Why We Chose Air Source Heat Pumps

All Saints Bedworth — a Net Zero Demonstrator Church

When I started investigating how to replace our two gas boilers at All Saints, Bedworth, I knew it would not be straightforward... and it wasn't. We're a Grade II* listed Victorian church in a pedestrianised town centre, busy almost every day of the week, with unusual cast iron radiators and a building that behaves in ways the textbooks don't quite predict. There was no off-the-shelf answer. What followed was nearly two years of research, site visits, conversations with installers and consultants, and a fair amount of trial and error.

This is an account of what we considered, what we ruled out, and why we ended up where we did.

What we looked at

Working with engineering consultants Max Fordham and funded by a Feasibility Study grant from the Net Zero Demonstrator Church project, we considered four main options: ground source heat pumps (GSHP), underfloor heating (UFH), Air Source Heat Pumps for warm air (Air2Air), and Air Source Heat Pumps for a wet system (Air2Water). We also had infrared (IR) heating assessed.

Ground source was really tempting, even though it would close the High Street for a time — once installed, nothing is visible inside or outside the building. But the cost estimate came in at £300,000 or more with a number of things not included. In our context, serving a deprived urban community, that felt impossible to justify.

Underfloor heating is another one people mention with enthusiasm, which works with either Ground Source or Air Source heat pumps. We visited a church (in early January) in a nearby town that has had UFH for 14 years with their GSHP and it works beautifully with their marble tiled floor, keeping the ambient temperature around 17-18°. But for us it would have meant closing the building for a significant period, possibly losing the sound-dampening benefit of our carpet, complications with our suspended floor and another large capital cost. We didn't get a quote — it was clearly not our solution.

Infrared was offered by a supplier and looked at carefully by Max Fordham. The conclusion was clear: IR can work well in churches used once or twice a week, because you don't use it very often and the cost stays manageable. But All Saints is in use most days. A heat pump delivers more than three times the heat energy per unit of electricity compared to direct electric systems like IR. For a busy church, IR running costs would be unaffordable. There's also the question of aesthetics — enough IR panels to heat a full congregation in a Victorian interior is not a small thing visually. Additionally, there are offices, meeting rooms, five toilets and a kitchen – not just the Sanctuary.

Air2Air was a serious contender for a while. We visited St Oswald's in Rugby, who had just installed a large system, and it was working well for them. The efficiency gap between Air2Air and Air2Water has narrowed considerably in recent years so that wasn't a consideration. Air2Air has the advantage of working on demand (useful for unpredictable or intermittent use) and can provide

cooling in summer, which our upstairs offices would appreciate. (After experiencing the historic heat waves in May and June, and again in July, it was clear even the Sanctuary could benefit!)

But we ruled it out, for several reasons specific to our situation. We have no discreet location for up to six external units — there are busy public paths on all four sides of the building, and a Conservation Area setting that makes visual impact a very real Planning constraint. Air2Air also has higher embodied carbon, uses more potent refrigerants throughout the system rather than just in the external unit, and if the external condensers ever need replacing, all the indoor units go too. The noise of fan units large enough for our Sanctuary was also a concern, along with the additional destratification fans likely to be needed. Our electrical supply, which we'd already had to upgrade to 100A three-phase, had limits we needed to respect.

Why Air2Water

In the end, Max Fordham recommended Air2Water throughout, and we agreed. The reasons were largely specific to us, but may resonate with others.

We have existing infrastructure we can reuse. Our cast iron radiators — unusual, possibly unique — can stay, supplemented by fan convectors and floor trench emitters. The majority of the pipework is sound, being relatively recent. For the most part, only the emitters needed replacing or augmenting. That kept the cost and the disruption manageable.

Air2Water runs best low and slow — a consistent background temperature rather than blasts of heat. That turns out to suit a building like ours very well because of the thermal mass of the walls and pillars. As there are separate systems for the two heat pumps, the Sanctuary end and the Offices end are controlled separately. In an experiment with the Sanctuary gas heating during winter (October 2025 to March 2026) we found that running the heating 24/7 at 16° (increased to 18° for the same services as usual) we discovered it used barely any more gas than normal, about 2% when one compared across four winters and accounted for the differences in temperatures.

Fewer external units means (for us) no holes in historic fabric, fewer Planning complications, and less visual impact. We ended up with two units: one beside the South Porch to the West, and one at the East end where the gas meter cupboard used to be. Both at ground level, both in dark finishes, both partially screened by shrubs and railings.

The calculations suggested that the electricity needed to deliver the same heat we currently get from gas was unlikely to cost us more than gas — and with our solar panels and battery already in place, we'd be generating a proportion of that electricity ourselves.



Mock up of new convectors alongside historic radiator

What it took to get here

Choosing the system was only part of the work. We needed Faculty from the Diocese (granted April 2026 after lengthy technical discussions), planning permission from Nuneaton and Bedworth Borough Council (granted June 2026 after a nine-week delay — bureaucracy and staff changes rather than objections), and a noise assessment, photo mock-ups, and a Heritage Statement along the way.

We also needed an installer willing to work with us on a listed building, understand the constraints, and be flexible about payment schedules while grants were still arriving. And of course be in or near our budget. We found that in Damon Blakemore of *Blakemore Renewables* in Sheffield — a Heat Geek with a reputation in the industry for doing this properly.



All Saints in the town centre winter sunshine

It wasn't a simple decision — a local installer also gave us a similar price, was responsive and is accustomed to installing heating systems for churches. But their experience with heat pumps was in new-build houses, whereas Damon has extensive experience with retrofitting heat pumps in a variety of locations including some historic buildings. The quality of the installation and configuration is key to an efficient (and therefore affordable to run) system. That was the clincher in the end.

Installation begins 24 August 2026.

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