



Edane Elementary school students learn in comfort with a new ground source heat pump from Thermia

Heating system that saves energy, money and reduces CO₂ emissions.



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Edane Elementary school

Old system: too much maintenance, poor levels of comfort

Edane elementary school is located 15 km east of Arvika, Värmland in Sweden. The school has about 100 children, divided from preschool to grade 6. The school is beautifully located and is close a woods and lake Värmeln, ideal for bathing and widely used in education among the lower grades. The school yard is spacious and there is a gravel surface that is used for football and other games, in the winter it is transformed into a skating rink. The Edane school is part of the municipality of Arvika.

The old heating system was quite demanding in time and resources, moreover comfort was well below user's expectations. 'We previously had trouble in keeping even an indoor climate' says Mattias Berg, property technical manager.

The previous heating system was based on three pellet boilers with one additional oil boiler as a back-up heater. Heat is distributed in the school mostly by traditional radiators and in a smaller part by hydronic floor heating.



Edane Elementary school



Children in the school corridor



Children at play

New geothermal solution substantially improves comfort !

A decision to upgrade the heating system was made, resulting in all boilers being replaced by geothermal energy. Renewable energy comes

from 20 boreholes with a total length of 4700 m. Now heating is provided by three Mega, inverter driven ground source heat pumps with a capacity of 88 kW each. Hot water is stored in two WT-C 500 and a WT-T 500 hot water tank and one WT-V 500 volume tank. 'We decided on Thermia Mega



Thermia Mega ground source heat pumps

heat pumps because of the impressive comparison in price and performance' says Per-Inge Andersson, head of education facilities, in the Arvika municipality and added: 'now we have a reliable, innovative system for years to come and we estimate a reduce in energy consumption of about 40 MWh per year.' The new heating room is much more user friendly, safer and cleaner for the maintenance technicians. 'The biggest challenge was heating system flow and the limited space for drilling. Finally, we managed with both and today we enjoy the comfort of constant heating with the new efficient system.' – says Mattias Berg

Characteristics of the building

- Heated area: 2.896 m²
- Number of children: 100

Applied solution: Geothermal heating

- 22 boreholes, each 200m deep
- 3 Thermia Mega XL 21-88 kW
- 2 Thermia WT-C 500 + one WT-T 500 for hot water storage, one volume tank WT-T 500
- Energy savings: 40 MWh per year



WT-C 500 hot water tank

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added Per-Inge Andersson
head of education facilities,
Arvika



Mattias Berg (left) and Per-Inge Andersson (right) at Thermia Mega heat pumps

Bröderna Karlsson Rör AB – experienced partner in renewable energy from Arvika in Sweden

Bröderna Karlsson Rör AB was established in 1939 by three brothers Karlsson in Arvika. Current CEO Ingemar Andersson and now the family business is in its third generation. Bröderna Karlsson has their main office in Arvika in Sweden, its branch office in Norway and employs about twenty people.

Bröderna Karlsson Rör AB specializes in renovation, reconstruction and the modernizing of buildings and their infrastructure where the heating system is the main focus. The Company has vast experience in geothermal energy for both domestic and commercial properties.

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