



Transform your quality of life, via architecture.

Passive House Glossary

The international Passive House (Passivhaus) Standard

The world's fastest growing energy efficiency standard for buildings. The standard is based on achieving the optimum indoor conditions for human comfort and well-being (based in part on BS EN ISO 7730), whilst only requiring a minimal amount of energy. It is a performance standard with clearly defined metrics and a rigorous design and performance modelling methodology. The standard is administered by the Passive House Institute in Germany. For more information, see:

[What is the Passive House Standard?](#)

Passive House Classes

There are 3 classes of Passive House for new buildings:

1. Passive House 'Classic' – well insulated, draught-free, good solar design, ventilation system with heat recovery, high performance windows and doors. This is typically what is meant by "Passive House".
2. Passive House Plus – as 'Classic' above with renewable energy generation accounted for based on the building footprint
3. Passive House Premium – as 'Plus' above with surplus energy generation

PHI Low Energy Building

A building performance standard intended for projects that target Passive House but don't quite achieve it due to site or design constraints, or construction issues (e.g., not quite passing the blower door test). The energy efficiency requirements are lower than Passive House and some comfort criteria are not required which means it can't be directly compared to Passive House.

PHI retrofit standard: EnerPHit

Like Passive House (including the certification classes) but with slightly lower requirements due to the nature and complexity of retrofit. EnerPHit can be achieved by meeting energy demand requirements or alternatively by following the 'component method' using Passive House Institute certified components.

Thermal Envelope

This refers to the parts of a building that thermally separate the inside from the outside. It includes walls, floors, roofs (or ceilings, depending on where the insulation is located), windows and doors. It must be continuous and unbroken for Passive House. For more information, see: [What is the Passive House Building Envelope?](#)

Heat Loss Area

The total surface area that forms the thermal envelope of a building and therefore may lose heat. It includes ground floor, walls, roof, soffits etc. Areas are measured in total without subtracting windows, doors, rooflights, etc.

Transform your quality of life, via architecture.

Treated Floor Area

The convention for measuring usable floor area within the thermal envelope. Rooms are measured from the internal finish of the walls, ignoring fitted furniture etc. Stairs and lifts are excluded, full landings, store rooms, bathrooms etc are included.

Heat Loss Form Factor

The ratio of heat loss area to treated floor area. Generally, 3 and below is efficient. For more information, see: [What is the Heat Loss Form Factor?](#)

Heating Demand

The total amount of annual heating energy required per square metre of treated floor area to maintain a Passive House building at the design temperature. Passive House requirement: 15 kWh/(m².a)

Heating Load

The maximum amount of power required per square metre of treated floor area to maintain a Passive House building at the design temperature. Passive House requirement: 10 W/m²

Design temperature

Passive House uses 20 °C (68 °F) as a design temperature by convention. This is within the healthy range of temperatures for human occupation at 50% Relative Humidity (RH). Occupants may, of course, choose what temperature to maintain their house at regardless of the design temperature. Energy consumption will vary accordingly.

Primary Energy (PE) or Primary Energy Renewable (PER)

The total amount of source energy from fossil fuels (Primary Energy) or from a mixture of fossil fuel and renewable energy (Primary Energy Renewable). This accounts for transformation losses (e.g., from burning fuels) and distribution losses.

Final Energy

The total amount of energy used at the building, irrespective of the energy source.

Thermal Bridge

A thermal bridge is where something that conducts heat passes through ('bridges') the insulation. For example, steel, concrete or timber. Heat transfer follows the path of least resistance therefore thermal bridges can contribute significant unwanted heat loss. Thermal bridges also increase the risk of localised condensation, mould and moisture related issues. For these reasons, Passive House aims to eliminate thermal bridges. For more information, see: [What is Thermal Bridge Free Construction?](#)

PHPP

The Passive House Planning Package – the building performance modelling tool that must be used in Passive House design and certification. For more information, see: [What is the PHPP?](#)

designPH

A plugin for Trimble SketchUp software that enables 3d modelling and (limited) energy modelling/analysis and to export the data and analysis results to PHPP.



Transform your quality of life, via architecture.

ach

“Air changes per hour” the units used when measuring how airtight a Passive House building is. A blower door test is used to measure how often the enclosed visible air volume (ceiling voids, partition cavities etc are excluded) would be changed by infiltration through the building fabric at 50 pascals air pressure.

Embodied Carbon (kgCO₂e)

The carbon emissions (carbon dioxide and equivalent greenhouse gases) associated with all stages of production, transporting, installation, maintenance, replacement and disposal of building products, materials and components.

Operational Carbon (kgCO₂e)

The carbon emissions (carbon dioxide and equivalent greenhouse gases) associated with operating a building that come from using energy and water.

Whole of Life Carbon

The combined total of embodied and operational carbon emissions. In NZ, whole of life carbon is typically calculated over 90 years for residential buildings and 60 years for commercial buildings. International approaches often calculate it over 50 years.

Want to learn more about Passive House?

- Visit the blog “[Passivhaus in Plain English & More](#)”
- Contact: Elrond Burrell, director of VIA architecture:
Email: hello@via-architecture.net
Tel: +64 (0) 22 4169499