Building the Future - Sustainably!

Tuesday, 19th May, 2020 – Prof Wolfgang Feist, the founder of the Passive House Institute (PHI) in Darmstadt, Germany, knows what he wants for the future of building.

Prof Wolfgang Feist, founder of the Passive House Institute. © Peter Cook

The building physicist Prof Wolfgang Feist founded the Passive House Institute, an independent research institute, in 1996. The aim is to continue to develop the Passive House Standard which seeks to reduce building-related energy demand by as much as 90% compared to a conventional building. Yes, you heard it right, the remaining energy demand is only one tenth of what average buildings require. Not only for single-family homes, PHI and its international network apply the standard to residential and non-residential buildings all over the world. Already, the Passive House Standard has been implemented throughout Europe, the South Pacific, North and South America and most recently, in Asia. China is now home to the world's largest Passive House district.

The success of the Passive House standard is built on its effective energy efficiency strategy, quality assurance and versatility. The standard can be applied to all buildings types, with numerous Passive House schools, supermarkets, swimming pools, high-rises and factories already dotting the globe. While the Passive House standard was developed for new builds, PHI has also developed the EnerPHit standard to meet the challenge of highly energy efficient retrofits, and a Passive House class system including Passive House Classic, Passive House Plus and Passive House Premium, to support the integration of renewables.

Based in building physics, the Passive House standard is internationally applicable, achievable in any climate from hot and humid, like a recent factory in Sri Lanka, to cooler climate zones, like Scandinavia or Canada, the latter of which has increasingly integrated Passive House into its building regulations. Using the Passive House Planning Package (PHPP), an energy balance and design tool developed by PHI, there is no performance gap in certified Passive House buildings, a rarity in the construction industry.

Passive House's contribution to science is well documented, but the current climate and Corona crises have also highlighted its benefits to health, the environment and the economy. Active ventilation using a heat recovery ventilation unit means Passive House buildings maintain a continuous amount of fresh, filtered air and a comfortable indoor temperature. This, coupled with high-quality building components such as windows, optimal insulation and the avoidance of thermal bridges means Passive House buildings can mostly rely on passive techniques, such as the sun's rays shining through the windows or opening the windows during the cooler night-time hours, to heat or cool them. This, in turn, reduces heating and cooling needs to an extremely low level which saves money and reduces CO_2 emissions. Building better also creates jobs all along the construction supply chain, from the tradespeople and architects, to the developers and component manufacturers. As Passive House buildings have such a low energy demand, it can easily be met using locally generated renewables, another benefit for the environment and local economies.

The future of building is now upon us, and with Passive House, it can be done to the benefit of our health, our environment and our economy.

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 in 1996 by Dr Wolfgang Feist, holds a leading position internationally with regard to research and development in the field of energy efficient construction. It developed the Passive House standard and works to expand the knowledge of it by developing tools to support implementation; offering professional training and course material for a range of industry stakeholders; certifying components and buildings for quality assurance; and communicating the importance of energy efficiency in buildings.

More information of Passive House can be found at https://passivehouse.com/