

The Great Barn, Bondleigh, North Tawton, EX20 2AN.



Not the flooring from the Great Barn

Introduction

The Great Barn is a barn conversion completed by Dr John Warre. It is situated on the edge of the small village of Bondleigh, overlooking open countryside.

Project development

As part of the conversion work it was decided to install underfloor heating on both floors of the building using Nu-Heat equipment. The installation was done by a plumbing sub-contractor, Plumbase.

This system was connected to ground loop array of heat collecting pipework laid in trenches in the garden. This was based on 3 x 50metre coils of "Slinky" pipe, extending to a total length of approximately 600 metres when installed. Trenches of minimum 1.2-1.8 metres depth and 300mm wide were dug by a contractor, although there were some difficulties with trench collapses. The pipework was embedded in a layer of sand before being backfilled.

Installation was made at an early stage in the conversion and the heat used to complete the drying of the concrete base on the ground floor.

Rationale of installation

Reasons for choosing ground source heat pumps at the time included

- Established technology for delivering low cost heat;
- Require minimal maintenance;
- Minimum operating costs;
- Liked the simplicity and the principle of the technology;
- Three times the heat output for the amount of electricity input.

Costs and benefits

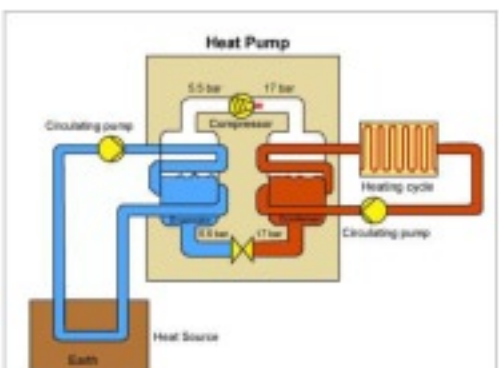
Project costings

- Underfloor heating work £3000 approx.
- Loop array, heat exchanger, tank and installation £9500 approx.
- Costs of groundworks and plumbing connections to manifolds in addition.

EarthEnergy quote £1000 per kW of installed capacity for a trench based system and £2000-2500 per kW for a borehole based system.

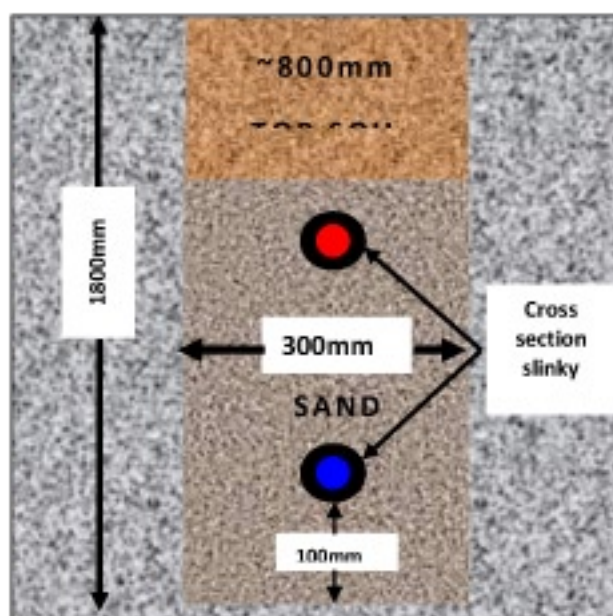
Grant of £1200 received towards cost of project.

Payback anticipated in the region of 10-15 years.



Technical details

Underfloor heating	Nu-Heat (info@nu-heat.co.uk , Tel 0800 731 1976) technology with locally contracted Plumbase installer.
Ground loop and heat exchanger	EarthEnergy, Falmouth (www.earthenergy.co.uk , Tel 01326 211070) with locally contracted groundworks and plumbing installers. EarthEnergy technician required to weld plastic connections linking pump to loop array.
Performance	Dimplex 9kW heat pump uses 2.7 kW electricity and produces 9.2 kW of heat. All hot water requirements are supplied by the GSHP
Energy options	The site is off grid for mains gas. LPG was considered as was an oil-fired Rayburn/Aga; both were rejected. GSHP was considered the most efficient way of using electricity in a heating system. There is an immersion heater backup, but it is virtually never needed. All cooking is by electricity.



Pictures courtesy of EarthEnergy.

Contact DARE

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For independent advice and support

Notes

EarthEnergy are no longer keen to do single domestic installations, concentrating on larger community housing and business projects.

The pump installation at the Great Barn is in the original threshing pit, underground and out of sight.