CASE STUDY | COMMERCIAL
CATEGORY | LEISURE

Homefield Grange Spa

Heat pumps provide efficient, quiet comfort in a spa extension

Clever application of air source heat pump technology provides an economical solution to the space and water heating needs of a popular Northamptonshire health spa.

Since 2005, Homefield Grange at Rushton, Kettering, has been frequented by A-listers, including stars of stage and screen, and many others looking to detox in its peaceful rural atmosphere and picturesque stone buildings.

Development of a new spa and treatment suite on a lower-ground level of the former farm buildings brought the need for a heating system that's easy on the environment – and the bottom line.

Director Hans Looser says: "We also wanted a system that would produce the desired comfort levels without any 'air noise' to disturb the tranquility of the indoor environment.

"We originally considered ground source heat pumps, but the Daikin systems installed by Griffiths Air Conditioning tick all the boxes for us."

An area adjacent to the existing building was excavated to accommodate the new extension which is mostly hidden by landscaping. The roof of the extension provides an attractive sun terrace at the south corner of the main building.

Set amid 23 acres of open farmland, Homefield Grange needs reliable heating for much of the year to ensure its patrons are comfortable – and the new facilities have increased demand for warmth.

Kettering-based Daikin D1+ Premium Partner Griffiths Air Conditioning provided the overall heating solution, using a range of Daikin heat pumps – each with a specific role, but also with the ability to share loads and increase overall efficiency.

Year of installation

› 2019

Project requirements

- [x] Air conditioning
- [ ] Air curtain
- [ ] Air purification
- [x] Control
- [x] Heating
- [x] Hot water
- [ ] Refrigeration
- [ ] Ventilation

Installed systems

› VRV Heat Recovery
› Split wall hung indoor unit
› Slim ducted units
› Hydrobox for VRV
› Altherma indoor unit
› Split outdoor unit
› Air Handling unit

"A Homefield Grange spokesperson said: "We are very satisfied with the heating and air conditioning systems – they provide the comfort levels we require without any noise in the peaceful environment we want for our customers."

The solution includes a Daikin air handling unit that ventilates the extension.

A 16kW Daikin Altherma LT heat pump primarily drives an underfloor heating system that prevents cold feet all year. But when the floor mass has reached the desired temperature, it becomes a thermal store for several hours.

Output of the LT heat pump is then available if necessary to assist the 16kW Daikin Altherma HT heat pump that provides domestic hot water and – most importantly keeps the spa water hot. As a result, the HT system – which has a secondary refrigerant circuit to produce higher temperatures – achieves better operating efficiencies.

The six treatment rooms are heated (or cooled) by Daikin slim ducted units, individually controlled with standard wired controllers. The indoor units are driven by a 10hp Daikin VRV IV heat recovery condensing unit.

Recovered heat is boosted by a high temperature Hydrobox and channelled efficiently and economically into the water heating. The heat recovery unit also serves the DX coil in the air handling unit that ventilates the extension.

Griffiths Air Conditioning director Ian Griffiths says the trio of Daikin technologies – the Daikin Altherma indoor units, VRV condensing units and the AHU – are housed in a common plant room.

"This adds a further layer of heat recovery as we are able to make maximum use of waste heat, with consequent benefit to operating costs," he says.

Hans Looser says the new spa and treatment suite has given Homefield Grange an immediate business boost. "While most of our customers book in for two or more days, we are now offering one-day bookings which enables us to tap successfully into a more local market than in the past.

Kit List

Code	Description	No of units
ERLQ-CW1	LT Split 16kW Outdoor Unit - 3ph	1
EHBH16CB9W	Daikin Altherma LT Split wall hung indoor unit	1
ERSQ-AY1	HT Split 16kW Outdoor Unit - 3ph	1
EKHBRD016ADV17	Daikin Altherma HT indoor unit	1
REYQ-T	Daikin VRV IV Heat Recovery condensing unit	1
FXDQ-A3	Slim Ducted Unit	6
BRC1E53A	Standard Wired Controller	6
HXHD125A8	HT Hydrobox for VRV	1
ADT04ECD1	Air Handling Unit, with Plate Heat Exchanger Mixing Box, DX Module	1