



Claiming the Passivhaus standard

Technical briefing document

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Contents

Introduction	2
Achieving the Passivhaus standard	3
The Passivhaus principle	3
Certified Passivhaus Designers and Consultants	3
Quality assurance requirements	4
Near miss	5
What's in a name?	6
The Passivhaus standard and consumer protection	6
Acknowledgements	7

Introduction

The Passivhaus standard is arguably the world's most rigorous quality assurance standard for energy efficiency and comfort in buildings. One of the original drivers for developing the Passivhaus standard was to close the large gap between how buildings were designed to perform and how they actually perform once occupied. At the time, just like now, many buildings already had insulation, and good glazing but failed to perform as expected.

Quality assured Passivhaus buildings have a reputation for not only energy efficiency, but also comfort and quality. This has led to a rapid growth in the adoption of the Standard and global interest in the buildings that result.

The Passive House Institute (PHI)¹ in Darmstadt, Germany developed the Passivhaus standard based upon rigorous scientific research and testing.

The term "Passivhaus" or "Passive House" is often used when referencing a building that has been designed to this internationally recognized standard.

In order to support the quality assurance that is offered by the standard the Passive House Institute (PHI) has defined requirements for Passivhaus buildings, products, designers and consultants. This document is primarily concerned with matters relating to Passivhaus buildings.

Within the UK, there are occasionally claims that buildings meet or exceed the Passivhaus standard simply because they might meet one or more of the requirements of the Passivhaus standard. On other occasions claims have been that buildings are designed using "Passivhaus principles."

For example they achieve the air-tightness target, incorporate insulation to levels that are akin to the recommended U-values, or have been shown to have a space heating energy demand of less than 15 kWh/m².a using National Calculation Methods (NCM) such as the UK's regulatory compliance tools SAP and SBEM.

It is incorrect to claim that such a building satisfies the Passivhaus standard or that it adheres to the principles that underpin the quality assurance standard.

A building may not be described as a Passivhaus unless it has been modelled in the Passivhaus Planning Package (PHPP) and meets ALL of the requirements of the Passivhaus standard. PHI established a process to certify buildings meet the Passivhaus standard, and PHI publishes quality assurance criteria.²

¹ Passive House Institute (English) or Passivhaus Institut (German)

² The PHI has established quality assurance requirements for Passivhaus buildings, products, designers and consultants but this document is concerned only with quality assurance requirements for Passivhaus buildings.

Achieving the Passivhaus standard

In order to achieve the Passivhaus standard, a project must clearly demonstrate that it meets the validated quality assurance requirements. This includes the requirements listed over; reference must also be made to any other requirements or guidelines currently set by the Passive House Institute.

The Passivhaus Trust recommends that the best way to demonstrate that the quality assurance requirements have been met is through certification by an accredited member of the UK Certifiers' Group³. A project can only claim to be Passivhaus certified and use the Passivhaus badge/ plaque if it has gone through independent certification.

It is reasonable to claim that a building is a non-certified 'self-declared Passivhaus' provided that it still meets ALL the requirements of the standard, including modelling in PHPP.

If the quality assurance protocols endorsed by the Passivhaus standard have not been observed during the design and construction of a building, then claims that such a building satisfies the Passivhaus standard or meets 'Passivhaus principles' are, at the very least, unfounded and at worst, under consumer law, both misleading and fraudulent. Such claims also risk bringing the Passivhaus standard into disrepute.

The Passivhaus principle

All Passivhaus buildings have basic physical **characteristics** in common, for example a high performance thermal envelope which relates to the climate zone where it is located. To deliver the performance in-use, they are also required to follow the **principle** of quality assurance, for example, accurate modelling in PHPP, blower door tests, commissioning of ventilation systems etc.

A project which meets Passivhaus standards of quality assurance, by definition, must be a Passivhaus building, in which case the terms Passivhaus certified or non-certified 'self-declared Passivhaus' should be used as appropriate.

The Passivhaus community, and therefore the Passivhaus Trust, does not support the use of the term 'Passivhaus principles', as this is widely misused in the UK (and in other global regions) as it commonly refers to projects which do not meet all of the quality assurance requirements established by the Passivhaus standard. (The uninformed individual incorrectly discusses **characteristics** when they should be discussing the **principle** of quality assurance.)

Certified Passivhaus Designers and Consultants

When designing a Passivhaus building, competent persons – such as those with Certified Passivhaus Designer and Consultant qualifications – have a duty of care to ensure that their work adheres to and respects the principles of quality assurance that are established by the Passivhaus standard.

It is considered reasonable to expect that a person who has qualified as a Certified Passivhaus Designer or Consultant, and subsequently maintained their competency, will carry a higher duty of care because of their training, qualifications, experience and standing within the building industry.

³ Refer to the Passivhaus Trust website: <https://www.passivhaustrust.org.uk/certification.php>

Quality assurance requirements

Certifying that a building is a Passivhaus/meets the Passivhaus standard necessitates a series of quality assurance requirements to be met, for example:⁴

1. The use of Passivhaus Planning Package (PHPP) – a bundle of both software and guidance notes - and the entry of the correct data⁵
2. That all relevant design assumptions and boundary conditions accord with those established by the PHPP
3. That the conductivities of all materials, products, components and constructions (including thermal bridging) satisfy the relevant EN standards
4. That the internal surface temperature of the windows will not fall below 17°C on the coldest day of the year⁶
5. That pressure tests have been undertaken in accordance with the procedure set out by the Passive House Institute⁷
6. That where mechanical ventilation heat recovery (MVHR) is utilised it satisfies the PHI's strict performance requirements for those systems⁸
7. That ventilation systems be commissioned in accordance with the requirements of the Passivhaus standard
8. That the contractor writes a declaration confirming that the building has been built in accordance with the contract documentation
9. Photographic records of the project
10. A comprehensive set of construction drawings and documentation
11. That the above tools and documentation be used to demonstrate that the quality assurance standards established by the Passive House Institute have been satisfied in order to achieve
 - a. one of three Passivhaus certification classes for new buildings: Classic, Plus and Premium⁹, or
 - b. one of the two methods of certification for existing buildings retrofitted to EnerPHit, the Passivhaus retrofit standard: the energy demand method and the component method. Both of these EnerPHit methods can be applied in a step-by-step approach, i.e not all the work is carried out at once. An 'overall refurbishment plan' must be created before any work starts, then each step of the refurbishment is certified. For more information on the retrofit standard and how it is applied in the UK see the Passivhaus Trust website: https://www.passivhaustrust.org.uk/competitions_and_campaigns/passivhaus-retrofit/

⁴ Certification criteria: https://passiv.de/downloads/03_building_criteria_en.pdf Note that this list is necessary but may not be sufficient. PHI retains the right to add quality assurance requirements for certification.

⁵ PHPP has been especially developed for high performance buildings and is compatible with international norms (such as ISO 13790). Furthermore it has been tested against dynamic simulation tools as well as the measured data. The planning package comprises a wide range of tools specifically developed for the design of high performance buildings. Refer to https://passipedia.org/planning/calculating_energy_efficiency/phpp_-_the_passive_house_planning_package/phpp_-_validated_and_proven_in_practice in Passipedia

⁶ Determined by PHI approved weather data.

⁷ The final test is undertaken upon completion of the building or retrofit and in compliance with Passivhaus procedure (ATTMA TSL4) for Passivhaus certification evidence. Refer also to 'Demystifying airtightness: a good practice guide', Passivhaus Trust 2020 and Passipedia: https://passipedia.org/planning/airtight_construction/airtightness_measurements_in_passive_houses

⁸ For single dwellings refer to 'Good practice guide: MVHR for single dwellings', Passivhaus Trust, 2018 for additional guidance

⁹ 'Classic, Plus, Premium: The new Passive House classes and how they can be reached' in Passipedia

Near miss

The PHI Low Energy Building standard can be awarded where a building aiming for the Passivhaus standard does not satisfy certification targets. For example, this could be a near miss of the space heat demand, peak load or airtightness targets. It is not the intention that projects should start out aiming for this standard, instead the Passivhaus Classic should be used. Where it is considered that an exception may apply, it is advised that you discuss this with your certifier at an early stage.

Certification by an accredited building certifier is a quality assurance mechanism that ensures that all of the above requirements have been met. This is supported, and recommended, by both the PHI and the Passivhaus Trust.¹⁰

The benefits of Passivhaus buildings

The true value of the performance claims associated with the Passivhaus standard, and any associated claims/marketing by any third party¹¹, rest upon the assurance that claims are both credible to consumers, and reflect a genuine benefit to both the consumer and the environment.

With outstanding levels of building performance, the Passivhaus standard delivers exceptional levels of interior comfort, health and wellbeing, affordability, resilience and durability.

Different clients, owners and user groups have different priorities, for instance:

- Individual homeowners will be interested in comfort and lower energy bills,
- Local Authorities may focus on tackling fuel poverty, improving health outcomes, and meeting zero carbon pledges.
- Government and energy suppliers may be attracted to the sound economics of lowering peak demand, minimising budgets for large scale infrastructure costs, and amplifying the resilience of a national grid that's fit for the 21st Century.

The benefits of Passivhaus buildings include:

1. Building performance
2. Addressing the climate emergency
3. Health and wellbeing
4. People performance
5. Financial benefits
6. Social return

To learn more about Passivhaus Benefits please download our full guide here:

https://www.passivhaustrust.org.uk/guidance_detail.php?gld=41#Part%202:%20Benefits

The intensive monitoring of certified Passivhaus buildings by the Passive House Institute and others since the completion of the first Passivhaus in 1991 has clearly demonstrated and validated the quality assurance requirements of the standard.¹²

¹⁰ A building can achieve the Passivhaus standard (and indeed be a certified Passivhaus building) using products that are not certified by the Passive House Institute, provided that the products used meet the necessary performance requirements. It should be noted that the use of Passivhaus certified, or Passivhaus suitable, products and materials is not evidence of suitability in all cases. However the use of certified components does simplify the audit trail that is utilised by the standard.

¹¹ Including designers, manufacturers, vendors etc.

¹² For example refer to Feist et al (2005) '[PEP Project Information No. 1, Climate Neutral Passive House Estate in Hannover - Kronsberg: Construction and Measurement Results](#)'

What's in a name?

The term 'Passivhaus' is not trademarked or registered¹³; however, it is clearly defined with its own terms and references. In Germany a claim that a building is a Passivhaus has legal status (Horn 2008¹⁴).

The Consumer Protection from Unfair Trading Regulations 2008 (CPRs) protect consumers from false and misleading claims.¹⁵ For example, Banned Practices (Schedule 1), Professional Diligence (Regulation 2) and misleading practices (Regulations 5 and 6).

The Competition and Markets Authority (CMA) is the UK's primary competition and consumer authority. The CMA Guidance on Environmental Claims on Goods and Services 2021¹⁶, provides guidance to help businesses understand and comply with their existing obligations under consumer protection law when making environmental claims. The guidance sets out principles which are designed to help businesses comply with the law, as follows:

- claims must be truthful and accurate¹⁷
- claims must be clear and unambiguous
- claims must not omit or hide important relevant information
- comparisons must be fair and meaningful
- claims must consider the full life cycle of the product or service
- claims must be substantiated

The Passivhaus standard and consumer protection

A building meeting the Passivhaus standard is a distinct and established product that may be advertised, marketed, and sold to consumers.

Buildings meeting the Passivhaus standard have a number of benefits for the consumer¹⁸. A building which does not meet the Passivhaus standard will not have the advertised benefits. The purchaser will be injured by the false claims and misrepresentations that the building met the Passivhaus standard.

CPRs and Defra protect the consumer against false claims and misrepresentations that a building meets the Passivhaus standard. Persons making false claims and misrepresentations that a building meets the Passivhaus standard, or satisfies the principles of Passivhaus quality assurance, are subject to legal claims, sanctions, and damages for violating the CPRs.¹⁹

Consumers injured by these false claims may sue the persons making false claims which injured them. Defra may instruct action against the false claimants or prosecute claims against them. The Passivhaus Trust may also join or initiate enforcement actions against parties making false claims that buildings meet the Passivhaus standard in order to protect its members.²⁰ Within this context claims relating to the use of so-called "Passivhaus Principles" could in fact be considered misleading and therefore illegal.

13 The title Passivhaus (also Passive House) is not trademarked or registered; however, phrases including Passivhaus and Passive House are.

14 Horn, G. 'Legal aspects of planning and construction of Passive Houses', International Passive House Conference, Nurnberg 2008

15 ['Guidance on the Consumer Protection from Unfair Trading Regulations 2008', Office of Fair Trading 2008](#)

16 ['CMA Guidance on Environmental Claims on Goods and Services', Competition and Markets Authority 2021](#)

17 That the relevant party has adopted all of the quality assurance requirements associated with the Passivhaus standard, and where possible, has undertaken a third-party audit (certification audits are considered to be robust as they can reduce the number of errors by 80-90%).

18 Refer to ['Passivhaus Benefits', Passivhaus Trust 2021](#)

19 Civil actions under the CPRs are not exclusive remedies. The professional making false claims is likely a defendant in claims for damages based on common law tortious conduct as well as disciplinary action by professional accreditation organizations since professionals are always bound by a duty of care to act in a diligent fashion. Professional diligence would preclude the distortion or misrepresentation of the Passivhaus standard.

NOTE: Reasonable care and skill is an implied term according to the [Supply of Goods and Services Act, Section 13](#)

20 The true value of the performance claims of the Passivhaus standard rests upon the assurance that the claims are credible to consumers. False claims not only injure consumers but also the professionals and tradespeople creating buildings which do meet the Passivhaus standard.

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