

Market Harborough, Leicestershire



Case study New build

Property type:

New build commercial property

Requirement:

An environmentally-friendly heating and hot water system for a new yoga studio

Technology used:

1 x 5kW aroTHERM plus air source heat pump
1 x uniSTOR 200L cylinder
1 x wireless VRC700

Installer: Indigo Renewable Energies

The Challenge

Set just outside of the medieval market town, the yoga studio is located in an area off the mains gas grid. Keen to make it as sustainable as possible, the owner chose to use an eco-building from Rotunda Roundhouses. Made from sustainably-sourced timber, these buildings come in pre-fabricated panels ready for installation on site.

Because the building was going to be mainly used as a yoga studio, the customer specifically wanted a quiet heat pump. She was also keen to use a low-carbon solution to keep the building warm and provide hot water to serve the shower and kitchen facilities. This meant that traditional fuel sources for off-grid areas such as oil and LPG were out of the question. Occupancy levels would vary in the building depending on when classes were on, so it was also crucial to design a system which would enable the heat pump to deliver the energy savings expected.

The Solution

Indigo Renewables collaborated closely with Rotunda Roundhouses during the installation process, working in partnership with Vaillant to offer the aroTHERM plus heat pump as an optional extra for their customers. With sound power as low as 54 dB, this solution fitted the bill perfectly, helping to uphold the yoga retreat's tranquil surroundings.

After receiving the plans and the structure's U-values from the Rotunda, Indigo Renewables calculated the amount of heat loss for the whole property as well as for each room to inform the size of heat pump required. As a result, a 5kW aroTHERM plus was specified to provide the heat for heating and hot water. By calculating each room's heat loss, the team also ensured that pipework was specified correctly for the underfloor heating.

Project background

- Pre-fabricated commercial property with heating and hot water requirements
- Off-grid sustainable property with a living roof with flora

The energy concept

- aroTHERM plus 5kW is filled with a natural refrigerant which has a global warming potential of just 3
- Quiet operation with sound power as low as 54dB
- uniSTOR 200L cylinder has compact design allowing for flexible siting
- VRC 700 system control has been designed using a familiar menu structure to make controlling the system easy and efficient



Comfort for your home

To ensure that the aroTHERM plus would deliver high levels of energy efficiency for the customer, a Vaillant 45l buffer tank was also included in the system. This set-up allows the heat pump to run for extended periods of time to charge up the buffer, from which the underfloor heating draws its heat as and when needed.

To give the customer full control of their heating system, a Vaillant VRC 700 was specified to schedule when the heat pump comes on to heat up the buffer and produce hot water. With its weather and load compensation features, it can check the external and internal temperatures and tells the heat pump how much energy is required to reach the right comfort levels without wasting any energy to get there.

The hot water produced by the aroTHERM plus is stored in a Vaillant 200 litre uniSTOR cylinder.

If all the hot water in the cylinder is used up, the aroTHERM plus can produce more very quickly. Thanks to its ability to handle higher flow temperatures of 75°C, the domestic hot water can be stored in the cylinder at a more useable temperature resulting in a more effective system that can deliver 25% more hot water without the need for a backup heater.

Why Vaillant?

Indigo Renewable Energies' director, Christian Ford, is pleased with the result and impressed with the support Vaillant has given. He said, "This was the first time we have installed the aroTHERM plus. The technical assistance from Vaillant has been excellent, helping us to make this eco-development a reality for the customer every step of the way."



Photography credit: N/A Photography



 Heating  Hot water  Renewables

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