

Ground Source Heat Pumps and BREEAM

BREEAM (BRE Environmental Assessment Method) is the leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance. BREEAM addresses wide-ranging environmental and sustainability issues and enables developers and designers to prove the environmental credentials of their buildings to planners and clients.

BREEAM assesses buildings against a set criteria and provides an overall score which will fall within a band providing either a; PASS, GOOD, VERY GOOD, EXCELLENT or OUTSTANDING rating.

There are two BREEAM assessment criteria of real relevance to the use of heat pumps:

POLLUTION		Points	Design & Procurement
Credit Reference			
P01	Where evidence provided demonstrates the use of refrigerants with a global warming potential (GWP) of less than 5 or where there are no refrigerants specified for use in building services.	1	
P02	Where evidence provided demonstrates that refrigerant leaks can be detected or where there are no refrigerants specified for use in the building or development.	1	
	Where there are refrigerants, evidence should be provided to demonstrate that the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves.	1	
NOTE: These point scores <u>ARE</u> cumulative.			

We have high regard for the BREEAM rating system and for the client in the desire to reduce or eliminate the risk of refrigerant leaks, however we understand these criteria are really aimed at distributed refrigeration pipe with interconnecting refrigeration pipework. The ground source heat pumps used by EarthEnergy are stand alone manufactured units with no external refrigeration pipework.

It is important to note that the use of heat pumps within a building does not adversely impact the BREEAM score but it may not be possible to achieve the points within this section with the majority of heat pumps available to the market.

Pol 1 – Use of Refrigerants

The use of heat pumps containing hydrofluorocarbons (HFCs) such as R134a, R407c or R410a preclude the attainment of this BREEAM point.

Pol 2 – Refrigerant leaks


EarthEnergy are able to provide a refrigerant leak detection and plant shutdown system compliant with BREEAM to achieve award of the first point under P2

Pol 2 – Refrigerant recovery system - compliance notes

For installations of small multiple hermetic systems only, where the refrigerant charge in each unit is less than 5kg but the total refrigerant charge in the building is greater than 5kg, the credit can be awarded by default. This is on the basis that the risk of a large refrigerant leak is minimised and individual leaks from each system will be small i.e. <5kg. High-risk parts of refrigeration plant typically include the pipe work and compressor. Evaporator or condenser coils can be omitted from the coverage of the system.

EarthEnergy can offer heat pumps with a number of independent refrigeration circuits each with less than 5kg of refrigerant and the second P2 BREEAM point can be awarded by default.

Careful design and specification of the heat pump system can add 2 points to the BREEAM score, contributing to the achievement of an EXCELLENT rating.

<p>ent</p> <p>3</p> <p>1000</p> <p>st'</p> <p>core of</p> <p>primary</p> <p>gas</p> <p>des</p> <p>.</p> <p>30</p> <p>g.</p>	
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