

The Beattie Passive system provides an award-winning innovative design-and-build technology that simplifies the delivery of Passivhaus



# All roads...

All new homes need to be as energy-efficient as possible. But, asks **KATE HAMILTON**, which route to energy efficiency is the best one?





SAP OFFERING

FOCUS ON THERMAL BRIDGING



Energy Rating  
 DER: Dwelling Emission Rate (kgCO<sub>2</sub>/m<sup>2</sup>yr)  
 FEE: Fabric Energy Efficiency Rate (kWh/m<sup>2</sup>yr)



**RIGHT** Thermal modelling trials carried out by certification body BM TRADA have shown that Actis Hybrid insulation products have a dramatic impact on counteracting thermal bridging

**BELOW** The Actis Hybrid range consists of blanket-style insulation material, Hybris, vapour control layer with built in thermal performance, H Control Hybrid, and breather membrane with built in thermal performance, Boost R Hybrid.

**BOTTOM** Isle of Wight builder Phil Claborn's pile of Hybris awaits installation in his cliff-top home



There are many ways to make a property energy efficient and, as a rule of thumb, housebuilders tend to employ a range of different methods in order to ensure that their properties are as efficient as possible.

One solution is to install a heat recovery unit. "By utilising a heat recovery unit correctly, the home will be recovering heat which would have otherwise have been lost," explains Jennifer Quinn, technical and marketing manager of Vortice. "This enables the homeowner to turn the thermostat down, therefore saving both energy and money."

Vortice's two latest products are both heat recovery units, the Vort HR 250 Netli and the Vort HR 350 Avei. Both have a 100% fully filtered bypass, which means that the incoming air is fully filtered from outside. By using a heat recovery unit you are recovering heat from the moist stale air inside the home and tempering the incoming air.

But whatever heating system you have installed, it is essential to ensure that the property is correctly insulated in a bid to use that heating system as little as possible.

The Actis Hybrid range consists of blanket-style insulation material Hybris and its two sister membranes, both of which offer additional insulation benefits. One is a vapour control layer with built-in thermal performance – H Control Hybrid – and the other a breather membrane with built in thermal performance – Boost R Hybrid.

The CE-marked Hybrid products have been tested both in lab and in situ to ensure they perform in real life as predicted to eliminate the performance gap. They have also been fully certified in the UK and Europe by accredited bodies and have achieved LABC Registered Details, which means they can be accepted by all LABC building control surveyors in more than 300 local authorities across England and Wales when used according to the certification. They are also covered by the NHBC warranty for new builds, providing they are used strictly in accordance with the manner described on the certification.

They can achieve the best U-value requirements, meeting or even exceeding current building regulations in roofs, walls, floors and ceilings and they provide both insulation and airtightness properties. They are flexible, which means any margin for error in installation can be reduced or eliminated as they can be fitted neatly into irregular shapes, reducing thermal bridging and improving airtightness.

Thermal modelling trials carried out by certification body BM TRADA have shown that Actis Hybrid insulation products have a dramatic impact on counteracting thermal bridging and act as excellent thermal blankets. In addition, a follow-up SAP exercise carried out by an independent energy assessor to measure the impact of these calculations on a whole building concluded that using Hybrid



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"We really are very lucky to have such a dedicated and active management team with such sound judgement"

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generated one of the best Y values ever assessed by his firm.

One of the key features of achieving such impressive Y-values is that the increase in overall fabric efficiency means there is less, or even no, need for the addition of costly energy saving measures such as renewables to achieve the required overall energy performance.

Perhaps the best example of such a fabric-first approach is the Passivhaus Standard – the core focus of which is to dramatically reduce the requirement for space heating and cooling, while also creating excellent indoor air quality and comfort levels.

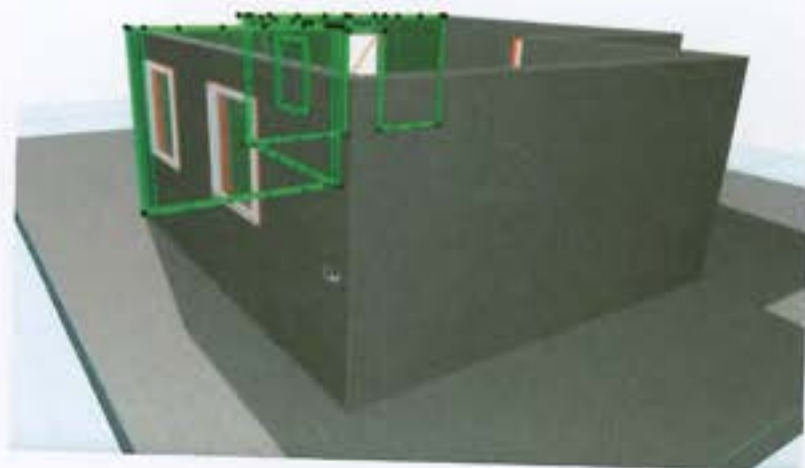
The Beattie Passive system provides an award-winning innovative design-and-build technology that simplifies the delivery of Passivhaus.

"Passivhaus is the gold standard of energy-efficient homes – providing a very energy efficient and comfortable environment for homeowners," explains Isabel Beattie, strategy and development, Beattie Passive. "Good quality design and craftsmanship paired with superior

windows and doors, high levels of insulation and heat recovery ventilation are the key elements that set Passivhaus construction apart from standard building regulations. Beattie Passive specialises in high-quality, energy-efficient and healthy homes for all and, because of the simplicity of the system, homebuilders can quickly and affordably achieve Passivhaus levels of build for current build costs. The innovative system delivers Passivhaus standards of living that reduce CO<sub>2</sub> levels by up to 100%, enabling housebuilding to easily deliver zero carbon buildings."

A Beattie Passive home has no traditional heating system. The high-performance continuous insulation combined with mechanical ventilation and heat recovery system means that heating requirements are reduced by 90%.

"With rising energy prices and the demand for more energy efficient living, Passivhaus is increasingly becoming a popular method of construction," continues Beattie. "In 10 years time I believe all new homes



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TOP TIP Not only does it save time and money when updating house plans, but you can have a huge effect on the energy efficiency of the finished house.

THIS DCO Design Lighting's 10-watt, 1000lm LED Strip Floodlight has been specifically designed to be used in outdoor, with varying levels of light.





**TOP** A Beattie Passive home has no traditional heating system  
**ABOVE RIGHT** Insulating breather membrane underlay Actis Boost R Hybrid can withstand wind uplift and is suitable across all five zones identified under BS5534:2014 slating and tiling for pitched roofs and vertical cladding code of practice  
**ABOVE** By using a heat recovery unit, such as the Vort HR 250 Net, you are recovering heat from the moist stale air inside the home and tempering the incoming air

in the UK will be built to this standard and beyond, ensuring homeowners have high-quality, energy-efficient homes that are both comfortable and healthy to live in."

But even Passivhaus homes need power in order to run appliances and, of course, lighting. So how do you make sure that this need is achieved in the most energy-efficient way possible?

One of Green Lighting's most recent products, the Intelligent LED Solar Floodlight, has been specifically designed to be used in countries with any varying levels of light and adjusts its functionality depending on the quantity and quality of the sunlight. By running entirely on solar energy, the floodlight helps housebuilders meet their sustainability agenda and, appropriately, can even be used in zero carbon properties.

The Intelligent LED Solar Floodlight has been designed to save time and money to the end user. As the product is completely powered by renewable energy, there are no running costs and it can be installed anywhere as no mains power is needed.

"With carbon emissions being a higher concern year after year,

along with The Climate Change Act, the UK housebuilding market is continuously making steps towards zero carbon homes," concludes Callum Whittall, technical and compliance officer of Green Lighting. "In order to reduce our emissions we reduce the amount of energy we need to be using in order to run the home. Clearly, the less energy we are using, the more efficient our property. This allows us then to source a higher percentage of our energy from renewable means, leading to homes that cost little to nothing to run." ■

## CONTACTS

**Actis**  
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**Beattie Passive**  
[www.beattiepassive.com](http://www.beattiepassive.com)

**Green Lighting**  
[www.greenlighting.co.uk](http://www.greenlighting.co.uk)

**Vortice**  
[www.vortice.ltd.uk](http://www.vortice.ltd.uk)

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