



RENEWABLE
SOLUTION PROVIDED

Lossnay system for
whole house heat
recovery

Fresh Air Solution for Stylish, Bespoke Home

Lansberry Ltd, specialists in bespoke developments, has created a stylish and sophisticated 4-bedroomed bungalow which sits in 4 acres of greenbelt with amazing views across the surrounding valley.

The stunning new property has been designed to impose minimal impact on the environment and key to achieving this (and to complying with strict building regulations and the Code for Sustainable Homes), was the use of low carbon, sustainable technologies.



Air Conditioning | Heating
Ventilation | Controls



Fresh Air Ventilation

Case Study Leasey Lodge Ecobuild September 2012

Making a
World of
Difference



The property's vaulted ceilings required the ducting to be adapted to fit the system perfectly.

Installation Summary

4 bedroomed luxury bungalow
in Hertfordshire

Lossnay system for whole
house heat recovery

2 x LGH-50RSDC-E units

Air source heat pumps provide
heating and hot water to the
house and indoor swimming
pool

The gabled structure has a steel frame design which incorporates glazed skylights for maximum natural light, whilst the bedrooms, kitchen and living areas all benefit from high vaulted ceilings reaching up to the apex, to maximise the feeling of space.

In consultation with Mitsubishi Electric, Lansberry Ltd chose renewable energy specialists, AOS Heating, to install a mechanical heat recovery ventilation system to provide effective fresh air ventilation to the Hertfordshire home.

The DC Lossnay system extracts stale air from an interior space and recovers up to 90% of the heating or cooling energy from it.

Other basic ventilation systems such as standard supply and extract fans do not allow recovery of energy to take place, so energy used to heat or cool an interior is lost as soon as fresh air is introduced. Lossnay uses this energy to warm or cool incoming air, keeping energy costs to a minimum.

In fact, the system is capable of saving up to 30% on the initial capital costs of some heating and cooling plants by reducing the load of the occupied space, allowing for a smaller heating and/or cooling system to be used.



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Lansberry strives to incorporate sustainability and carbon reduction in every project.

“The design of the vaulted ceiling made installation challenging at times, but Lossnay is manufactured using good quality materials and AOS has a wealth of experience in installing this technology, so we were able to adapt the ducting and the system to connect perfectly,” said Lee Wildego, Contracts Manager for AOS Heating. “Lossnay provides the home with a constant supply of pre-heated, fresh air in the winter months and fresh air and night time cooling during summer months creating the perfect environment for any homeowner.”

A sophisticated control system is linked to CO₂ sensors which automatically boosts the fresh air supply if levels rise above a predetermined point. This avoids the build-up of stuffy, stale air and offers the homeowner a constantly fresh environment.

“Lansberry strives to incorporate sustainability and carbon reduction in every project we undertake and we are mindful of the impact our developments have upon the landscape they sit in, too,” said Nick Bareham, Managing Director of Lansberry Ltd. “The inclusion of renewable technology in this project not only helped us to obtain planning permission in a green belt area, but was an important selling feature when we took the property to market.”

Strict building regulations, Part L2 in the UK and Part J in Scotland, require modern buildings to be more air tight than ever before, making the need for fresh air ventilation key to maintaining a comfortable internal environment. Mechanical heat recovery ventilation units such as Lossnay provide an ideal way to extract pollutant, stale air whilst introducing fresh, clean air, without compromising on the internal temperature and humidity.



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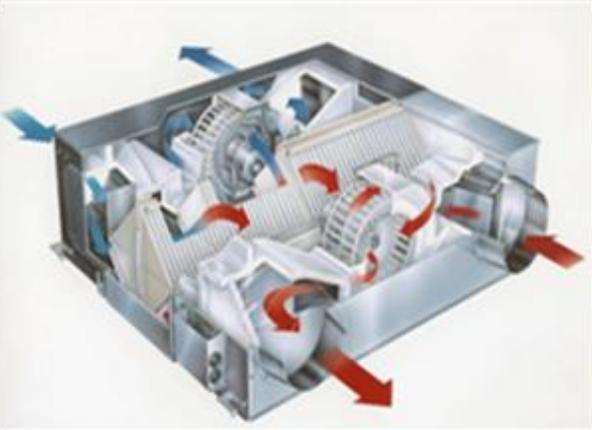
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When the inlet and exhaust air supplies cross in the Lossnay element, the superior heat-transfer and moisture permeability of the special paper allows a highly efficient, total heat exchange to occur.

Lossnay technology has been refined by Mitsubishi Electric over a period of more than 30 years and it has perfected the recovery of otherwise wasted energy. The secret of the effectiveness of the Lossnay system lies in the construction of the Lossnay core which allows exchange of both latent heat (humidity/moisture) and sensible heat (temperature).

The core, made up of ultra-thin, specially processed paper constructed in a corrugated form and layered in alternate directions, completely separates the incoming and outgoing air supplies to ensure that only fresh air is introduced to the interior space. When the inlet and exhaust air supplies cross in the Lossnay element, the superior heat-transfer and moisture permeability of the special paper allows a highly efficient, total heat exchange to occur, whilst acting as a barrier against air leakage.

The Lossnay core also has outstanding soundproofing properties, which makes it ideal for use in soundproof rooms and other applications where noise may be an issue.

The entire property has been designed to make best use of sustainable materials and energy saving technology and comfortably achieved level 4 of the Code for Sustainable Homes. The roof is cedar shingles and the external walls have been clad in softwood to resemble the character and appearance of a barn in order to blend in with the property's surroundings. Windows are timber framed and internally the doors, skirts, architraves, window boards and stair case are all oak, with oak flooring laid in most of the living spaces.



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“We have worked with solar thermal technologies for over 10 years now, but this is the first home in which we have used a combination of heat recovery and ventilation with other technologies and we are delighted with the results,” said Mr Bareham. “A sustainable home with reduced CO₂ emissions combined with efficient use of energy is just what our customers are looking for.”

Mitsubishi Electric has produced a CD which leads users through the calculation software screen-by-screen and provides examples of how Lossnay can make a difference to a building’s energy use. Indoor and outdoor conditions can be altered, along with anticipated usage of the system, with the software automatically calculating the energy recovered in both heating and cooling modes.

“Since its conception I think renewable technology has come a long way, it is now efficient, reliable and sustainable and an essential part of the future,” said owner Paul Moody. “The Lossnay system performs so well I’m simply not aware of it, just the comfort it brings, that is until it comes to receiving my energy bills. The Lodge is located in an off-gas area and our only energy source is electricity which could prove really expensive, but because of the low levels of energy needed to run Lossnay our bills are actually 25% less than they would be if we used an alternative system.”



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