

CASE STUDY WORCESTER ECO-VICARAGES



N.B. This case study considers only one possible approach, which will not be suitable for every church. Always seek professional advice.

Key Points

- Worcester Diocese has worked to create a number of warm and comfortable 'eco-vicarages'. These two examples take different approaches, one a new build and one a retrofit, but the end result in both cases is an improved clergy home which is low-cost to run.
- The new-build home meets 'Passivhaus' standards. It is well insulated, so that the solar gain from sunlight through the windows, combined with a heat recovery system, means very little additional heating is required.
- The retrofit home has increased loft and wall insulation, LED lighting, and a modern gas boiler.



1 Characteristics of Passivhaus include heat recovery and energy efficiency.

2 Insulation is a major feature of the Passivhaus standard. For the new building, high-performance concrete blocks are used.

3 Triple-glazed windows allow natural light to warm the house without heat escaping.

Passivhaus in Webheath

The new build 216m² vicarage in Webheath was constructed in 2008.

In line with Passivhaus standards, it was constructed to be as thermally efficient as possible. This involves walls constructed of high-performance, recycled concrete blocks, triple-glazed windows, and a heat recovery system. Additionally, the home benefits from solar PV panels, producing electricity, and solar thermal panels, drawing more heat into the water system.

Although the inclusion of LED lighting keeps the vicarage energy efficient, the PV panels cannot always supply all of the necessary electricity. This means that the house occasionally draws on the national grid, through a renewable energy tariff.

With minimal heat loss, this vicarage is able to remain at a constant ambient temperature without the need for significant energy input.

The building cost approximately £500,000 in total to construct.



1 St Stephen's vicarage had been built 20 years prior to the work. The extension can be seen between the house and garage in this image.

2 An insulating 'skin' was added to the outside walls of the property, due to the lack of cavity space in them.

3 An efficient boiler, paired with a renewable gas supply, helps to reduce carbon emissions in the renovated vicarage.

St Stephen's Barbourne Retrofit

This pre-existing vicarage was suffering high energy costs as a result of poor insulation. As it already needed a new roof, the opportunity of renovation presented itself and this meant that the energy efficiency of the building could be enhanced.

Despite the poor insulation, the house was deemed suitable for a retrofit. In comparison to the alternative option, of demolition and subsequent reconstruction, the decision to retrofit made financial sense and avoided the involvement of further embodied carbon in construction materials.

Insulation was installed in the new roof and, in the absence of wall cavities, an insulating skin fitted around the outside walls. An extension was also added at the rear of the property, whilst LED lighting and double glazing also improved energy efficiency. A new, efficient gas boiler heats this vicarage.

The results of the work undertaken have been positive for the residents, keeping running costs low.

Retrofitting the building and adding the extension came to a total cost of £210,000.

Watch the case study videos

To find the case study videos for Worcester's Eco-Vicarages [click here](#), or visit www.churchofengland.org/environment.

"It was very difficult to keep our previous vicarage warm, it was so draughty. And we came here to realise that just the sun shining in through the windows was making a significant contribution to keeping the house warm."
Revd Richard Clark, Resident of Passivhaus in Webheath

"The result seems to be a well insulated, reasonably energy efficient house. Not the same level as your Passivhaus, but [there are] lots of advantages to keeping, and renovating, and improving an existing stock of housing"
Revd Hugh Burton, Rector of Dudley Team Ministry (speaking about St Stephen's Barbourne)