

The Minus7 Mindset

Heat | Hot Water | Electricity

Minus7 delivers award-winning low carbon heat and hot water to buildings in a new way.

Driven by logical engineering practice rather than a historical understanding of heat, the Minus 7 team has torn up the rule book to create its hybrid renewable heating system.

Minus7 Design Criteria

1

Acquire as much energy as possible from the cool, humid UK climate

Large solar thermal energy collector is required

2

Augment energy collector with efficient heat generation equipment

Brine to water heat pump is logical choice.

3

Provide consistent heating and hot water, whatever the weather

Some form of linked energy storage is a must.

4

The system should not need new ways of being operated
System controlled by standard thermostats and timers



5

No expensive back up systems should be required
System sized to work efficiently at midnight in Mid-January.

6

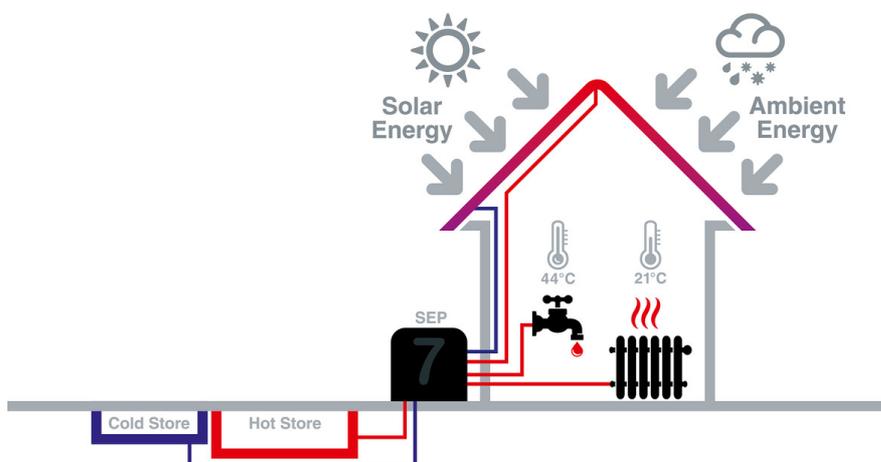
System should be technically brilliant, aesthetically pleasing and insensitive to orientation.
Solar collector should be part of the building. Roof is the obvic

7

The system should have a long life span and be recyclable
Extruded aluminium roof
Tileplanks used

8

Minimal maintenance should be required
Roof requires first maintenance after 35 years.
Remote system monitoring ensures system efficiency



The Technology

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The Minus7 system harvests renewable energy 24/7 to provide a complete energy solution for buildings.

Solar thermal, PV, heat pump and energy storage technologies are seamlessly integrated into a single hybrid system. This is managed by advanced proprietary control methodologies contained within the Solar Energy Processor (SEP)

The core of the system is a high quality long-life roof composed of patented solar thermal panels with embedded high-performance PV cells.

7 things you need to know:

- 1) The roof is designed to harvest energy efficiently day and night at temperatures as low as -7°C
- 2) The Solar Energy Processor (SEP) moves energy from the roof to the thermal stores via heat exchangers.
- 3) The thermal stores work as the energy sources for the heating and hot water needs of the building
- 4) A brine to water heat pump within the SEP upgrades the heat stores if required. This is done independently of demand, when electricity is cheapest.
- 5) The hot store is the energy source for the building; the cold store is the energy source for the heat pump
- 6) An in house-status system panel shows how much energy is being generated, used and stored
- 7) Heating and hot water is controlled through a conventional thermostat and timer.

