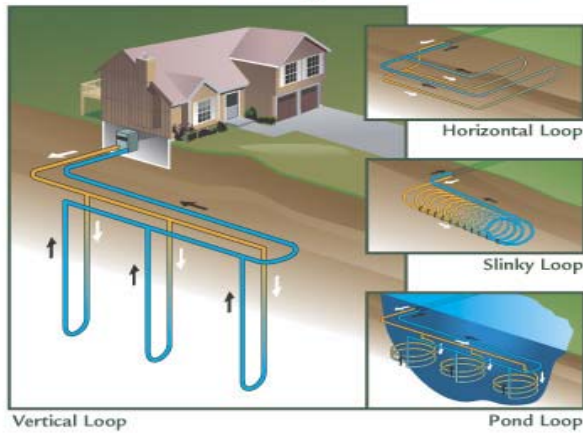


Geothermal Energy for the Home



HEAT FROM THE EARTH

CATEGORY: ENERGY

CASE STUDY YEAR: 2007

Business Details:

**Deneholme Residential
Conference Centre
Allendale
Northumberland**



<http://www.deneholme.co.uk>

Description:

Deneholme is an Edwardian country house set in five acres of grounds, located on the edge of Allendale Town which lies in the heart of the North Pennines Area of Outstanding Natural Beauty. It is owned by Fawside, a community run social and environmental charity. They entered the scheme with a silver award. The business built in a few energy and water saving measures. They upgraded the insulation in the building, using thermafleece sheep's wool insulation. They have reinstated and Edwardian rainwater harvesting sump and the water is being used to flush the toilets. They use solar panels to heat hot water, passive solar gain to heat the lounge and dining area. And they have also installed a 37KW Ground Source Heat Pump system to provide heating for the building. GSHP systems make use of the heat energy contained in the soil and rock beneath our feet. This is another good example of a Northumberland tourism business embracing renewable energy sources.



Economic

In the long term the GSHP system will mean much lower fuel bills for the business when compared to other forms of heating such as storage heaters and gas or oil fired boiler systems. The probable increases in future fuel prices make GSHP systems particularly attractive. Maintenance is cut and GSHP systems can quite happily work for up to 25 years whereas boilers last for around 12 years on average.
Cost of Project: An average cost is around £1000 per KW of capacity excluding VAT. Though systems, which require boreholes, are more expensive. Deneholme tapped into available grant aid.
Payback Time: Payback periods are generally in the region of ten years when replacing oil fired systems.



Environmental

GSHP systems can be as much as 300% efficient i.e. for every unit of electricity used to power the system you get 3 units of heat energy out. This reduces the reliance on fossil fuels helps to reduce carbon emissions related to energy generation. Producing 1KW of electricity in a coal fired power station produces approx 3kg of carbon, so systems that are supplied electricity from a green source have the least impact. All the elements mentioned above are ensuring that Deneholme are minimising their impact considerably.



Social

The Fawside Trust, who own Deneholme, are deeply involved with the local community. They provide a local source of advice, support and direct practical help for community groups and individuals in the local area. Its main aim is to tackle rural disadvantage arising from geographical isolation and it prioritises local people.

WEB

Ground Source Heat Pump Association: <http://www.nef.org.uk/gshp>
 Low Carbon Building: <http://www.lowcarbonbuildings.org.uk/micro/ground>