

# SECRETING HEATING

## How a Pugin Paragon Conceals a Net Zero Secret

*From across an impossibly quaint duckpond you glimpse the Pugin masterpiece that is Peper Harow church, replete with painted ceiling and Comper stained glass windows. It's as if a shadow fell over its sundial a couple of hundred years ago freezing everything in time, as this church and its surroundings exude a sense of permanence, harking back to a pastoral idyll at total odds with the stresses of Net Zero 2030.*

*But looks can be deceptive, and this parish harbours more than one low-carbon secret. Liza Gane, 15 years Churchwarden, recounts how the church tragically burnt to the ground on Christmas Eve 2007.*



A devastating fire, following the evening carol service, left most of the building rubble and ashes. “Luckily we were fully insured,” Liza explains. “After a bit of toing and froing the church was rebuilt.”

And that’s when the puzzle of how to decarbonise a grade II\* listed building was ingeniously solved. Jig-sawing all the bits and pieces back together, someone had the genius idea of where to hide an Air Source Heat Pump. For a unit that reaches shoulder height and is the width of two people, it’s not something you cache behind the pulpit; add in two water tanks of similar size, and a control panel, and you’re not going to squeeze it into a cleaning cupboard either. So what have they done with it?

“It’s up the tower!” Rev Hannah Moore beams. She arrived in the

**The crucial question – does it work well?**

parish after the rebuild but is a big fan of all that’s been done, especially since there aren’t even any radiators on walls; Peper Harow has underfloor heating. So, the crucial question – does it work well? As it happens, the answer is more complex than a simple ‘yes’ or ‘no’. During the original rebuild a heat-pump was installed, but the results weren’t great. It had nothing to do with the technology itself, (which to all intents and purposes is a fridge-in-reverse) but everything to do with sizing. Just as a 6 can mini-fridge won’t meet the needs of a family of 8, the heat-pump that went in, although it worked perfectly, just wasn’t the right size for the space.

Some stressful conversations later, a better sized pump was



fitted in the tower. The result? "It's working great...the only issue is tweaking the thermostat. We weren't quite getting the floor heat cool enough when the weather warmed, and if the church was full we were sort of melting!" Hannah laughs. A nice problem to have, considering the arctic state of many churches. They've just added a Hive heating control system, and have high hopes that all will now be perfect. Add in the Solar PV on an unobtrusive bit of roof, and you really have a masterclass of how to make a listed church Net Zero. But Hannah hasn't landed into a problem-free incumbency. With three other parishes there's plenty more decarbonising to do, and down the road at St Mary's Shackleford, being too warm is not a problem they're ever likely to have. "It's HUGE!" she confides, and is heated with an ancient oil boiler that recently leaked, leaving an intense smell of Kerosene in the building. It's closed most of the time, only open for festivals, but Harvest and other events that are still held in the smaller Peper Harow tend to bring a bigger congregation, glad of the warmth rising up around their feet. It's going to take a complete reordering, and an eye-watering bit of fundraising, to solve the problems at Shackleford.

But over in Elstead, St James' have incredible drive and energy to reach Net



Zero, and the church has researched every possibility. They had geophysical surveys for a Ground Source Heat Pump, but the archaeology of the churchyard wasn't compatible with the 8 piles that would be driven deep into the ground, plus the cost was exorbitant. So they've shifted their focus to an Air Source Heat Pump instead. On the back of that, the conscientious Green Team have explored insulation options; the DAC haven't made encouraging noises about internal cladding for the roof or panelling on the walls; however, internal secondary glazing has met with a much warmer reception and is being seriously considered. Because the lead solder in stained glass is porous, there is always a risk of condensation collecting between the panes, but a gap at top and bottom allows for air flow that solves that problem. It should all make a real difference to the effectiveness of any heating, if they go ahead.

Unfortunately there isn't a handy

space in the tower at St James to hold the pump, so they are doing feasibility for siting it outside, along with an 'acoustic hood' which comes with quite a price tag but ensures no noise pollution effects neighbours or services.

It's a lot of work, but Rev. Hannah is unfazed; she takes the long view on bricks and mortar. "These buildings are supposed to live," she muses, looking round at the ancient beauty on either side. "If you sit in an old church you can almost feel the prayer pouring out of the walls...You are surrounded by a cloud of witnesses." It is a beautiful image, one that gives import to the idea of not leaving just buildings for the generations that follow us, but also a liveable planet. Luckily, in this time-forgotten corner of Godalming, Rev Hannah and her congregations are working hard to ensure just that.

The Church of England and the Diocese of Guildford have a goal to be Net Zero by 2030. Email [Martin.Carr@cofeguildford.org.uk](mailto:Martin.Carr@cofeguildford.org.uk)