



Top Passivhaus Tips

Orientation

A Passivhaus can sit on any orientation, but the best solar gains will be found on a north / south elevation. This enables the sun to warm the house all year via the south elevation while the northern elevation cools the home.

Airtightness

Airtightness is critical in a Passivhaus as it stops the movement of air and loss of heat. A leaky house is a cold house. Even the tiniest of gaps can have a huge effect on performance of a Passivhaus. It is necessary to tape up any gaps with specialist tape and ensure that you use Passivhaus certified windows and doors. Doing it right the first time will save you time and money as well as helping you reach Passivhaus certification.

Specialists

Using a specialist Passivhaus designer and / or contractor along with certified components is a great idea. They should have extensive experience and good practical knowledge of all elements of building a Passivhaus. Non Passivhaus specialists may struggle with the stringent guidelines a Passivhaus build calls for. However, there is training available to provide knowledge and hands on experience, such as the Beattie Passive Training Academy.



PHPP

PHPP or Passivhaus Planning Package is a tool that provides you with all you need to know to design your home. Designers and architects use PHPP to take a detailed look at all stages of your build. The tool is then used to ensure that the build can be certified as Passivhaus. At some point, every Passivhaus build must have a PHPP created but having it at the start makes the whole process a lot easier.

Cold Bridging

To put it simply, cold bridging is where the outside cold structure touches the inside warm structure and heat is lost via these contacts. These include junctions between walls and floors, window reveals and stud work. To prevent cold bridging from occurring, we design them out as much as possible and then fill the cavities around the house with a continuous layer of insulation, almost like a jumper, from floor to roof.

Style

There are no limitations to design with a Passivhaus. Passivhaus is a standard of building and can be built to any shape and size you want. However, this can vary on the type of system you use. Beattie Passive can deliver any size, shape or style of home from roundhouses to hexagons. Meaning you can put your own stamp on your home and make it special to you.

Exterior

Following on from the style of your home, the exterior of a home can make or break it. With the Beattie Passive System you can have just as much choice as with traditional buildings. Make your house stand out with coloured render, blend it in with the surroundings or match it to neighbouring homes.

Materials

Specialist materials are required in a Passivhaus. At Beattie Passive we feel that it is important to keep it simple, while ensuring the correct materials are always used. It is essential to never compromise on the performance or quality of the materials we selected.





Passive Certified Materials

There are certain elements of a Passivhaus where it is recommended to use Passive certified components, e.g. windows and doors to ensure the appropriate levels of performance. If you don't use the right materials, you may fail the rigorous testing protocols which would result in delays and increased costs to rectify.

MVHR

Mechanical Ventilation and Heat Recovery (MVHR) is integral to a Passivhaus building. The higher the quality of MVHR the better your ventilation will be. Remember not to overlook the MVHR ducting either. If its substandard your MVHR won't be able to run at optimum levels. A modern MVHR system is quiet and simple to use.



Insulation

Having continuous insulation is incredibly important in a Passivhaus. To keep the home at a pleasant temperature all year round, the insulation needs to be around the whole house, from the very top right to the bottom. The continuous insulation will also prevent any thermal bridging, which will stop any heat loss in the winter and excess heat in the summer.

Cold vs. Warm Roof

Cold roof or warm roof? Either option can be used in a Passivhaus. A cold roof will have insulation running along the ceiling, walls and roof joists, leaving rafters exposed. If you want to utilise the space in the roof, we would recommend a warm roof. Here the insulation runs along the roof so there is continuous insulation around the whole house.

Renewables

Passivhaus is all about the fabric of the building. But, renewables are a popular add on. They are a great way of creating and using energy. It is often simple to use renewables alongside Passivhaus and in some cases using them can even earn you money.

Comfort and Health

Being comfortable and healthy in your home is an important factor in building or buying a home. This idea is fundamental to Passivhaus, with homes that are designed to provide comfortable and pleasant temperatures all year round, in every part of the house. By using an MVHR system, the homeowner can reduce levels of dust and pollen inside the house, reducing the symptoms of illnesses such as asthma and the effects of pollen on hayfever sufferers.



Overheating

Passivhaus homes are designed to not overheat. During the PHPP design process, the house is modelled to assess the overheating risks. The design can then be modified to overcome overheating if necessary. For example, this could involve the addition of overhangs. The MVHR systems exchange the air at regular intervals to bring in fresh filtered air from outside while removing the hot stale air from inside the house. If the house ever begins to feel stuffy, all that needs to be done to purge the air faster, is to open a window or two.

Cost

Cost is an important consideration for most self-builders as they are working to a tight budget. Although building Passive can cost slightly more than the average traditional build, the cost savings over time are much higher than traditional build. For example, a Beattie Passive client with a home of 657m² had an energy bill for the year of only £229.51. This equates to a mere £19.12 a month. When the client originally designed the home, it was to be built by traditional construction methods. The cost prediction for our client to heat the home was £8,000 a year. This clearly demonstrates the significant fuel savings of Passivhaus.