

PLANNING AND CONSTRUCTION FOR A SUSTAINABLE FUTURE

Expertise for
Architects, Engineers
and Tradespeople



*Passive House
Institute*

PASSIVE HOUSE INSTITUTE

Passive House courses

E-Learning

Certificates

Why become a Passive House Designer?

Why become a Passive House Tradesperson?

The Passive House

The Passive House Institute

For the sake of improved readability, the texts in this brochure do not explicitly differentiate between gender-specific personal descriptions. The masculine terms used here apply equally to the female and various other forms.

ArchitekturWerkstatt Vallentin GmbH © Photo: Jacob Kanzleitner

Conscientious planning and diligent execution are essential for highly energy efficient buildings. These elements are necessary to implement the requirements of the building envelope and building services that will result in an energy efficient and comfortable building, which is sustainable and supports our necessary climate action goals.

For many years the Passive House Institute (PHI) has been providing the expertise necessary for energy efficient construction, holding many training courses on the subject of Passive House. These courses are offered worldwide, in cooperation with many partner organisations.

These advanced training courses fit in with the internationally acclaimed quality assurance of the PHI. The PHI issues certificates for quality approved buildings, tested and verified building products and accredited professionals. Certified professionals („Certified Passive House Tradesperson“ or „Certified Passive House Designer/Consultant“) are listed on the Passive House Institute website and are visible for potential building developers and project partners.

Search for Passive House experts worldwide:
www.passivehouse.com/en/training/



Passive House Courses

The courses on the topic of Passive House buildings were developed by the Passive House Institute for tradespeople, architects and engineers. They are offered by course providers around the world (our partner organisations) as advanced courses for professionals working as designers and tradespeople and within the context of professional training and education.

Passive House course providers also offer examinations coordinated by the Passive House Institute. By successfully completing these examinations you can become a certified Passive House Tradesperson or a certified Passive House Designer, or attain one of the additional certificates.

Search for Passive House course providers:
www.passivehouse.com/training



The course providers provide courses and examinations from the range of advanced training courses of the Passive House Institute according to local demand. Correction of each examination is closely coordinated with the Passive House Institute to ensure quality assurance of Passive House courses worldwide.



Are you interested in **in-house professional training**?
 Please contact us or one of our course providers to receive an individually tailored offer.

**Would you like to pass on Passive House expertise to others and become a course provider yourself?
 Contact us at designer@passiv.de**

To present your Passive House courses you can obtain course materials that have been prepared, and translated into many languages, by the Passive House Institute. If you would like to use your own course materials, the internationally applicable Catalogue of Learning Objectives will help you to adequately prepare your course participants for the examination.

Using the Passive House Institute's e-learning programmes you can reduce the in-class attendance days for your course and thus put together an effective training programme.



"By integrating the Passive House Designer course in our Master's degree programme we have significantly improved our university ranking. This is doubly pleasing: it's good for our university, and more students will receive an excellent and future-oriented education."

Ludwig Rongen, Prof. em. University of Applied Science Erfurt

E-learning

Make use of our online courses to gain a first insight into Passive House or obtain more advanced knowledge about Passive House principles in a convenient and individual way. In addition these online courses offer a big advantage when preparing for Passive House Designer courses or workshops on Passive House tools, such as the energy balance tool PHPP (Passive House Planning Package) or the SketchUp based designPH tool.



Passive House for Decision Makers

Whether for families building their own home, investors or politicians – this free online course offers an overview of valuable information and supporting arguments and enables informed decisions to be made about the energy standards of buildings.



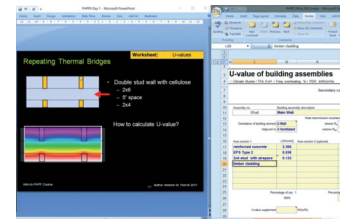
Erich Kästner school pbr Planungsbüro Rohling © city of Leipzig

Passive House Fundamentals

Gain basic knowledge about the planning and construction of Passive House buildings. Whether it concerns a highly efficient building envelope or Passive House suitable building services – this, approximately 20 hour, online course provides substantial basic knowledge about all the elements that need to be considered for the planning and construction of Passive House buildings. With this course, you will also be ideally prepared for a Passive House Designer course or a workshop on Passive House tools.

PHPP Online

Learn to prepare an accurate energy balance using the Passive House Planning Package (PHPP). In this online training course (in English) you will be guided step by step through the relevant areas in this tool. In addition, information about all necessary data input into the PHPP will be provided in a practical exercise.



Passive House courses and subsequent examinations are conducted worldwide according to the same rules, and certificates are centrally issued by the Passive House Institute. This ensures a consistently high standard of Passive House advanced training.

Certified Passive House Tradesperson and Certified Passive House Designer/Consultant:

Advanced training programmes and the respective certificates are offered for tradespeople, as well as architects, engineers, energy consultants, building physicists, technicians etc.

Certificates can be attained in the following ways:

- by successfully completing an internationally offered examination
- by providing proof of adequate experience with highly energy efficient buildings (only possible for the Passive House Designer/Consultant certificate).

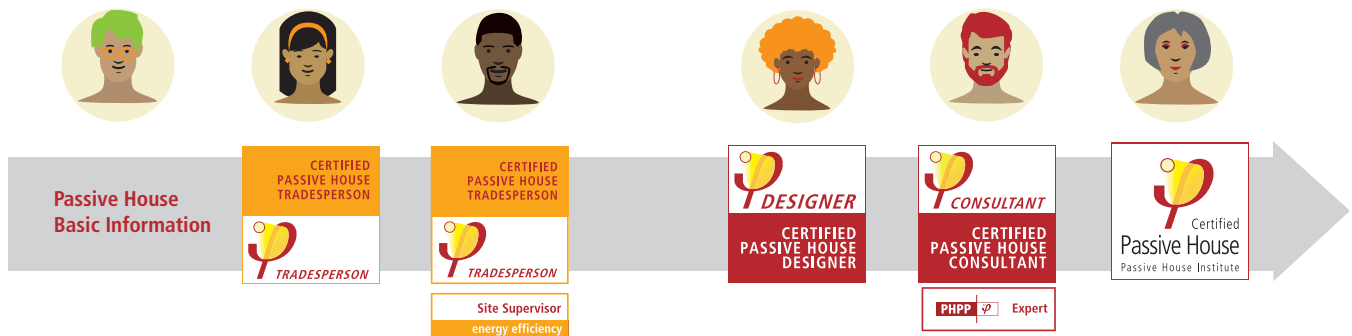
Everyday work in planning and construction practice is constantly changing; continuously expanding one's knowledge makes sense and this also applies to the field of energy efficiency.

For this reason, our certificates for individuals are valid for 5 years, but can be extended for a further 5 years as often as desired.

Certificates are valid for 5 years and can be extended in two ways:

- by providing proof of adequate experience with highly energy efficient buildings
- by participating in a sufficient number of further training courses and events

More information can be found further on in this brochure and at www.passivehouse.com/training



Additional certificates: the further training programme of the Passive House Institute has been supplemented with additional certificates which are tied to the main certificates of Passive House Tradesperson and Passive House Designer/Consultant. For most of these certificates courses and examinations have been developed which are offered by our course providers/examination hosts locally. The additional certificates are automatically renewed with the main certificate.



Trainer



Component Assessor
building airtightness

Both of the additional certificates presented here constitute supplementary activities of Passive House experts. They cannot be attained through courses/examinations and can only be obtained through a cooperation agreement with the Passive House Institute.

Trainer

Passive House Trainers are course instructors for the Tradesperson, Designer or additional certificates. They are part of a team of course providers or are themselves course providers. The prerequisites are as follows:

- in-depth knowledge/experience with Passive House projects and further training
- participation in a Train-the-Trainer course
- valid Passive House Designer/Consultant certificate
- iPHA membership

Component Assessor

A Component Assessor monitors the process of component certification on behalf of the Passive House Institute. The additional certificate is issued following an invitation by the PHI. The prerequisites are as follows:

- invitation by the Passive House Institute
- processing of three component certifications in cooperation with the Passive House Institute
- valid Passive House Designer/Consultant certificate
- iPHA membership



Residential building in Berlin © Architekten Deimel Oelschläger

“The focus of our work lies on designing sustainable and future-proof buildings. In-depth knowledge relating to the planning of Passive House buildings is also useful for other building efficiency classes and is an important building block for planning in our office.

For acquiring my Passive House Designer certificate I submitted documentation for one of our Passive House projects. The documentation can be found on the Passive House Institute’s website.”

Christoph Deimel, Deimel Oelschläger Architekten

Learn how to build a Passive House!

Within our own personal sphere, each one of us can act in a climate conscious way... but also especially in our professional activities there is a huge potential for preserving our planet for future generations.



All professions involved in the planning of buildings, such as architects or engineers, have the chance to make a great and important contribution with their work every day.

The Building sector accounts for nearly 40% of our energy consumption – this is where you can make a difference!

And what's more:

New builds to the Passive House Standard, as well as retrofits using Passive House components, aren't just effective due to their significant energy savings.

Noticeably greater interior comfort is experienced as well as a sustainably healthy building structure is also achieved due to high quality planning.



What do you need for this?

Knowledge relating to the planning of highly energy-efficient buildings which you can easily and conveniently acquire in Passive House courses, through e-learning programmes or through learning-by-doing in cooperation with experienced Passive House Designers

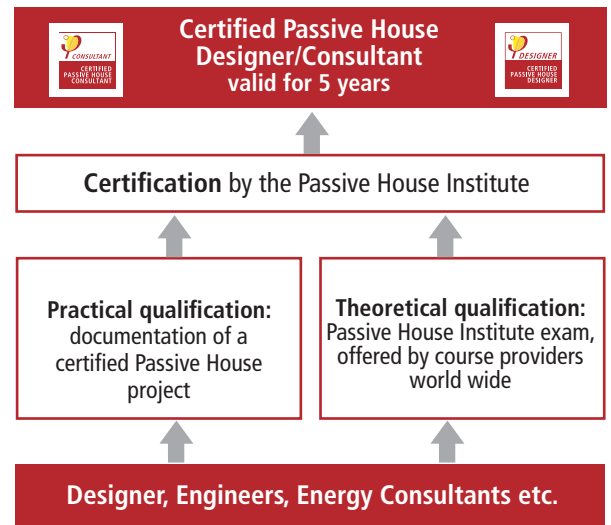
...and...

visibility of your critically needed special competence amongst property developers, potential project partners and authorities.

Demonstrate your expertise in the planning of sustainable buildings! Become a Passive House Designer/Consultant



How can I become a certified Passive House Designer/Consultant?



Acquiring a certificate

The Passive House Designer/Consultant certificate can be attained in two ways:

- By successfully participating in an examination. The examinations are prepared by the Passive House Institute and offered by course providers locally, following training courses. Registration for the examination will take place online on the website of the Passive House Institute.
- By providing proof of sufficient experience with highly energy-efficient buildings. This is done by means of documentation of the planning for a building that has been certified according to the Passive House Institute criteria. Project documentation can be submitted worldwide in various languages to our assessing bodies and will be published on the Passive House Institute website. More detailed instructions and samples can be found on this website.

Course providers and examination dates:
www.passivehouse.com/training



Extending certificates

The Passive House Designer/Consultant certificate is valid for 5 years and can be extended in two ways:

- by providing proof of sufficient experience with highly energy efficient buildings (see above)
- by participating in further training courses and events. The list of suitable events offered by our partners is published on the website of the Passive House Institute. 8 further training credit points are normally awarded for one whole course day. Passive House Designers/Consultants will need 100 credit points for extending their certificate.



Designer/Consultant, what is the difference?

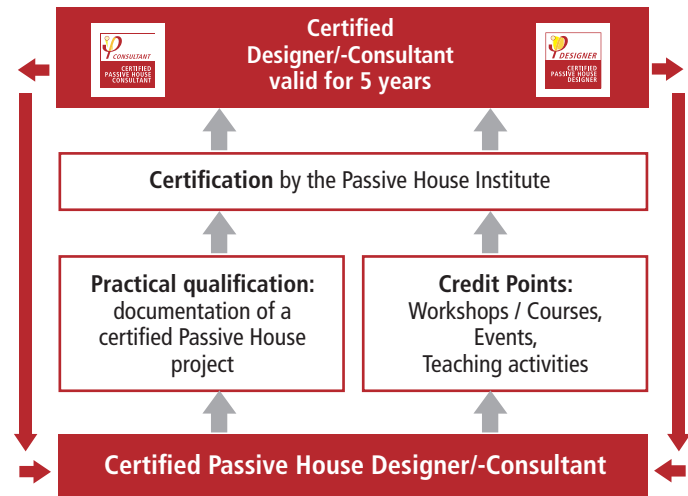
Both certificate titles attest to the same level of knowledge with reference to planning of highly energy-efficient buildings – they only describe different professional training or academic qualifications.

Passive House Designers in general work in planning offices, and their work involves specific planning and implementation of Passive House buildings, while Passive House Consultants contribute to projects and the dissemination of the Passive House Standard through their consultancy work, for example, as building physicists, environmental management or in the property sector.

Assessing bodies and list of events:
www.passivehouse.com/training



How do I extend my Passive House Designer/Consultant certificate?





© Architekturwerkstatt Vallentin

“The Passive House Standard is the minimum energy standard for all of our projects.

The PHPP calculations are carried out in our office in order to maintain a high degree of independence in the decision-making process. For this, it is crucial to have in-depth knowledge of the PHPP, which we possess to a high degree of course.”

Rena Vallentin, Architekturwerkstatt Vallentin



Affordable Zero
Energy Buildings



The project has received funding from
the European Union Horizon 2020
research and innovation programme
under grant agreement No. 101019718

For providing supplementary and in-depth expertise, the Passive House Institute has developed additional course modules which are offered locally by our course providers.

PHPP Experts

Building on the basic skills taught in the Passive House Designer course, here you will learn more advanced knowledge for the optimisation of complex projects. Besides an in-depth understanding of the Passive House Planning Package PHPP (non-residential buildings, retrofits etc.), valuable know-how will be provided relating to 3D input tools: designPH and bim2PH. An extensive module on the calculation of thermal bridges is part of the course.

The following prerequisites apply for acquiring the associated additional certificate „PHPP Expert“:

- valid Passive House Designer/Consultant certificate
- preparation of an assignment
- examination

Energy-Efficiency Focused Construction Supervision

Besides the coordination of construction sites with reference to energy efficiency, this course also deals with the commissioning of complex Passive House projects and provides an in-depth understanding of the process of building certification.

Its objective is to achieve quality-assured implementation of Passive House planning on-site and during building operation, and an optimised and thus cost-effective building certification process.

The following prerequisites apply for acquiring the associated additional certificate „Construction Verifier“:

- valid Passive House Designer/Consultant certificate
- examination



As a tradesperson, you can literally take climate protection into your hands!



Without having a firm understanding of the interdependencies of the processes in construction projects, successfully practising sustainability in the building sector is not possible.

Gain the necessary knowledge so that, through your recommendations and influence with building owners and building planners, energy efficient planning and a high level of energy-efficiency is established in all new buildings and retrofits.

**Passive House buildings have been demonstrating it for decades:
"A high level of energy efficiency is achievable!"**

Through your work you can make a huge contribution towards saving CO₂ emissions – not only on paper but also in real life!

And more:

New Passive House buildings as well as retrofits with Passive House components are not just impressive due to the significant energy savings. Noticeably higher user comfort and a sustainably healthy building structure are also achieved due to the high-quality workmanship.

Passive House courses for tradespersons are offered in two areas of specialisation (building envelope and building services) and depending on the course provider, they also have many practical course modules.

Prepare yourself and your colleagues for current and future challenges:

Learn what you need to watch out for in Passive House Standard new builds and retrofits with Passive House components, and understand how the work executed by different disciplines affects the energy standard of the building. Work out solutions to routine problems as a qualified partner in discussions with planners and construction management

...and...

demonstrate your commitment to sustainability to building owners and potential clients by becoming a Passive House Tradesperson.

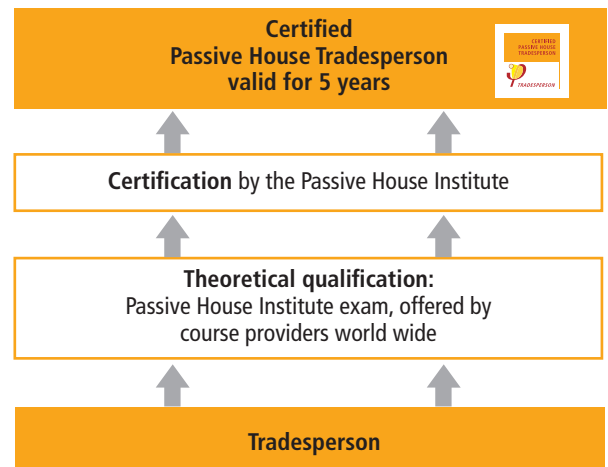
The Passive House Tradesperson certificate can be acquired by:

- successful participation in an examination. These examinations are prepared by the Passive House Institute and offered by course providers at the end of the further training courses. Registration for the examination takes place online on the website of the Passive House Institute.

Course providers and examination dates:
www.passivehouse.com/training



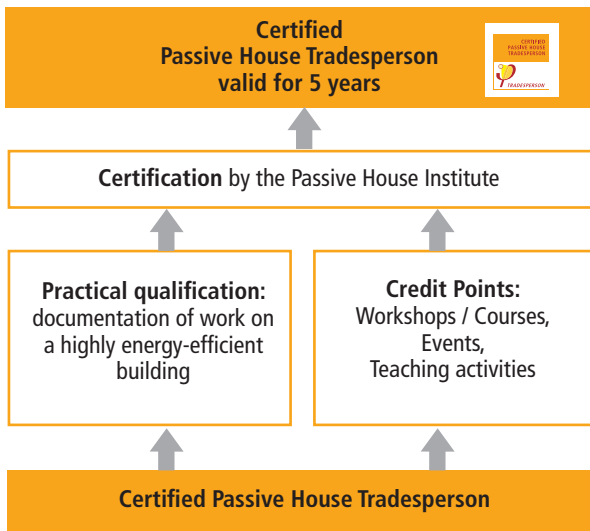
How can I become a certified Passive House Tradesperson?



The Passive House Tradesperson certificate is valid for 5 years and can be extended in two ways:

- By providing proof of collaboration in an energy efficient building project. This building does not have to be certified. The work executed by you in the context of your discipline must be described in documentation, which can be submitted to our assessing bodies in various languages. Instructions and samples can be found on the website of the Passive House Institute.
- By participating in a sufficient number of further training courses and events. The list of suitable events organised by our partners is published on the website of the Passive House Institute. 8 further training credit points are normally awarded for one whole course day. To extend their certificate, Passive House Tradespersons will need 30 credit points.

How do I extend my Passive House Tradesperson Certificate?



Energy-Efficient Construction Site Coordination

This course deals with the coordination of construction sites of complex Passive House projects with reference to energy efficiency. In addition, fundamental knowledge Energy-Efficient Construction Site Coordination (in progress) will be provided about the Passive House-Planning Package PHPP, in order to ensure a solid understanding of the energy-relevant effects of on-site changes to plans.

The objective is quality assured implementation of complex Passive House planning on the construction site.

The following prerequisites apply for acquiring the associated additional certificate „Site Supervisor“:

- valid Passive House Tradesperson certificate
- examination

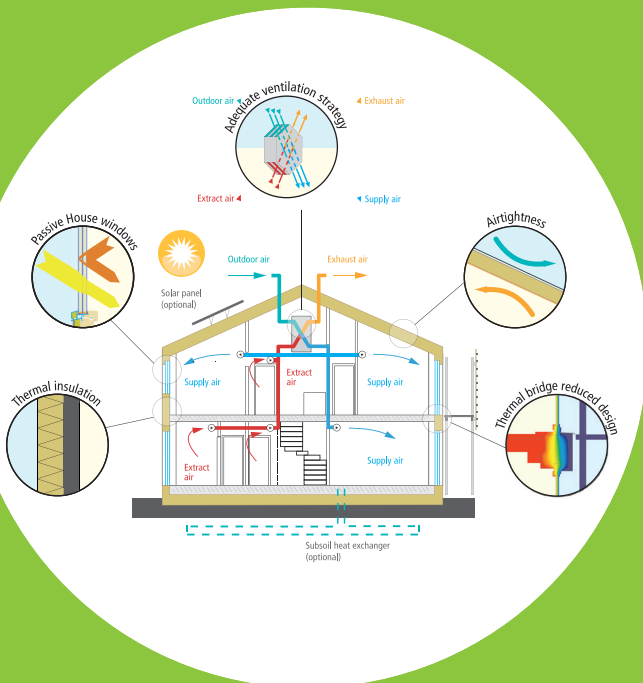
Assessing bodies and list of events:
www.passivehouse.com/training



THE PASSIVE HOUSE STANDARD IS A BUILDING STANDARD WHICH IS SIMULTANEOUSLY ENERGY EFFICIENT, COMFORTABLE, AND ENVIRONMENTALLY COMPATIBLE.

PASSIVE HOUSE IS NOT A BRAND, IT IS A BUILDING CONCEPT THAT IS AVAILABLE TO EVERYONE – AND HAS PROVED SUCCESSFUL IN PRACTICE FOR MANY DECADES ACROSS THE WORLD.

THE PASSIVE HOUSE STANDARD IS MAINLY ACHIEVED WITH FIVE BASIC PRINCIPLES:



1. Optimal thermal insulation

This ensures excellent thermal protection of the entire building envelope, which is imperative for a high level of energy efficiency! That is because most of the heat in conventional buildings is lost through the exterior walls, as well as the roof and foundation. This principle is reversed in the summer and in warmer climate zones: together with the exterior shading and the use of energy-efficient household appliances, the thermal insulation ensures that heat remains outside, while it is pleasantly cool inside.

2. Insulated window frames with excellent glazing

Especially in the winter, the heat of the sun is „captured“ through these windows, which usually have triple low-e glazing. In particular, south-facing windows bring more solar energy into the building than the amount of heat they lose towards the outside. At the same time, elements for exterior shading are used in order to avoid the risk of overheating in the summer.

3. Thermal bridge free construction

Avoiding thermal bridges is an extremely effective method of preventing unnecessary heat losses. Meticulous planning for all connection details around the building envelope is necessary.

4. Airtight building envelope

An airtight envelope which encloses the entire heated interior space volume prevents energy losses, moisture damage and draughts. A gap-free uninterrupted airtight layer must be guaranteed at all intersections and connection details of a building.

5. Comfort ventilation system with heat recovery

This constantly supplies the Passive House building with fresh air. Dirt and pollen are filtered out in advance. A heat exchanger simultaneously recovers up to 90 % of the heat from the extracted air.

The Passive House Institute (PHI) was founded in 1996 by Professor Wolfgang Feist and is an independent research institute with an extensive interdisciplinary team.

The development of the Passive House concept was decisively shaped by the PHI: the first model project in Europe to be planned, built and scientifically monitored (Passive House in Darmstadt-Kranichstein, 1990) is a normally inhabited multifamily building with a documented heating demand of less than 10 kWh/(m²a).

Focus

The Institute carries out research in the field of highly energy-efficient buildings or Passive House buildings and has developed planning tools for planning and validation of highly energy-efficient buildings. The institute disseminates its findings globally.

Building certification

Certification of buildings is offered as quality assurance for the planning and construction process, preferably during the planning phase and also as a final seal of approval after completion. For this, the scientific staff at the Institute provide consultancy services during the planning and implementation of the building, if this is desired.

Measurement/Monitoring

After the completion of various buildings the Passive House Institute carries out accompanying measurements for the purposes of quality assurance. Overall monitoring with the associated evaluation of measurements and an overall analysis for highly energy efficient buildings may also be offered.

Simulation

The Passive House Institute has developed algorithms and its own software tools for dynamic building simulation, calculation of energy balances, and for the planning of Passive House buildings. Flow simulations (CFD), two and three dimensional calculation of heat flows and daylight simulations are also performed.

Product development and certification

Products are tested and certified with regard to their suitability for use in Passive House buildings. For this, the PHI provides advice to manufacturers and companies in relation to the energy-relevant optimisation of products and planning details.

Further training

Further training offers and opportunities are presented in the brochure at hand.

Networks

iPHA and IG-Passivhaus are networks for Passive House stakeholders such as architects, planners, scientists, manufacturers, contractors and property developers. They advocate the promotion of the Passive House Standard nationally and internationally. Both networks communicate with the media, general public and the entire spectrum of construction professionals. They run information sessions, webinars and other activities that promote the exchange of Passive House expertise globally.



International Passive House Conference

The international Passive House Conference is a key platform for the science, architecture, technology and product development in the field of highly energy efficient construction and retrofiting. In addition to fascinating presentations and workshops, the annually held conference offers an excellent opportunity for networking, especially during the accompanying specialists' exhibition.

Passive House Evenings

Passive House Evenings is a series of lectures that takes place several times in the year and offers the opportunity to obtain and exchange information on current topics relating to energy efficient construction.

Passipedia

The Passive House resource on the Internet provides building owners or planners all the information needed to understand to the Passive House standard – from the question of whether opening windows is permitted, to details of thermal bridge calculation and Passive House certification. Passipedia contains freely available information and a members' section for members of IG-Passivhaus and iPHA with more detailed information and research findings.

Literature

Numerous research reports, information sheets and planning tools are available here – some free of cost.

Lectures

The Passive House Institute offers lectures and seminars on the topic of energy efficient construction and Passive House buildings in conjunction with interested parties.

Research Group Sessions

The Research Group for Cost-effective Passive Houses was initiated in 1996 and sees itself as an implementation and communication interface between theory and practice. Since then, key issues relating to energy efficient construction have been presented in research group sessions and discussed with interested expert audiences.

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School Möhrfelden-Walldorf © Photo: Passive House Institute



“The Passive House Standard is the minimum standard for all our projects. In-depth knowledge relating to planning of Passive House buildings and use of the PHPP are absolutely essential and applied our office to a great extent.”

Rena Vallentin, Architekturwerkstatt Vallentin

www.azeb.eu



Affordable Zero
Energy Buildings



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 754174