at the same time the level of comfort that is typical for a Passive House building will result for the building user.**

### Passive House & NZEB

**The Passive House standard already meets the EU requirements for Nearly Zero Energy Buildings. According to the European Buildings Directive *EPBD*, all member states must specify requirements for so-called nZEBs in their national building regulations. These came into effect in January 2019 for public buildings and will apply for all other buildings from the year 2021.**

### Pioneer project

**The first Passive House in the world was built in Darmstadt-Kranichstein (Germany) 27 years ago by four private homeowners. Dr Wolfgang Feist was one of them. Ever since the homeowners moved in with their families in 1991, these terraced houses have been regarded as a pioneer project for the Passive House standard. After extensive technical testing, building physicists attest to the still unimpaired functioning of the first Passive House and its unchanged low heating energy consumption. With its newly installed photovoltaic system, the first Passive House now utilises renewable energy and received the Passive House Plus certificate for this reason.**



The world's first Passive House building in Darmstadt-Kranichstein.
© Peter Cook

### Passive House and renewable energy

**The Passive House Standard can be combined well with on-site renewable energy generation. Since April 2015, the new building classes "Passive House Plus" and "Passive House Premium" have been available for this supply concept. The first buildings in these two categories have already been certified, including private houses as well as office buildings.**

### Passive House Institute

**The Passive House Institute with its headquarters in Darmstadt (Germany) is an independent research institute for highly efficient use of energy in buildings. The Institute founded by Dr Wolfgang Feist holds a leading position internationally with regard to research and development in the field of energy efficient construction. Among other things, Dr Wolfgang Feist was awarded the DBU Environmental Prize in 2001 for developing the Passive House concept.**

Dr Wolfgang Feist.
© Peter Cook

### 23rd International Passive House Conference

**The Passive House Institute will be hosting the 23rd International Passive House Conference in Gaobeidian, China from 9 till 11 October 2019. www.passivhaustagung.org**
**The 24th International Passive House Conference takes place on 20th and 21st September 2020 in Berlin.**

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