

# What is Passive House?

“Passive House” refers to the international Passive House Standard, sometimes also referred to using the German spelling “Passivhaus”.

The Passive House Standard is often referred to as “the world’s leading standard in energy efficient design.” And usually a description of the standard includes details of the specific technical requirements.

The Passive House Standard is an international, rigorous, scientific, performance standard for the design and construction of energy efficient buildings. It applies to all kinds of buildings, not just houses. However, the Passive House Standard is not just about the technical requirements of energy efficient design, it encompasses:

- Comfort
- Energy Efficiency, and
- Quality Assurance

What do Comfort, Energy Efficiency and Quality Assurance mean in practical terms for a house that is certified to the Passive House Standard?



## Exemplary Comfort

A house that is certified to the Passive House Standard provides exemplary comfort all year round. While the standard is most well-known for rigorous energy consumption benchmarks, it also has rigorous comfort benchmarks.

The Passive House Standard ensures that a house can be affordably and reliably kept at a comfortable temperature all year round. This is true in hot periods of the year and in cold periods. The actual temperature inside the house is up to you though – some people prefer a cooler house, others prefer a very warmer house.

The comfortable temperature inside the house includes all the rooms and the surfaces of walls, windows and doors, etc. The Passive House Standard requires high-performance windows and doors so that the frames and the glass never feel cold to touch or be near. This also has the benefit of eliminating condensation, which can lead to mould growth and associated health risks.

The Passive House Standard ensures that a house is quiet inside and does not suffer from draughts.

The Passive House Standard ensures that a house always has plentiful clean fresh air. A ventilation system is required in most climates to comply with the standard. This means that even when it is cold and windy outside, or hot and dry, there is still fresh air silently and gently blown into the rooms of the house at a comfortable temperature. Windows and doors can still be opened whenever you want to, just like any other well-designed house. Equally important though, windows can be closed whenever you want to and there will still be plenty of fresh air throughout the house.

The Passive House Standard provides the benchmark  
for what we should expect of a comfortable home.



## Radical Energy Efficiency

A house that is certified to the Passive House Standard uses very little energy to stay exceptionally comfortable all year round – and for you to do all the other things that you would expect to in your house. The Passive House Standard accounts for all the energy use in a house, from the heating and cooling, the cooking and lighting, through to TV and computer use.

Passive House ensures that your house uses very little energy because of the way it is designed and constructed. It does not rely on adding renewable energy generation systems to provide (or offset) some of your energy needs, although this is possible. It also does not rely on you making dramatic changes in your lifestyle to use less energy.

The result is that a certified Passive House could be using up to 90% less energy than an average house. And it comes with exceptional comfort, far better than any other house. Even compared to a typical new house, which is expected to be more energy efficient than average, a house certified to the Passive House Standard would expect to use up to 75% less energy. And this means power bills reduced by up to 75% also!



## Reliable Quality Assurance

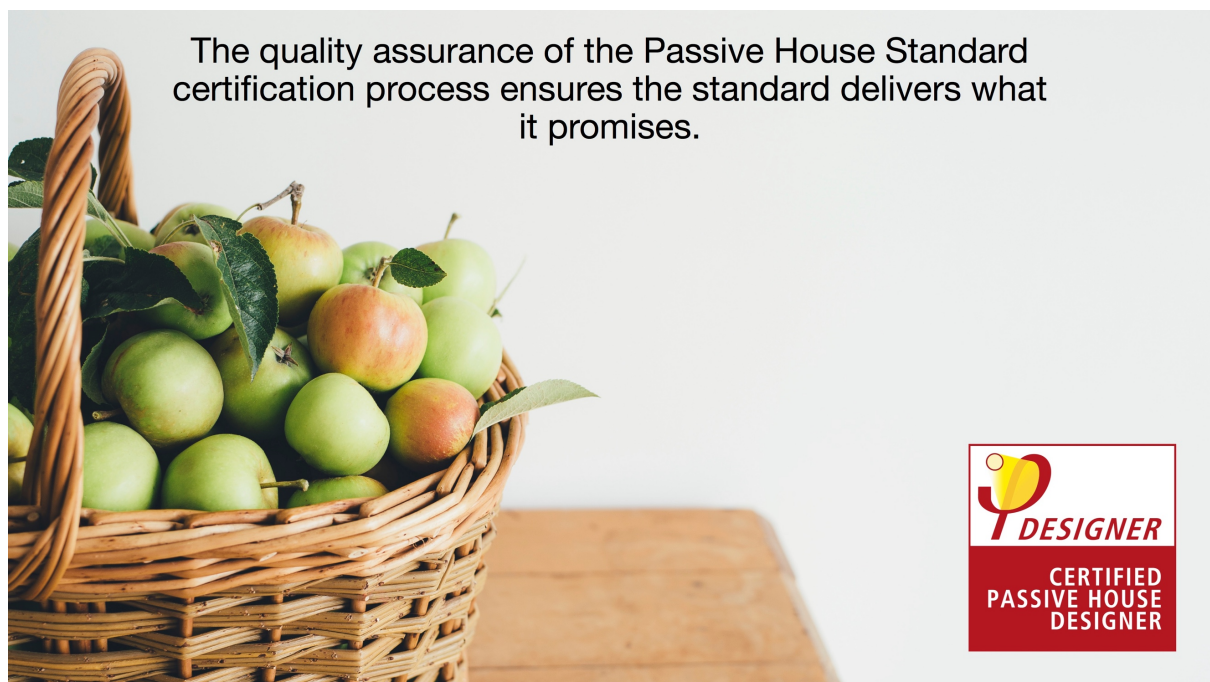
What good is a standard that doesn't live up to its promises? (Or a Building Code, for that matter?) The Passive House Standard is one of the very few sustainable design standards that has a robust and reliable track record of delivering what it promises – exemplary comfort and radical energy efficiency.

Passive House requires that the Passive House Planning Package software (PHPP) be used to model the house and the energy use. The PHPP is a very detailed spreadsheet developed by the Passive House Institute. It reliably and accurately predicts how much energy will be needed to keep a house comfortable at the required benchmarks.

The Passive House Standard requires that an independent third party, the certifier, check the energy modelling (PHPP) as part of the certification process. They also check key aspects of the design including construction details.

The Passive House Standard also requires that the construction process is monitored to ensure what gets built matches the design accurately and that the builder takes personal accountability. Visual inspections are carried out as well as blower door tests to check the quality of construction. Where changes are needed, the energy model and details need to be updated and checked also.

These all add up to a very robust quality assurance process. Designers and builders are more vigilant knowing their work will be checked and verified. And honest mistakes can be picked up and corrected before something gets built wrong!



## The Passive House Standard is the benchmark for exemplary comfort, radical energy efficiency and reliable quality assurance.

And it needs all three aspects. Energy efficiency is meaningless if your house isn't comfortable and pleasant to live in. And a standard is meaningless if it doesn't deliver what it promises. A house that is certified to the Passive House Standard will keep you comfortable and pleasant all year round with hardly any energy bills to pay!

Want to learn more about Passive House?

- Visit the blog "**Passivhaus in Plain English & More**" at <http://elrondburrell.com/>
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