



Technical

Product Performance

The Beattie Passive system achieves superior levels of energy efficiency compared with both traditional and existing new methods of construction.

Beattie Passive carries out stringent testing and certification on each building to guarantee the performance of:

Cavity Insulation This is applied on-site by skilled installers to guarantee the delivery of a continuous insulated building that is tested by thermal imaging. Due to our unique patent we are the only company who can deliver continuous insulation around a building.

Air Tightness Beattie Passive design methodology details each junction for air tightness and achieves levels as low as $0.16\text{m}^3/\text{hm}^2$ (@50pa).

Acoustics Acoustics are particularly important for terraced houses and apartment buildings. The independent party wall and ceiling designs give high levels of sound proofing up to 57db, which is six times better than building regulations. Sound and impact testing is carried out on each build.

Fire Resistance The Beattie Passive envelope is designed to deliver high fire performance. The timber structure is clad internally and externally with non-combustible material, offering 2-hour protection between dwellings, in comparison to build regulations of 1-hour.

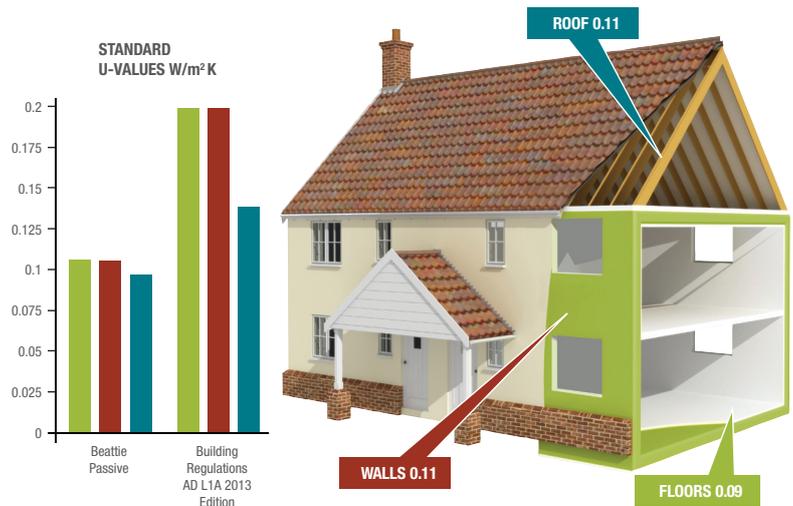
U-Values A U-value is the measurement of heat transfer through a given building component, which is particularly important in achieving the desired energy efficiency levels of Passivhaus build. Therefore, all walls, floor and roof construction details have been tested with hot box testing and Passivhaus modelling. The lower the value, the better the insulated building.

Convection Looping Convection looping occurs when warm air from the inside hits the cold air on the outside of a building, it rises and convects, pulling more warm air to the outside. There are three main causes: cold bridges between timber studs and at junctions on walls, floors and roofs; gaps between insulation at abutments; poorly fitted insulation in cavities.

The negative effect of convection looping can lead to:

- Reduced U-value performance
- Increased heating requirements
- Increased CO₂ emissions
- Distorted SAP calculations

Beattie Passive's build system overcomes any issue with convection looping due to its continuous insulation seal. No gaps, no looping, no loss.



“Just a 3mm gap in your insulation or joints will reduce U-values by 159%.”



Beattie Passive

Health Benefits

Health may not be a natural priority when it comes to selecting a construction method, however it should be part of the decision as Passivhaus living offers so much more.

The Beattie Passive Build System reduces energy demand through increased insulation and high levels of airtightness. Heating bills and fuel costs are minimised and a warm, clean and comfortable indoor air environment is maintained, reducing respiratory issues, impacts of cold home syndrome and the effect of radon.

Health Benefits of Passivhaus Living:

- Continuous supply of fresh filtered air reduces health issues:
 - Reduction in respiratory illnesses (e.g. asthma)
 - Protection from pollutants: mould, CO₂, smoke, radon, humidity, hay fever
 - Faster recovery from illness
- A warmer, more comfortable home helps eradicate illnesses related to cold homes
- Protection from radon build up in the homes which can lead to cancer

Air pollutants – are you breathing fresh, filtered air?

Respiratory health concerns have been associated with inappropriate building design. 29,000 people a year die in the UK due to air pollution and around 1 in 18 dwellings in England have significant damp and mould issues.

Beattie Passive new builds and retrofits are cold bridge free – minimising the risk of condensation and mould development. Moreover, all Beattie Passive builds are fitted with Mechanical Ventilation Heat Recovery (MVHR) systems, removing the stale exhaust air and ensuring a continuous cycle of clean filtered air throughout the home. This removes air-borne pollutants creating a healthier environment to live in.

Radon – are you protected from the unseen danger?

You can't see radon, and you can't smell it or taste it. But it may be a problem in your home. Radon is a naturally occurring radioactive gas that is present to some extent in all rocks under ground foundations, and it is recognised that prolonged exposure to high levels causes lung cancer. Each year there are approximately 1,100 deaths in the UK as a result of lung cancer linked to radon exposure in the home.

To protect from the effects of radon exposure, regardless of how small the level, **all Beattie Passive builds are fitted with a protective radon membrane as standard.** This ensures that measures are taken to significantly reduce the occupant exposure to radon and to minimise the potential risk to health. To complement the airtightness of a building a Mechanical Ventilation Heat Recovery (MVHR) system ensures adequate air exchange throughout, limiting the build-up of pollutants and potential radon concentrations in the home. This is particularly important for Retrofit.

