



## Straw eco house offers sustainable living in Yorkshire

A self-build sustainable house on the outskirts of York has pushed the boundaries of carbon-neutral living with the help of a Mitsubishi Electric Ecodan air source heat pump.

Chris Gibbins, a former business analyst, set out earlier this year to build a house for his young family made from straw bales, and has allied this highly sustainable material with a raft of other energy efficient measures in his mission to produce an exemplar in sustainable house building.

**“We installed the heat pump as a background source to ensure that we achieved the right level of comfort throughout the winter period”, explains Chris.**



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# Heating

## Case Study

Straw Eco House  
Yorkshire

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ABOVE: Chris Gibbins went on a four-day course to learn how to build with straw, so that he could develop the skills to start his project.

BELOW: Straw is an excellent insulating material and also locks up carbon.



“Straw has all the right properties,” says Chris Gibbins. “It’s thermally insulating, it’s a waste product, there is no carbon produced - in fact it locks up carbon - so from every angle it’s a great product to use”.

A four-day course on building with the material at the Centre for Alternative Technology in Wales gave Chris the skills required to start his project, and the house is now complete.

The four-bedroom, three-storey property in the East Riding of Yorkshire has allied under-floor insulation, loft insulation, high-grade windows, photovoltaic roof panels and solar thermal with an 8.5kW Ecodan air source heat pump.

**“We were faced with the choice of using either oil or electric because there is no gas in the village,” explains Chris.**

“Originally, we thought we might be able to get away without heating the house at all, but in 2009 we had over a month at -13°C, and the house wouldn’t remain warm at that temperature for that length of time.

So we installed the heat pump as a background source to ensure that we achieved the right level of comfort throughout the winter period.

In addition we need to look to the future because if we decide to sell the house the buyer will expect a certain level of heating throughout the property.”

“The whole house is incredibly efficient,” says Chris Wilde of Yorkshire Energy Systems, who installed the Ecodan unit.

“Despite the fact that it is quite a large house we have installed a very modest size pump, as that is all that will be required to achieve the desired level of heating.”

# Heating



ABOVE: The 8.5kW Ecodan will provide all the heating the home needs – even in the depths of winter. It also supplements the hot water produced by a solar thermal panel system.

## Installation Summary

The new home is in an off-gas area, so the only other options for the Gibbins family were oil or electric heating.

The 8.5kW Ecodan air source heat pump works in conjunction with a solar thermal system and the home also receives power via photovoltaic roof panels.

With RHI payments from both the Ecodan unit and the solar thermal, combined with Feed in Tariff payments from the electricity generating PV panels, Chris Gibbins is looking to cover almost all of his energy costs.

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Ecodan is accredited under the Microgeneration Certification Scheme and is therefore among the many features of this project that qualify for the Government's Renewable Heat Incentive (RHI).

The RHI pays participants of the scheme that generate and use renewable energy to heat their buildings. By increasing the generation of heat from renewable energy sources (instead of fossil fuels), the RHI helps the UK reduce greenhouse gas emissions and meet targets for reducing the effects of climate change.

Although air source heat pumps remain relatively new, Ecodan has been on the UK market now for over seven years and has already proved itself as an efficient way of heating homes.

It can achieve level 4 of the Code for Sustainable Homes, and even higher when used in conjunction with other improvements such as photovoltaics or solar thermal.

In this installation, the Ecodan unit provides all of the space heating and also makes a contribution to the hot water.

**Chris Gibbins hopes that the RHI income from this, in conjunction with the installation of other renewable energy technologies, will bring him close to covering all of his energy costs.**



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Certificate Number: MCS-HP0002  
Product Type: Heat Pumps  
Product Reference:  
P.U.I.Z.-W50V1A-ES, P.U.I.Z.-W50V1A2-ES,  
P.U.I.Z.-W170V1A-ES, P.U.I.Z.-W170V1A2-ES,  
P.U.I.Z.-SW40V1A, P.U.I.Z.-SW75V1A, P.U.I.Z.-SW120V1A,  
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