

Energetic activation from roofs for both old and new buildings

A customary metal roof cladding is sufficient to make the energetic use of sun radiance on roof surfaces possible. Even under low solar radiation heat is accumulated in the attic. This heat is led away and via a heat pump it is sent into the heat circulation system. The energy gathered this way is used for heating water and back up of the heating system. The new youth hostel building of the „Deutsche Jugendherbergswerk“ in Dahme is supplied with prototype solar roof with metal cladding for practical tests.

Aims of the project:

- integration and optimisation of the heat pump in the present heating system
- assessment of the operating behaviour of the system
- prediction of the possible savings of fossil energy sources
- evaluation of economic efficiency of the use of heat accumulation
- simulating calculations for other locations taking climate data into consideration



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Deutsche Bundesstiftung Umwelt

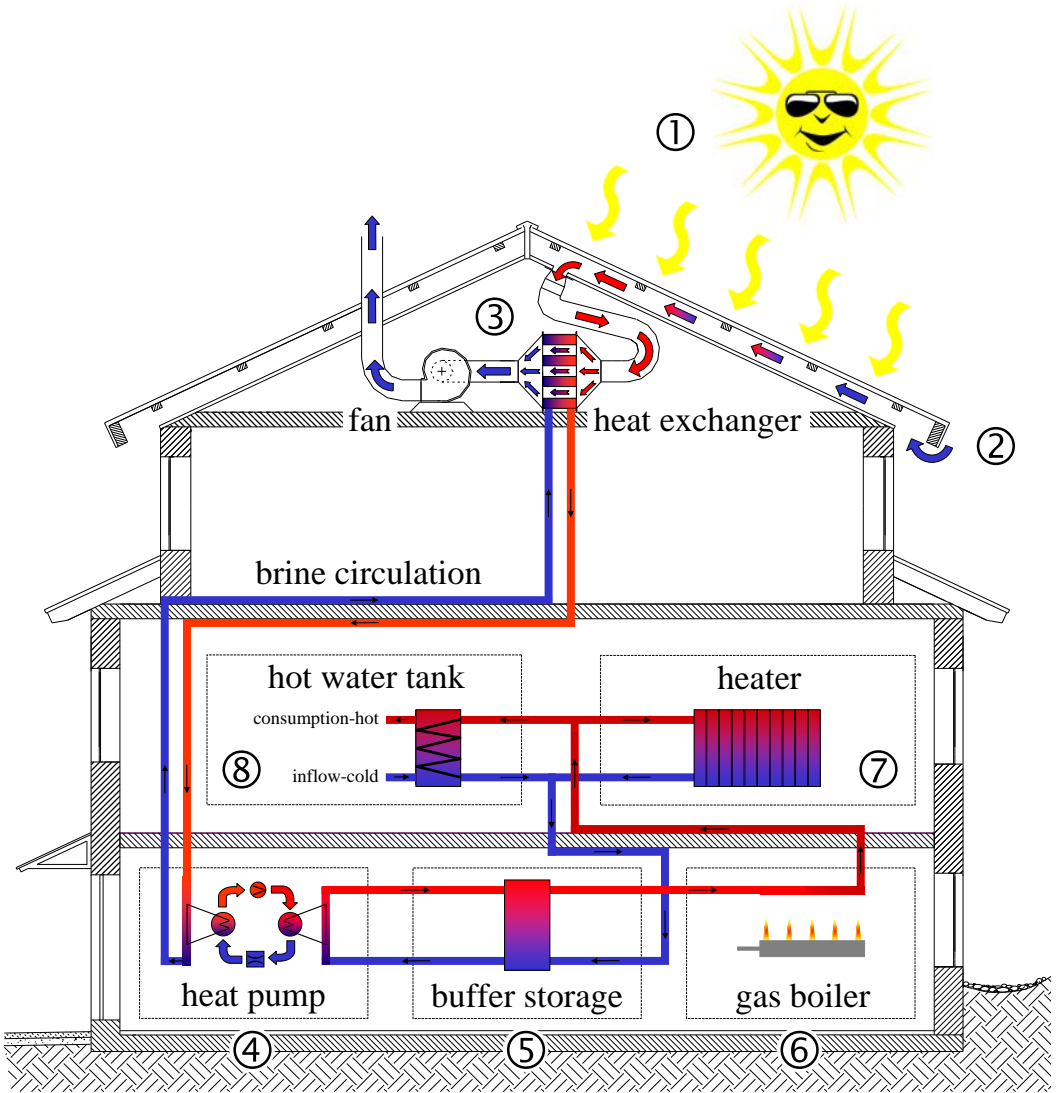


Die Jugendherbergen

in Schleswig-Holstein, Hamburg und Niedersachsen



Principle of using accumulated heat at the youth hostel in Dahme



Principle of using accumulated heat at the youth hostel in Dahme

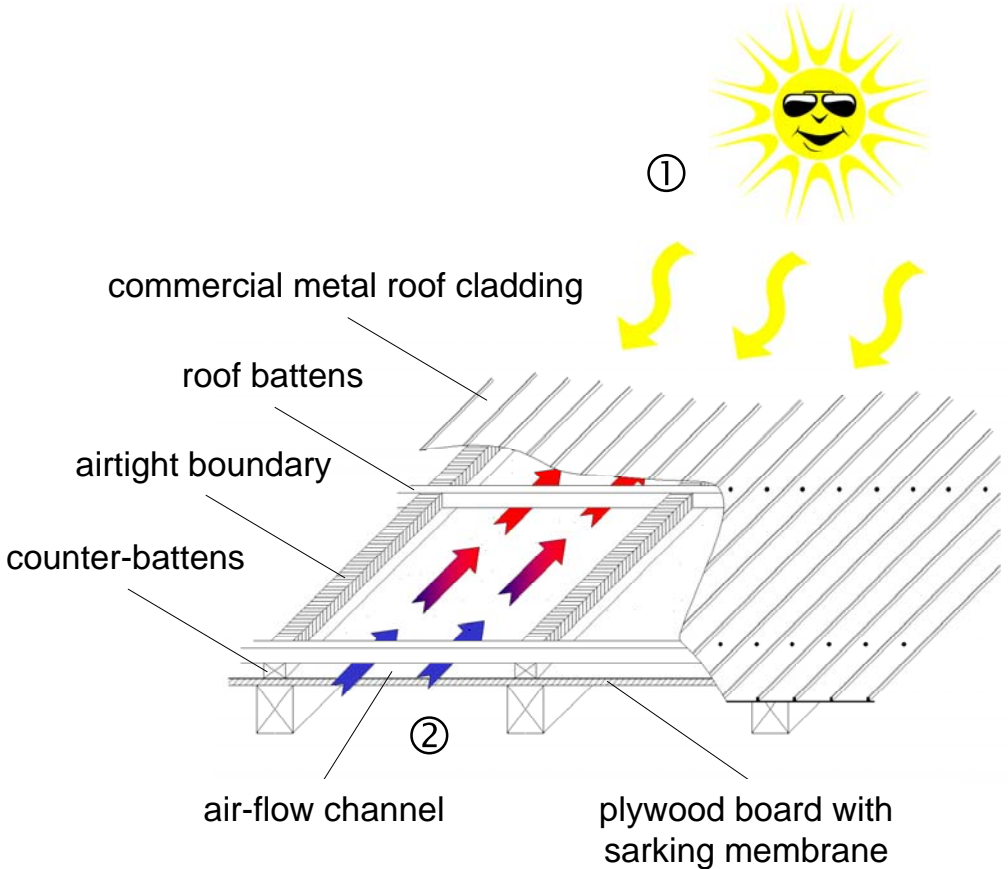
- ① metal roof heated by solar radiation
- ② air streams supported by fan from eaves to ridge, the air is heated and channelled to the heat exchanger via a pipe system
- ③ heat exchanger transfers the solar energy from the air to brine circulation

brine circulation carries the solar energy to a heat pump

cooled air leaves the roof via the piping system

- ④ heat pump increases energy to a higher usable energy level which is stored in a buffer storage
- ⑤ buffer storage saves the energy and heats the central heating circuit water
- ⑥ on demand a gas burner increases the temperature of the preheated water until the requested level is reached
- ⑦ energy is available for the purpose of heating and
- ⑧ hot water for domestic use

Construction of the solar roof at the youth hostel in Dahme



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