

Press Release

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Climate activists during the global strike in March in Frankfurt/Germany are calling for independence from fossil energy sources. The Passive House Institute shows which steps all of us can take immediately in this regard and which ones can be addressed later on. © Passive House Institute

Let's save fossil energy! NOW!

Passive House Institute: #EfficiencyNOW shows ways towards independence from fossil fuels

Darmstadt, Germany. The call of the hour is to save fossil energy. To achieve this goal quickly, the Passive House Institute has started the #EfficiencyNOW campaign. The research institute explains how each one of us can contribute towards becoming more independent of fossil energy, and ultimately phasing it out altogether. On [Passipedia](#), the Institute provides guidelines on how to go about this.



Dependency on gas, oil, and coal is not only damaging the climate, but is also anti-democratic and jeopardises international security, according to climate activists participating in the global strike in March. "The current situation shows how important and urgent it is to break our dependence on fossil fuels, for energy supply security, for climate protection and ultimately also for peace. With our longstanding experience in the area of energy efficiency in buildings, we wish to contribute to this societal task," Jessica Grove-Smith of the Passive House Institute explains. The

institute in Darmstadt, Germany, has laid out immediate measures how to save fossil energy in the building sector quickly and also specifies changes that should be made in the medium term.



Three examples of changes through which dependence on fossil-based energy can be reduced immediately, over a short time, and in the medium term (from the left): a water-saving shower head, subsequently installed insulation of a hot water tank (with recycled material in this case) and a high-quality deep retrofit of a building. © Passive House Institute



Examples of cost-free immediate measures for saving fossil energy

- ⊞ Reducing room temperature and wearing warm clothes
- ⊞ Partial heating in regards to space and time of day
- ⊞ Showering less and for shorter periods using water-saving shower heads
- ⊞ Switching off appliances that are rarely used, or unused, e.g. an old freezer
- ⊞ Saving electricity in general



Examples of steps which can be undertaken in the short term

- ⊞ Insulating hot water storage tanks
- ⊞ Insulating the attic
- ⊞ Insulating window reveals
- ⊞ Covering window panes with an insulating film
- ⊞ Acquiring a small photovoltaic system for the balcony
- ⊞ Using a heat pump instead of a gas or oil boiler (for supplementary use initially)
- ⊞ Mini-split device for supplemental heating



Examples of steps which should be undertaken in the medium term

- ⊞ Deep retrofits to reach the highly energy efficient EnerPHit standard
- ⊞ For complete overhauls and step-by-step retrofits it is always important to use highly energy efficient components such as triple-glazed windows, heat recovery ventilation systems and optimal thermal insulation. Thermal bridges should also be avoided.

Heat pumps for existing buildings

Given the considerably increased energy prices and a potential supply crisis, particular attention is paid to heat generators. The experts at the Passive House Institute have demonstrated that an electrically powered **heat pump** can be integrated into existing buildings and can replace a gas or oil boiler. Of course, it is advisable to improve the thermal protection of the building first, by means of excellent thermal insulation, good windows and minimised thermal bridges; this will automatically reduce the heating demand of the building.

Replacing a boiler with a heat pump

"If this is not possible in an existing building, heat pumps also constitute a solution until the thermal protection can be improved. If a boiler needs to be replaced anyway, homeowners should definitely consider installing a heat pump," explains Jürgen Schnieders of the Passive House Institute. It is essential that the heating system should be able to cope with the lowest possible forward flow temperatures.



Mini-split devices can be installed as an additional heat source. In Germany, for example, these are now eligible for grants.
© Passive House Institute

Mini-split devices

Alternatively, to consume less fossil energy, one should consider more cost-effective **mini-split devices**. These can be installed as an additional heat source and may cover a portion of the heating demand. The gas and oil boiler can remain in the building as a backup for the time being, explains Wolfgang Feist. The founder of the Passive House Institute talks about his experiences with split devices which are

commonly used for heating in Sweden. In Germany, for example, these devices are now also eligible for grants. In a highly energy efficient building such as a Passive House, one split device is enough to supply the entire house, in less efficient buildings at least the living room can be heated with it, says Feist.

Small-scale PV

A photovoltaic system on a building produces renewable energy and can be an attractive measure for owners to contribute to fossil energy savings and climate protection. According to the Passive House Institute, small-scale photovoltaic systems, also known as "plug solar devices", installed on the balcony or similar places may be of interest to those living in rented housing. For these systems, which have a maximum output of 600 watts, the owner only needs to register with the grid operator. The connector is simply plugged into the power socket in the home. "These systems produce electricity mainly in summer. This also saves natural gas, which in turn stays in the national storage tanks for use in winter," says Wolfgang Feist.



Small scale PV is one measure to save fossil fuel. In Germany, these so called "plug solar devices" only have to be registered with the grid operator.
© Jörg Sutter

Benjamin Krick of the Passive House Institute emphasizes the **insulation of window reveals**. Such a modification can be implemented right away, and windows and the overall thermal insulation can be planned for from the start and tackled later on. According to Krick, **hot water storage tanks and distribution pipes** should also be insulated.

Deep energy retrofit

In the medium term, the Passive House Institute scientists consider the extensive retrofitting of the existing building stock as inevitable. The **EnerPHit standard**, the Passive House standard for existing buildings, makes the most sense economically, explains Jürgen Schnieders. Whether the deep retrofit is carried out all at once or step-by-step, it is important that only highly efficient components must be used to avoid a lock-in effect. Someone replacing the windows or renewing the roof today will probably not renew that component for the next 30 to 40 years. "With a poor quality, one would thus miss the opportunity to save a lot of energy and protect the climate for decades to come. If retrofitting measures are planned, these should always be done to a high energy standard," says Schnieders.

Passive House Education: Building Capacity



15 years Certified Passive House Designer
10 years Certified Passive House Tradesperson
#PassiveHouseEducation



More! Training!

#EfficiencyNOW – as part of this campaign, the Passive House Institute will also offer new courses for Passive House tradespersons in the future, in addition to the already existing further training courses for tradespersons and designers. These courses for tradespersons will provide information about the requirements for a high performance quality of the building envelope and building services technology. Susanne Winkel of the research institute encourages everyone to take advantage of the **further training courses for Passive House designers and consultants** in order to expand much-needed consultancy capacities. "Together, we can achieve much more," is the call to action of the Passive House Institute



All information relating to **#EfficiencyNOW** is published on the Passive House resource knowledge database, **Passipedia**. Please send your suggestions to **JETZT@passiv.de**

General Information

Latest report of the IPCC

"The time window remaining to us becomes smaller and smaller the longer we defer protection of the climate and adaptation" – this is what Hans-Otto Pörtner of the UN Climate Council IPCC had to say at the end of February 2022. Solving the problems of supply security and climate protection in the building sector means highly energy efficient new constructions and retrofits. This is how the existing building stock will become climate-neutral!



Apartment blocks to the Passive House standard.
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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 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 this reason, Passive House buildings can dispense with a *traditional* heating system. A major part of their heating demand is met through "passive" sources such as solar radiation or the heat emitted by occupants and technical appliances.

Advantages of Passive House buildings

In a Passive House building, in winter the heat is retained for a very long time since it escapes very slowly. In the summer (and in hot climates), a Passive House building also offers advantages: among other things, the excellent level of insulation ensures that the heat stays outside, therefore active cooling usually isn't necessary in residential buildings (in Central Europe). Due to the low energy costs in Passive House buildings, the utility costs are predictable - which is a fundamental principle for affordable homes and social housing. The Passive House standard meets the requirements of the EU for Nearly Zero Energy Buildings (NZEB).



The world's first Passive House building in Darmstadt, Germany recently celebrated its 30th anniversary.

© Peter Cook

Pioneer project

The first Passive House in the world was built in Darmstadt, Germany, 30 years ago by four private homeowners. Professor 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.

Passive House and renewable energy

The Passive House Standard and generation of renewable energy directly on-site or near the building is a good combination. The Passive House Institute has introduced the building classes *Passive House Plus* and *Passive House Premium* for this purpose. The world's first Passive House building in Darmstadt has also been producing renewable energy since 2015 by means of a subsequently installed photovoltaic system, and received the *Passive House Plus* certificate for this reason.

Building types

Passive House buildings for all types of uses now exist everywhere. In addition to residential and office buildings, there are also kindergartens and schools, sports halls, swimming pools and factories built to the Passive House standard. The start of operations of the first Passive House hospital in the world in Frankfurt am Main is planned for Summer 2022.



Professor Wolfgang Feist
© Peter Cook

Passive House Institute

The Passive House Institute was founded by Professor Wolfgang Feist in 1996 as an independent research institute. The Passive House Institute holds a leading position with regard to research and development in the field of energy efficient building construction and deep retrofits.

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