

The Willows

Retrofit & Remodel | EnerPHit Standard



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The benefits of retrofit

Retrofitting can improve the energy efficiency of homes by up to 100%. This helps householders save money on their energy bills and reduce their emissions. It also makes their homes healthier and free from draughts.

From Humble Origins

Our latest retrofit and remodelling project has transformed this dated 1970s chalet bungalow into an energy efficient Georgian-style rectory.

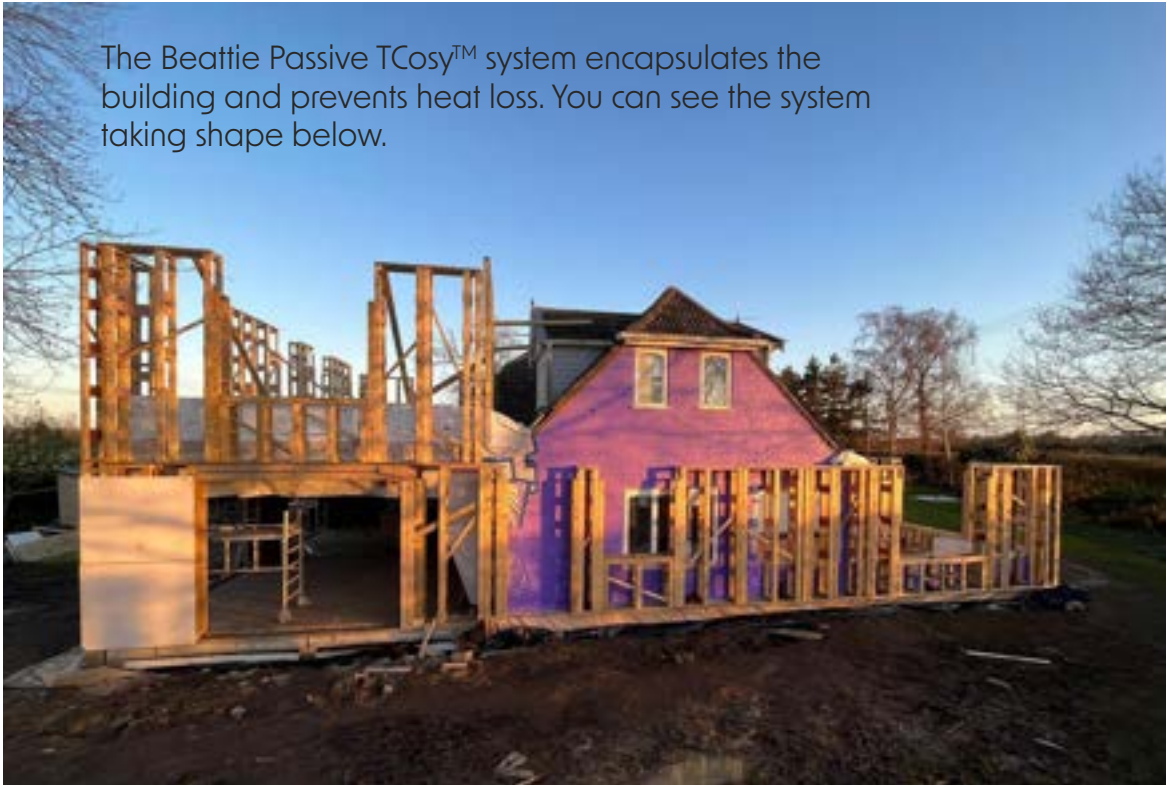


The original property

Inset: The original 1970s chalet bungalow had a floor area of 2,087 sq. ft. and required 90kWh/m² of energy to heat. Our retrofit and remodel has more than doubled the floor area, to 4,422 sq. ft.

The Grand Design

The CGI visualisation of the house above shows the sheer size and scale of this retrofit and remodelling project. Work began in February 2022.



The Beattie Passive TCosy™ system encapsulates the building and prevents heat loss. You can see the system taking shape below.

The TCosy™ System

Our clients had been searching for a six bedroom family home in Norfolk, but had been unable to secure one in the post-Covid property boom.

Ideally, they were looking for a period property, with their dream house being a Georgian rectory. We advised them to consider location and plot size, with a view to remodelling an existing home using our TCosy™ system.

Client	The Badger family
Location	Norwich (3 miles from city centre)
Brief	To transform a dated chalet bungalow into a 6 bedroom family home, built to EnerPHit standard using the Beattie Passive TCosy™ system.



Floor Plans

The original floor plan is shown below as a green overlay on both floors. Although the footprint of the house has only increased relatively modestly, the overall size of the house has increased dramatically!

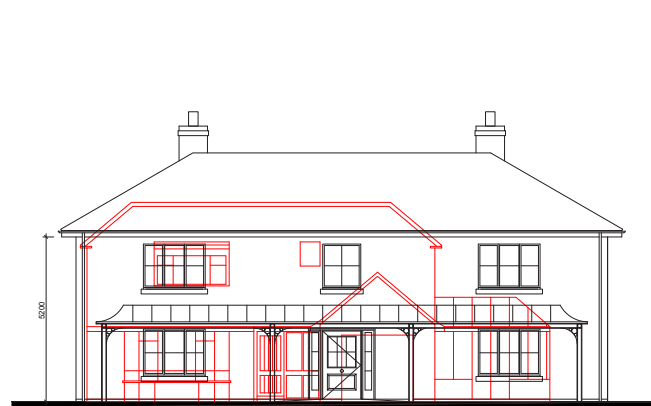


Retrofit & Remodel

The Beattie Passive TCosy™ system was installed around the building, together with a new extension. Post-retrofit, the floor area is 4,422 sq. ft. and the heat load is 14kWh/m².

Elevations

These elevations show the scale of the new property in relation to the size of the original chalet bungalow. The footprint hasn't changed dramatically but the treated floor area has significantly increased.



Front (SE) Elevation



Rear (NW) Elevation

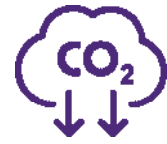


Flank (NE) Elevation



Flank (SW) Elevation

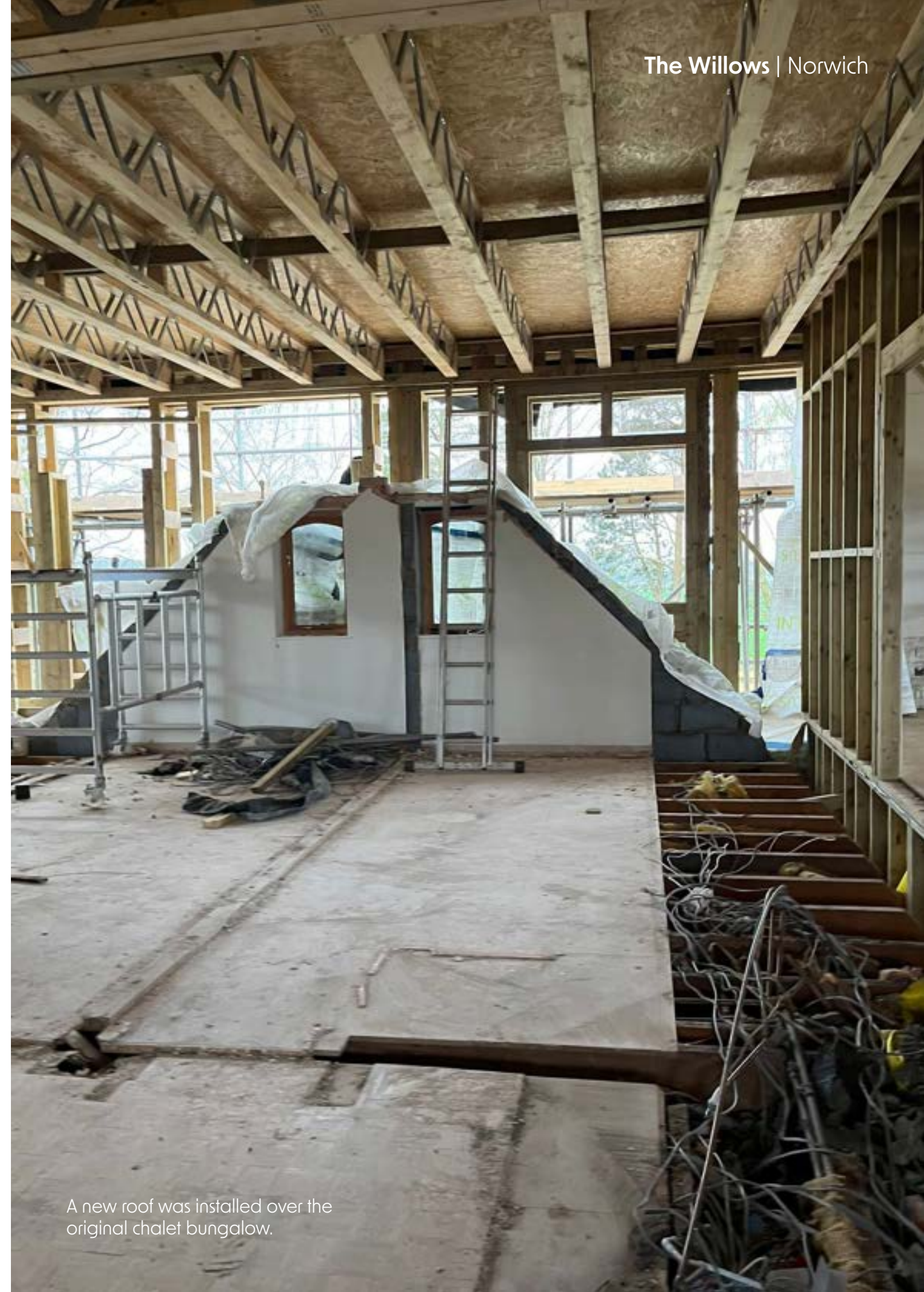
The Beattie Passive build system is patented in 42 countries and has been used to construct over 450 homes to Passivhaus standard. It has been 'tried and tested' for over a decade.



Net Zero Carbon

One of the easiest ways to achieve Net Zero is to build to Passivhaus standard and then add a source of renewable energy.

The Willows will be fitted with photovoltaic panels to capture thermal energy. Because the heating demand is so diminished, it only takes a small amount of renewable energy to balance it out. In addition, a Rehau thermal ground tube tempers the air by 7 ° in winter and summer, providing cost-free energy for life.



A new roof was installed over the original chalet bungalow.

Avoid Planning Pitfalls

Our client was able to easily obtain planning permission for this remodel and retrofit, and they used existing services. There were no planning problems or hold-ups and no expensive CIL payments were required.



Connect to existing services

All the load bearing walls and ground floor slab remained in place and a large extension was added. The home is connected to existing services, which made the whole process easier.

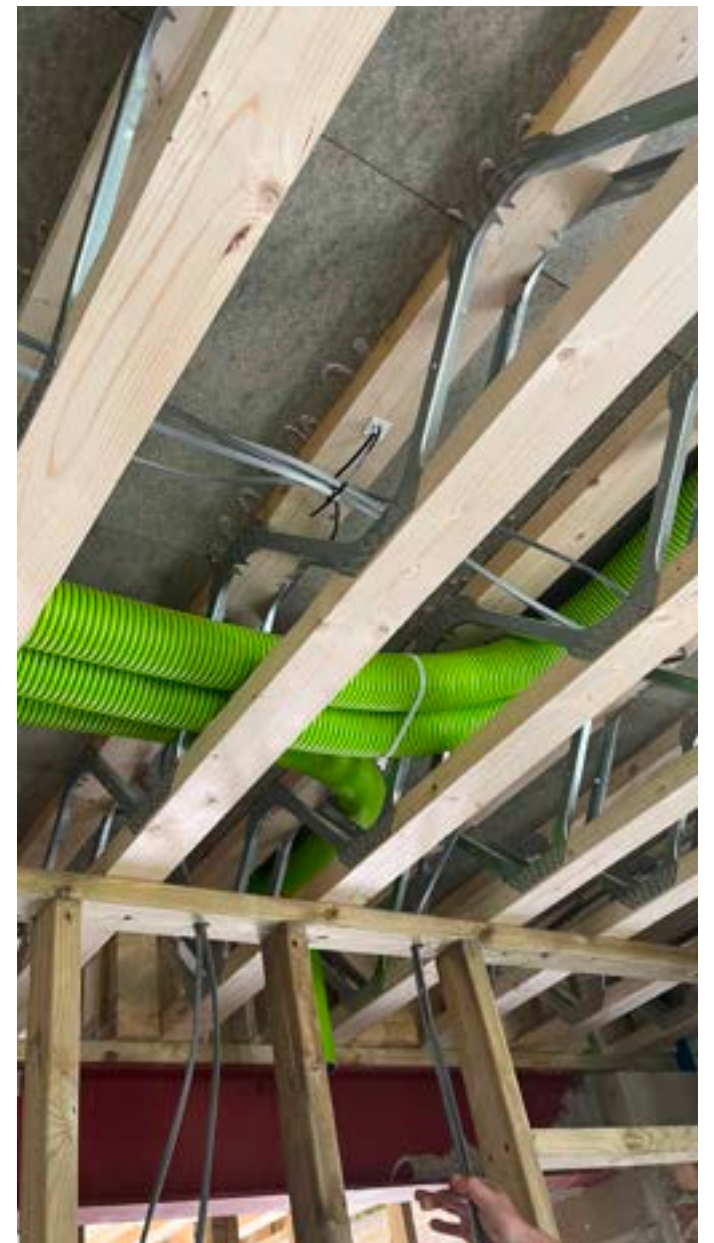


The Journey so Far...



The Beattie Passive TCosy™ system is quick and easy to build. As a result, the process of retrofitting and remodelling this property has been remarkably straightforward.







The Willows is fitted with a large feature skylight and the UK's first Brink Flair 600 MVHR system, which provides Mechanical Ventilation and Heat Recovery throughout the home. It is Brink's largest domestic unit.

In addition, a REHAU ground tube runs for 50 metres, at a depth of 1.5 metres, to temper the incoming air into the house by 7 degrees.

We always adopt a Fabric First approach to the Structural Thermal Envelope. These systems work together to further improve energy efficiency.



