ENER-G super-sizes low carbon heat pumps at the Open University

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The UK's largest closed loop ground source gas absorption heat pump installation is providing low carbon heat to The Open University in Milton Keynes.

The heat pumps have been supplied by ENER-G, which worked in partnership with mechanical and electrical contractor Rushmoor Mechanical Services to install the technology at Building 12, a 2000 sq metre sustainable new-build development that forms part of the Walton Hall campus.

The new building, which opened earlier this year, is targeting a BREEAM outstanding rating. It incorporates natural ventilation, night time cooling, solar chimneys, automatic lighting controls, a green roof, solar water heating and photovoltaic panels.

Building 12 has been constructed as part of a wider campus development programme under a construction Framework Agreement between The Open University, main contractor SDC Construction, architect Ridge & Partners, civil and structural engineer PEP, and partnership facilitator Mike Thomas.

ENER-G drilled 13 boreholes to a depth of 100+ metres to install a ground loop system that feeds four gas absorption heat pumps, with a combined capacity of 140kW heat output. This is supplying the building’s heating requirements and will achieve carbon dioxide savings of approximately 45% in comparison to a system heater via a condensing boiler.

Alan Burrell, director of estates at The Open University, said: "Sustainability and carbon reduction are at the core of our development principles and the heat pumps are working very effectively to deliver a plentiful source of low carbon heat. They contribute an important element to the University’s carbon reduction strategy."

Paul Burley, managing director of ENER-G Sustainable Technologies, said: "We are delighted to deliver a project of this size. It demonstrates the effectiveness of the technology in supplying reliable, affordable low carbon heat. The education sector is championing the uptake of heat pumps in the UK, providing an important showcase for this fast growing sector."

Most of the UK's gas absorption heat pump installations are air-sourced, using a gas burner to drive the refrigeration cycle, which draws energy from the surrounding ambient air to significantly boost the thermal output of the gas. The energy can then be used to supply low-temperature hot water for space heating and/or for the production of hot water via an indirect cylinder, similar to a traditional boiler.

Ground source gas-absorption heat pumps are based on the same principle of operation, except that the solar energy absorbed by the earth is harnessed by the ground loop, and enhanced by the refrigeration cycle and the heat generated by combusting the gas to produce very high fuel efficiencies.

Among the financial advantages of using gas absorption heat pump technology are energy consumption reductions of up to 50% and exemption from the climate change levy. Legislative benefits include cost savings relating to the Carbon Reduction Commitment Energy Efficiency Scheme and improved Building Energy Certificate ratings (EPC and DEC).

Additionally, gas absorption heat pump systems means reduced regulatory costs as a result of low emissions, enabling points for BREEAM assessment, and compliance with Part L2A and Part L2B of the Building Regulations.

Through its partnership with four leading manufacturers, ENER-G Sustainable Technologies provides one of the widest selections of ground source, gas absorption, air source and water loop heat pump technologies in the UK, ranging from 1kW to 1000kW capacity.

ENER-G operates its own drilling rigs and offers complete in-house services from specialist design, through to complete project management, installation and maintenance.

For further information contact ENER-G Sustainable Technologies.

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