

Why should I choose a: Ground Source Heat Pump?

What is a Ground Source Heat Pump?

A ground source heat pump is an ideal source of heating for homes that don't have mains gas but do have access to an electricity supply.

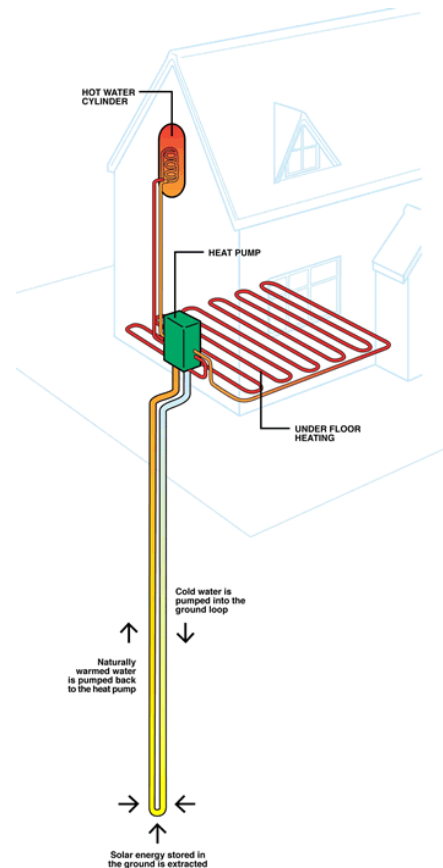
A ground source heat pump works by concentrating the heat of the sun's rays stored naturally at low temperature in the ground. The heat pump then raises the temperature by concentrating the solar energy and transferring it through the domestic heating system in the same way as a conventional boiler, providing both central heating and hot water.

Whilst currently relatively rare in the UK, these systems are commonplace in other countries (like the USA and parts of Scandinavia).

Low cost heating

Ground source heat pumps use can 'lever' around 3 units of heat energy for every 1 unit of electrical energy, making them one of the **most efficient ways of heating your home**.

It means they use **less electricity** to heat your home than normal electric heating (like electric storage heaters). Providing use of supplementary heaters (such as plug-in electric fan or panel heaters) is kept to a minimum, the component of your energy bills used for heating and hot water can be **less than half of that for oil or electric night storage heaters** – and a quarter those of solid fuel!



Tenants at Penwith Housing Association washing up with hot water from their ground source heat pump

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Environmentally sound

Ground source heat pumps use **renewable energy**, in the form of the sun's heat stored in the earth. Their environmental impact is low – **CO₂ emissions** (that cause climate change) can be **less than a third** those of oil or electric heating, and only one sixth those of coal!

Comfortable and reliable

Comfortable In addition operation is **virtually silent**, and the systems are **extremely reliable** requiring very little maintenance. Radiators in your home bring you all the **comfort** of a central heating system, without the mess of solid fuel.

How does the system work?

A ground source heating system has three parts:

- **Ground loop** – the system circulates water through a long loop of pipe (called a ‘ground loop’), which is submerged in the ground beneath your garden, in a narrow vertical borehole. A small mobile drilling rig is used to create the borehole.
- **Heat pump** – heat is extracted from the water in the pipes and concentrated by the heat pump to a temperature of 60°C. The heat pump unit is about the size of a small dishwasher, and is located outside your home in a small weatherproof container.
- **Heat distribution system** – heat is circulated to your home using a network of radiators. Installation of these radiators, pipework and a new hot water cylinder usually takes about a week, similar to having a central heating system installed.

Installation of the ground loop and heat pump requires around one week’s work, undertaken mostly outside your home. Any disruption to your garden will be reinstated as part of the process.



An installer at Penwith HA



Drilling rig beginning a new borehole



Heat pump outside in weatherproof housing

© Penwith Housing Association

“This will mean the end of ash and mess from anthracite and coal. There is only small disruption to the gardens during the work and considerable CO₂ reduction.”

Tenants at Penwith Housing Association.

What do I do next?

A site survey will reveal whether a GSHP installation is possible for your property. The surveyor will be able to answer additional questions you may have about a GSHP system.

For more information, and to request a visit from a surveyor, please contact:

Contact details: