SOLUTIONS FOR APARTMENT BLOCK HEATING AND PREPARATION OF HOT WATER

Aerothermal heat pumps can be a perfect solution to reduce the costs of heating and hot water preparation.

Lately more and more apartment blocks take steps for renovation of heating and domestic hot water systems. Cost-effective alternative heating systems powered by renewable energy resources are preferred over expensive district heating.

Aerothermal heat pumps may be a perfect solution to reduce the costs of heating and hot water preparation. This method of heating is rapidly gaining popularity and is not surprising in private residential houses and commercial buildings. Properly selected aerothermal heat pumps allow saving 30-70 percent of heating costs compared to gas, diesel, electric or district heating, and modern appliances as well as the ones adapted for Northern climate, even at very low ambient temperatures, fully satisfy heating and hot water needs of the housing.

Aerothermal heat pumps have more advantages than, for example, geothermal appliances because their installation is significantly simpler, and no complex earth excavation works are necessary for the installation. Aerothermal heat pump outdoor (external) devices can be mounted on a roof of an apartment block – this way they do not bother anyone, the risk of damage decreases; moreover, (and this is the biggest advantage) the energy from ventilation shafts may be used for heating of the building – as we all know, each apartment emits about 400-500W of power every hour.
For this reason, the interest in aerothermal heating is increasing in the context of renovation of apartment block heating systems.

This section will provide recommendations for combination of aerothermal heat pumps and other equipment, such as proposals for the apartment blocks of a certain area and number of apartments. For more information and specific offers for your apartment, please contact the specialists of ECO2HEATING.

EXAMPLE No 1

HEATING AND PREPARATION OF HOT WATER IN THE APARTMENT BLOCKS OF 2,300-2,800 M²

A 4,400-liter system for domestic hot water preparation and heating of premises is recommended. District heating is connected via plate heat exchangers.

Combination of aerothermal heating equipment:

- Air-to-water heat pumps with ZUBADAN technology PUHZ-SHW230YKA of MITSUBISHI ELECTRIC (Japan), 26.5 kW (max. power) – 4 pcs.
- Air-to-water control interfaces PAC-IF051B-E (automation) – 4 pcs.
- Alfa-laval plate heat exchangers CBH60-70 with insulation – 2 pcs. If the heating system pressure is higher than 3 bar, an additional heat exchanger is necessary.
- Solar collectors producing about 50,000 kWh a year – 40 pcs.
- Accumulation tank system of HEATACC (Sweden): a modular accumulation tank (for hot water and heating) 1,600-litre system – 2 pcs.; drain tanks (thermal loading tanks) of 400 litres – 2 pcs.; an accumulation tank for the system of solar collectors – 400 litres – 1 pc.

CHART OF THE 4,400L SYSTEM
EXAMPLE No. 2

HEATING AND PREPARATION OF DOMESTIC HOT WATER IN THE 600 M² (9 APARTMENT) HOUSE

Combination of the installed aerothermal heating equipment:

- Air-to-water heat pumps with ZUBADAN technology PUHZ-HRP200YKA of MITSUBISHI ELECTRIC (Japan), 26.5 kW (max. power) – 1 pc. Currently the equivalent would be a heat pump of PUHZ-SHW230YKA series.
- Air-to-water control interfaces PAC-IF031B-E (automation) – 1 pc.
- Accumulation tank system of HEATACC (Sweden): 1 pc. of HA400TBS2K, 400 litres, equipped with 2 condensing coils and a domestic hot water heater (for heating of premises and preparation of hot water), and an additional HA400VS, 400 litres, intended for hot water production.
EXAMPLE No 3

HEATING AND PREPARATION OF DOMESTIC HOT WATER IN THE APARTMENT BLOCK OF 1,200-1,500 M$^2$

A 2,000-litre system for domestic hot water preparation and heating of premises is recommended.

Combination of aerothermal heating equipment:

- Air-to-water heat pumps with ZUBADAN technology PUHZ-SHW230YKA of MITSUBISHI ELECTRIC (Japan), 26.5 kW (max. power) - 1 pc. and PUHZ-SHW112YHA with max. power of 14.82 kW - 1 pc.
- Air-to-water control interfaces PAC-IF051B-E (automation) - 2 pcs.
- Accumulation tank system of HEATACC (Sweden): a modular accumulation tank (for hot water and heating) 1,600-litre system- 1 pc.; a drain tank (thermal loading tank) of 400 l - 1 pc.
EXAMPLE No 4

HEATING AND PREPARATION OF DOMESTIC HOT WATER IN THE APARTMENT BLOCK OF 1,800-2,500 M²

A 3,600-litre system for domestic hot water preparation and heating of premises is recommended. District heating is connected via plate heat exchangers.

Combination of aerothermal heating equipment:

- Air-to-water heat pumps with ZUBADAN technology PUHZ-SHW230YKA of MITSUBISHI ELECTRIC (Japan), 26.5 kW (max. power) - 4 pcs.
- Air-to-water control interfaces PAC-IF051B-E (automation) - 4 pcs.
- Alfa-laval plate heat exchangers CBH60-70 with insulation - 1 pc. If the heating system pressure is higher than 3 bar, an additional heat exchanger is necessary.
- Accumulation tank system of HEATACC (Sweden): a modular accumulation tank (for hot water and heating) 1,600-litre system - 2 pcs.; drain tanks (thermal loading tanks) of 400 l - 1 pc.
More information will be soon...