



Cascade heat pumps chosen for farmhouse renovation

Farmhouse renovation makes use of Mitsubishi Electric's Ecodan® air source heat pump to meet hot water demand and reduce energy bills.

Self-build homeowners in South Devon are enjoying the energy efficient benefits of renewable heat pump technology following the installation of an Ecodan cascade system at their newly renovated farmhouse and barn conversion.

The only real alternative would have been oil which would have meant significant install and running costs.



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Heating

Case Study

Cascade system, Dartmoor Farmhouse

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ABOVE: The two 14kW Ecodan units work together to meet the 20kW heat demand of the renovated farm buildings.

The units run off the property's single phase electric supply.

Located on the southern slopes of Dartmoor in the heart of South Devon, the renovation incorporated the existing farmhouse and the conversion of a number of barns to form one dwelling with a floor area of 450m².

The original farmhouse was in an off-gas area and, as is typical of this type of property, had no heating system apart from open fires.

The specification of the homeowner was for underfloor heating throughout the majority of the property which incorporated a number of different floor constructions and levels.

In the remaining rooms they wanted antique radiators which would be sympathetic to the rustic nature of the original property.

With limited space surrounding the property and only a single phase electric supply, a bespoke solution was called for which would meet the requirements of the homeowner while also proving cost effective to run.

A further complication came from the single phase electricity supply and the extensive costs which would need to be met by the homeowner if a 3-phase power supply had to be installed at the property.”



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Certificate Number: MCS HP002
Product Reference: PUHZ-W50YHA-BSL,
PUHZ-W80YHA2-BSL, PUHZ-HW140YHA2YHA2-BSL,
PUHZ-SW140YHA, PUHZ-SW15YHA, PUHZ-SW120YHA,
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ABOVE: The 300 litre stainless steel hot water tank provides all the heating and hot water the newly renovated home needs.

“The limited space made the farmhouse unsuitable for a ground source heat pump but the size of the property meant that the heating demand was significantly greater than one of our typical air source heat pump installations,” explains Mitsubishi Electric’s Chris Whiteford.

The installer, Source Energy, therefore specified an Ecodan air source heat pump cascade system, which rotates the workload between the individual heat pumps to maximise efficiency.

Two 14kW Ecodan heat pump units link to a 300 litre Kingspan stainless steel hot water tank, to meet the 20kW heat demand and supply a sufficient volume of hot water to meet the needs of the occupants.

Ecodan is the perfect solution for self-builders and off-gas situations and qualifies for RHI.

Ecodan allows self-builders to meet the requirements of the Building Regulations and it is designed to be eligible for financial incentives such as the Renewable Heat Incentive (RHI).

In addition it can be used to replace any existing heating system and offers those in off-gas areas a viable, low carbon alternative to oil, LPG or direct electric heating.



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Certificate Number: MCS HP0002
Product Reference: PUHZ-W80VHA2-BS, PUHZ-HW140VHA2/YHA2-BS,
PUHZ-SW40VHA, PUHZ-SW120VHA, PUHZ-SW120VHA
GRN-V-P500VHA-HPB



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ABOVE: Ecodan's intelligent, self-learning controls decide which heating system to use at any time to ensure the house is heated in the most economical way possible.

Ecodan cascade system

Two 14kW Ecodan air source heat pumps work together to meet the heating demand.

The system's controls alternates use of the Ecodans to maximise efficiency and prolong the system's lifespan.

The homeowners have complete control and much lower running costs than if they had installed an oil system.

Chris continues: "The only real alternative for this property would have been oil which would have incurred significant installation and running costs. The cascade system therefore proved to be ideal as it offers a cost effective solution, and in this situation allowed the homeowner to avoid the costs associated with upgrading their electricity to a 3-phase supply."

In addition they benefit from the heat provided by two air source heat pumps with the simplistic controls of one."

Going forward the homeowner can enjoy a heating system which is efficient to run and provides copious amounts of hot water.

But perhaps more importantly they are taking advantage of a system which uses renewable energy and as a result significantly reduces their carbon footprint and annual running costs and thus provides a significantly more efficient means of heating than would otherwise have been available.

Further details on the complete range of Ecodan systems can be found by visiting the dedicated website: www.ecodan.co.uk.



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