

Cooling and Heating Air-conditioning System Based on Adsorption Freezing Facility and Solar Heat

Next-Generation Cooling and Heating System Based on Renewable Energy (Solar Heat)

An air-conditioning system using “water” as the refrigerant.

Waseda Setsuryo Junior High School and High School of Waseda University Group introduced a cooling and heating air-conditioning system based on a newly developed adsorption freezing machine that uses the renewable energy (solar heat) as the heat source.

An air-conditioning system that addresses the latent heat and the sensible heat separately was set up based on a new adsorption freezing machine in combination with radiant panels and desiccant dehumidifier and installed for 6 classrooms. In summer, dry and cool air is provided without drafts; in winter, feathery warm air is provided with no palpable air flows.

The above-mentioned system is also a good textbook for environmental education as an example of renewable energy use in daily life. It is expected to contribute to the development of environmentally-friendly attitudes of future generations and to create the momentum for the low carbon manufacturing.



Place: Waseda Setsuryo Junior High School and High School

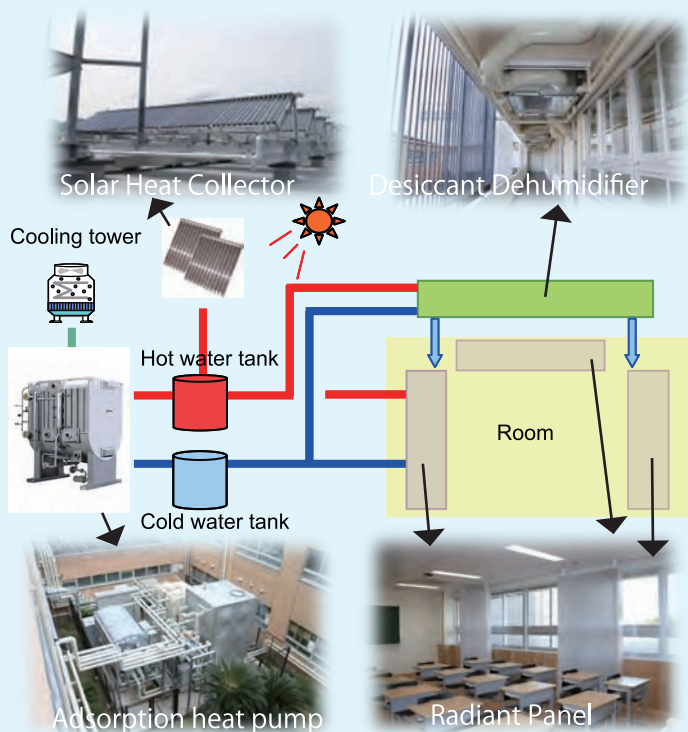
Manufacturer: Mayekawa Mfg. Co., Ltd.

Location: 7-20-1 Shukunosho, Ibaraki City, Osaka Pref., Japan

Scale: 6 classrooms

Facility: Cooling and heating air-conditioning system based on solar heat

Equipment: Adsorption heat pump, solar heat collector, desiccant dehumidifier, radiant panel, etc.



«Energy-saving»

- Energy consumption reduction (converted in crude oil)
22 kl/year

«CO2 emission reduction»

- CO2 emission reduction (energy-source CO2 reduction)
51 tCO2/year (electricity: 0.555 kgCO2/kWh;
natural gas: 2.29 kgCO2/m3h)

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