

Case Study: Infra-Red Heating; Boiler Hardship Fund

St Paul's Church, Nork

Reigate and Banstead, Surrey; Epsom Deanery

Summary

St Paul's is a modest early twentieth century church on a residential street in an area which could be considered suburban London. It is used for Sunday worship and occasional weekday community activities. The failure of its oil boiler, which fed hot water to peripherally-positioned radiators, led to a reappraisal of heating needs and the installation of a 60kW infra-red system, partly funded by the Church of England's Boiler Hardship Fund.

Background

St Paul's is a brick-built unlisted church, which had been heated by convective radiators powered by an elderly oil boiler. Despite its small size, it was in the top 20% of churches for carbon emissions in Guildford diocese. The oil boiler failed in January 2025, and temporary heating was brought in to see the church through the rest of winter.

Leadership

The project was led by churchwarden George Drewitt (also Guildford Diocese's Net Zero technical advisor) and Operations Manager Michelle Cahill in close co-operation with the diocesan Net Zero team and church QI architect, Adam Hieke.

The Project

Working with the diocesan Net Zero team, and following an energy audit via Greener Edge, the church appraised its options and, on grounds of patterns of use and cost, an infra-red system was preferred (an air-to-air heat pump was the other viable option but more costly).

The church was commended to the Church of England's Boiler Hardship Fund, which paid the cost differential between a like-for-like replacement, and the Net Zero heating system. A further grant was acquired from Marshall's Charity which enabled the old, recessed radiators to be removed and the walls made good. The old boiler was also removed and disposed of.

To enable the installation of infra-red heaters, the single-phase supply needed to be upgraded to 3-phase, at a cost of £8.5k. This was partly funded by a £3k Parish Buying grant.

The heaters were supplied by the company Surya and the project managed by Carmel MEP Consulting Ltd in conjunction with the parish team.

The IR heaters are set up in 7 zones and controllable to heat the parts of the building in use. While the air mixes in the main space, the radiative effect of the heaters can be localised.

The system is controlled by a Nest system and so is flexible and can be managed remotely.

Wider Context

The church has the bronze Eco Church award and is actively pursuing silver and beyond. Within the footprint of the church premises is also a small patch of primarily deciduous woodland which could be used to enhance biodiversity and provide learning opportunities. The church also has a hall for community activities, which in due course will also be decarbonised. St Paul's is part of the Epsom Deanery Greenery group, who share learning, encouragement and best practice,

Future Plans

The church building, being on a renewable tariff and having eliminated the burning of fossil fuels, is now Net Zero. However, the addition of solar PV will help power the new heating system and bring down bills, completion of LED lighting will similarly reduce energy use and costs, and insulating the flat roofs (which are leaking) will conserve heat. All these projects are being pursued as funds allow.

Learning

St Paul's is a good example of collaborative working where a major problem (the heating failure) has led to the formation of partnership between the parish and diocesan teams to bring about (in less than 12 months) a working solution. It is an excellent example of the journey from audit to planning to execution, with support for fundraising. It also demonstrates the specific infra-red technology used as suitable in the type of building and context.

Contact

The diocesan team is available to help with planning and fundraising around Net Zero and Eco Church. Contact martin.carr@cofeguildford.org.uk with any queries. We can also put you in touch with the team at Nork if you have any questions for them.

Key Stats

Project Cost: **£52k**, of which:

3-phase: £9k

Strip out and making good: £6k

New heating system: £28k

Fees and sundries: £9k

Grant funding **£52k**:

Boiler Hardship Fund: £29k

Marshall's Charity: £20k

Parish Buying Grant: £3k

Contractors: Surya (heating units), Carmel (consultancy)

Scope of Project: Heating (installation of new system with controls, and decommissioning and removal of old system)

Estimated Energy/Cost Saving: To monitor, though savings expected



Churchwarden George Drewitt with Operations Manager Michelle Cahill beneath one of the new IR heating units