
International

PASSIVE HOUSE

Association



Passive House: Going global

By Sarah Mekjian

iPHA

The international network for Passive House knowledge
Promoting the Passive House Standard worldwide

www.passivehouse-international.org

Introduction

Worldwide Applicability

International

PASSIVE HOUSE

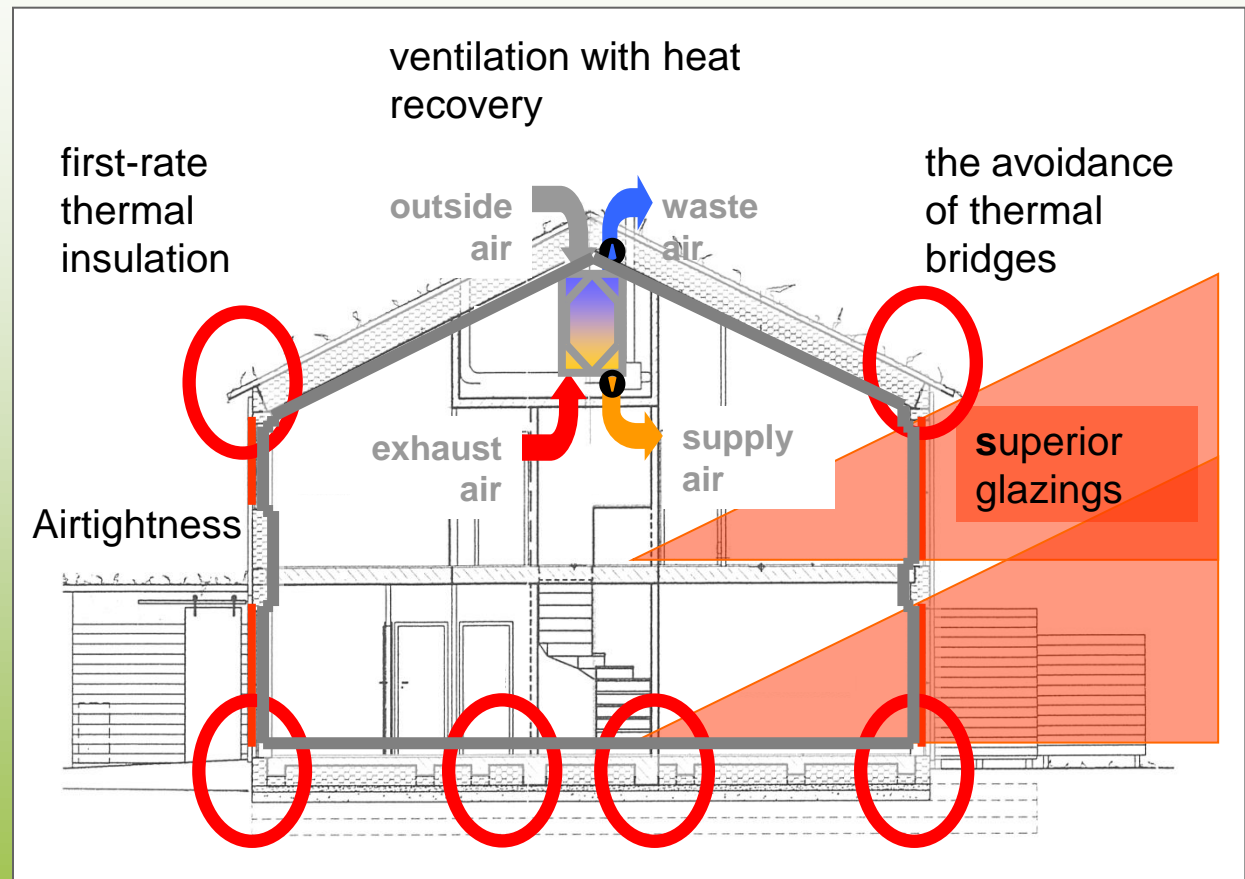
Association



Passive House
an elegant
solution to
unnecessary
energy waste

Straightforward
building physics

**Not just about
energy...**



Passive Houses are like conventional buildings, but built better

Introduction

Worldwide Applicability

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Passive House has proven a great success since its birth

- **32,000+ in the EU**
- **16,500+ in Germany**
- **10% certified**

Passive House fits with local needs the world over

Austria
Belgium
Bulgaria
Canada
Czech Republic
Denmark
France
Germany
Hungary
Italy
Ireland
Japan
Latvia
Netherlands
New Zealand
Poland
Russia
Sweden
Switzerland
Slovakia
Spain
UK
Ukraine
USA

Regs | Components | Buildings | People | iPHA | Opportunities



"Member States shall ensure that: (a) by 31 December 2020, all new buildings are **nearly zero energy buildings**; and (b) after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings." (EPBD, Article 9.1)



Already 27 PH “hot spots” EU wide with ~25m inhabitants...

Freiburg Schwarzach Zwischenwasser Dornbirn

Frankfurt Mäder Rankweil **Brussels** Krumbach

Alta Valtellina **Hesse** Hanover Altach Vienna Lustenau

Darmstadt-Dieburg Bregenz Leverkusen Bremen Wels

Hörbranz **Vorarlberg** Leipzig Lower Austria Cologne

Frastanz Saarland Hamburg Rhineland-Palatinate Langenegg

Nuremberg Oslo Götzis Bürs

Certified Passive House Components

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Component	Countries
Insulated concrete	Germany
Facade fixing systems	Germany, Switzerland
Window frames	Austria, Croatia, France, Germany Hungary, Italy, Lithuania, Poland, Slovakia, Slovenia and South Korea
Curtain wall systems	Germany, Switzerland
Compact heat pump units	Austria, Denmark
Ventilation systems	Austria, Denmark, Germany, Netherlands
Wall and construction systems	Austria, Denmark, Germany, Hungary, Poland, Slovenia, Sweden, Switzerland
Perimeter insulation	Germany
Entrance doors	Austria, Germany, Italy, Switzerland
Glazing	Belgium, Germany, Slovenia

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1. Germany	1799
2. Austria	46
3. France	25
4. UK	21
5. Switzerland	16
6. USA	15
7. Belgium	11
8. Netherlands	10
9. Hungary	8
9. Italy	8
10. Ireland	7

People

Certified PH Designers

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passivhausplaner.eu

Certified Passive House Designers & Consultants

- Almost 1500 worldwide
- Active in 38 countries

Passive House Designer Course Providers

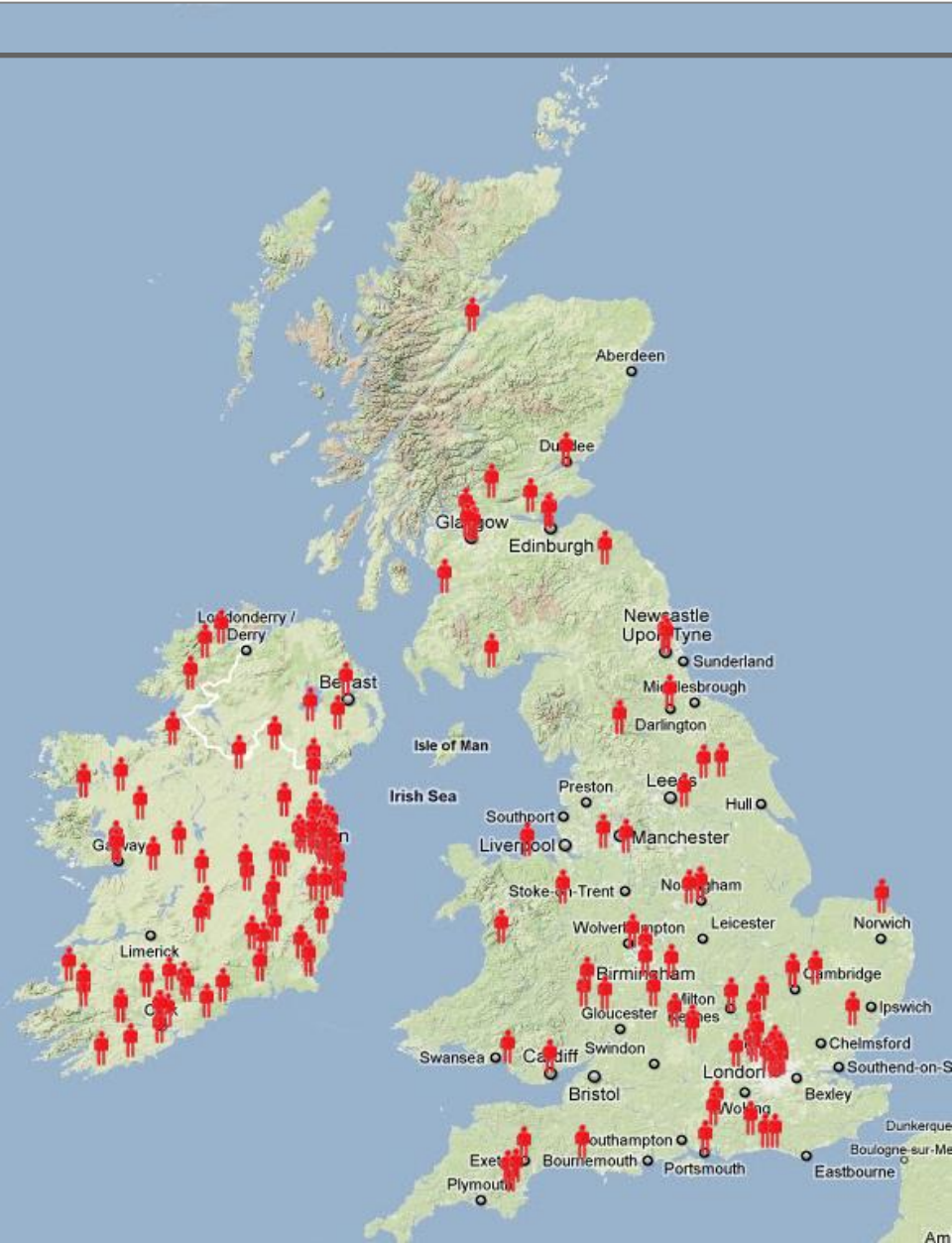
- 48 accredited course providers
- Currently in some 20 countries

Certified Passive House Tradesman

Pilot course coming autumn 2011

www.passivehouse-trades.org





People Building Certifiers

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Country	Certifier
Austria	Energieinstitut Vorarlberg Österreichisches Institut für Baubiologie und -ökologie (IBO)
Belgium	ECORCE
Denmark	Bjerg Arkitektur a/s Passivhus.dk
France	La Maison Passive France
Germany	B.Tek Ecofys Germany GmbH Energie Planer Team eza! Energie- & Umweltzentrum Allgäu Herz & Lang - Die Fachplaner für energieeffizientes Bauen Ingenieurbüro ebök Rongen Architekten GmbH ZEBAU GmbH

Country	Certifier
Ireland	MosArt Ltd.
Italy	TC Prog, TBZ - Technisches Bauphysik Zentrum
Poland	Polski Instytut Budownictwa Pasywengo
Slovakia	Inštitút pre energeticky pasívne domy IEPD
Sweden	INGO THEOBOLDT
Switzerland	Hochschule für Technik + Architektur Luzern
UK	Building Research Establishment (BRE) Inbuilt Ltd. WARM - Low Energy Building Practice
USA	Passive House Institute US PHIUS

iPHA connects the local to the global by

Advancing and communicating the Passive House concept internationally

Connecting and strengthening the global Passive House community



Think global, act local



search
Go Search



navigation
Structure:

- **Passipedia A-Z**
- **Basics**
 - What is a Passive House?
 - The Passive House - definition
 - The Passive House - historical review
 - Energy and ecology
 - Efficiency vs. performance
 - Energy efficiency - the key to future energy supply
 - Summer
 - Internal heat capacity
 - Building physics - basics
 - Affordability
 - Passive Houses in different climates

article discussion recent changes

You are here: start » basics » what_is_a_passive_house

What is a Passive House?

Table of Contents

A building stand comfortable, a Passive House is concept that ca the test of pract

Yet, a Passive H building.

- Passive Hou compared wi over 75% cor terms of heat litres per squ than typical l have been de buildings req
- Passive Hou residents or
- Special wind undesirable h
- A ventilation recovery unit

The vast energy is absolutely no



search
Go Search



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 - What is a Passive House?
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 - The Passive House - historical review
 - Energy and ecology
 - Efficiency vs. performance
 - Energy efficiency - the key to future energy supply
 - Summer
 - Internal heat capacity
 - Building physics - basics
 - Affordability
 - Passive Houses in different climates
- **Planning**
 - Calculating energy efficiency
 - Thermal protection
 - Airtight construction
 - Building services
 - Calculating energy efficiency
 - Refurbishment with Passive House

article discussion edit this page old revisions subscribe page changes recent changes

You are here: start » planning » building_services » ventilation » automatic_volume_flow_balancing_in_ventilation_units



This in-depth article is available exclusively to iPHA members

Automatic volume flow balancing in ventilation units

aespenberger my talk logout

Table of Contents

- Automatic volume flow balancing in ventilation units
- Introduction
- The significance of volume flow balancing
- Initial operation and adjustment of the fans
- Automatic volume flow balancing systems
 - Measuring of rpm and power consumption of DC-fans
 - Dynamic pressure measuring system
 - Anemometer in defined duct cross section
 - Pressure loss of the heat exchanger
 - Enthalpy difference at the heat exchanger
- Summary
- Symbols
- Literature

Introduction

Ventilation with heat recovery is a central requirement for the operation of Passive Houses. The significant reduction in ventilation heat losses as a result of the heat recovery makes it possible to both simplify and reduce the size of the heating system, thereby reducing investment costs as well. The basic principles of ventilation systems can be found in [AkkP-17], currently only available in German, and on Passipedia, the Passive House resource, at http://passipedia.passiv.de/passipedia_de/.

Ventilation with heat recovery plays an important role in energetic refurbishment as well. Significant cost and energy savings due to the lower ventilation heat losses combined with the resulting good indoor air quality make such ventilation not only more attractive, but necessary for energy efficient construction. A list of ventilation systems used in the context of refurbishments is compiled in [Bastian et al 2009] - a sizeable elaboration of remedial actions with Passive House components. Currently, this work is only available in German, but its principle findings will soon be available in English on Passipedia (http://passipedia.passiv.de/passipedia_de/).

In a review of ventilation systems, it has, however, often been discovered that even new systems are not working as efficiently as they could due to an incorrect balancing of the fans caused by an insufficient commissioning.

The significance of volume flow balancing

Next to climatic conditions and the required ventilation rate, a building's ventilation heat losses mainly depend on:

- the heat recovery efficiency of the ventilation unit
- the airtightness of the building (the free infiltration and exfiltration)
- the forced infiltration and exfiltration caused by the volume flow balancing between exhaust and fresh air

Beside the heat recovery of the ventilation unit and the airtightness of the building, the volume flow balancing of exhaust air and fresh air also has an important influence on ventilation heat losses and, therefore, on the energy balance of the whole building. Imbalances can be caused e.g. by improper commissioning of the ventilation system or gradual clogging of the air filter. In [AkkP-17], the influence of the flow rate balancing on the ventilation heat losses was studied in detail by Johannes Werner. His description is depicted here:

If the imbalance was the only influence on the ventilation heat losses through leakages in the building shell, there would be a significant increase in losses at relatively small imbalances already. However, in reality there is a mutual interaction between the forced in- and exfiltration caused by the imbalance and the free in- and exfiltration caused by wind pressure and the stack-effect: if there is an imbalance, the heat recovery efficiency changes and a pressure

iPHA Affiliates

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iPHA works closely with other unbiased, independent Passive House Associations internationally through formal Affiliations

IG PASSIVHAUS

Informations-Gemeinschaft Passivhaus Deutschland



The UK Passive House Organisation



**In just one year
1000 members | 38 countries | 5 affiliate organisations**



**Australia | Austria | Belgium | Bulgaria | Canada | Chile | China | Croatia | Czech Republic | Denmark | Estonia |
Finland | France | Germany | Hungary | Iran | Ireland | Italy | South Korea | Latvia | Lithuania | Luxembourg |
Montenegro | Netherlands | New Zealand | Norway | Poland | Portugal | Romania | Russia | Slovenia | Spain | Sweden |
Switzerland | Ukraine | United Kingdom | United States | Slovakia**

Opportunities

The International Conference

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INTERNATIONAL PASSIVE HOUSE CONFERENCE 2012

4 - 6 May 2012 Hanover

Innsbruck 2011 Quick Conference Facts

1200 participants from 50 countries

8 keynotes; 72 presentations



2010 Passive House Architecture Award

...beautiful Passive House Design

Switzerland | Japan | Austria |
Germany | Denmark | China

1st Passive House Architecture
Award: The Finalists

APARTMENT BUILDING, LIEBEFELD, SWITZERLAND
ARCHITECTS: HALLE 68 ARCHITEKTEN

1st Place



Building Name: Apartment building
Owner: Liebefeld AG
Year of Completion: 2009
Project location: Liebefeld, Switzerland
Architect: Halle 68 Architekten GmbH
Architect's address: Liebefeld, Switzerland
Building area: 1000 m²
Number of floors: 4
Year of construction: 2009
Construction type: Timber construction with reinforced concrete
Energy measures: High-quality insulation, triple glazing, mechanical ventilation with heat recovery, solar panels, rainwater harvesting
Year of award: 2010
Country: Switzerland
City: Liebefeld






architekturpreis 2010

Passivhaus

2010 Passive House Architecture Award Concept: Passive House Institute
- Patron: Dr. Peter Ramsauer, Federal Minister of Planning, Building and Urban Development

Oxford,
United Kingdom

Darmstadt,
Germany

Paris,
France

Tartu,
Estonia

Bratislava,
Slovakia

Prague,
Czech Republic

Krems,
Austria



1. Architekturpreis Passivhaus

Die Finalisten

The Architecture Award Exhibition
Coming soon to a city near you!



11 – 13 November 2011 PASSIVE HOUSE RESIDENTS OPEN THEIR HOMES:

International Passive House Days

20 Years
Passive House



Passive House – 20 years of experience

- endless design possibilities
- a surprisingly low-tech solution
- the standard for energy efficiency and sustainability

www.passivehouse-international.org



Register your project on the International Passive House Database

www.passivhausprojekte.de

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Thank you for your attention

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