Fact sheet 1:
The ground source heat pump

The Peak District National Park's Moorland Centre in Edale was opened in August 2006 both as a visitor centre and the UK's first moorland research base. The building incorporates several 'eco-friendly' features including a 'green' roof of sedum turf (see fact sheet 2), recycled stone and a heating system powered by the earth, known as a ground source heat pump.

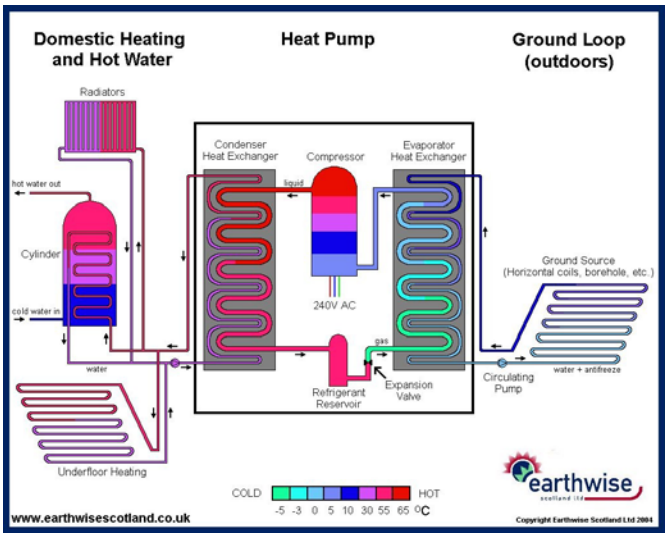
How does it work?

A ground source heat pump uses a system of external coils (slinkies) to draw heat from the earth. It acts like a powerful refrigerator. The underground coils are buried under the campsite fields to the right of the building as you enter.

The heat pump heats a large vessel of water that serves an under-floor heating system. In effect the floor acts like a giant radiator and is super insulated beneath to prevent heat losses into the ground. Conversely the ground source heat pump is acting like a refrigerator grabbing heat from the ground, transferring and pumping it up to a higher temperature, then circulating the under floor heating system. The external coils draw heat from the ground at a rate of 25 watts per metre. The heat pump uses 7.82 kW of electrical energy to heat the building.

The illustration shows the main elements of a typical system which are:

- Refrigerant circuit
- Compressor
- Expansion valve
- Evaporator heat exchanger
- Condenser heat exchanger



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