



Estonian Smart House Competence Center powered by Thermia geothermal solution



Rakvere Smart House Competence Center – The Estonian way to sustainable and energy efficient solutions

Rakvere Smart House Competence Centre is a regional competence center in Estonia that focuses on smart house, intelligent building technologies. With partners from most of the universities in Estonia, regional vocational schools, companies and local authorities the competence center contributes as a central hub of the industry to support regional development and innovation.

Rakvere Smart House Competence Centre focuses on developing intelligent and smart technologies for the use of

home and office equipment, automated building systems and building management. In addition to being a local expert it also actively participates in different European sustainable energy initiatives and advocates energy efficiency through innovative and smart buildings.

The new building of the Competence Centre is the first public near-zero-energy building in Estonia that utilizes different building automation technologies and has been engineered from start to finish using the BIM* methodology.

Different sustainable energy sources, like solar panels and geothermal heating pumps have been used for the heating of the building. A unique demo and testing environment has been set up inside the center that enables the development and testing of different building automation systems.

Smart Houses must have smart heating and cooling systems

The Competence Centre building is and must be itself smart in energy usage. Heating and cooling for the building is provided by Thermia Mega, inverter driven ground source heat pumps with a capacity of 44 kW. Moreover, the newly designed heat pump from Thermia can heat and cool simultaneously, it means that as a conference room is cooled down, the excess heat is removed then re-used to produce hot water for the restaurant or bath rooms. At Rakvere Smart House Competence Center, the Mega is controlled via the BMS system. Geothermal energy comes from ground water, two wells that give 16 m³ of water per hour.

'We benefit from the latest geothermal technology and at the same time can present the heat pumps to our visitors who want to learn and see in practice renewable technology' - says Rasmus Lindmaa, member of the board at Rakvere Smart House Competence Center



Characteristics of the building

- Heated area: 2 170 m²
- Heating demand: 245 kW
- Passive cooling demand: 68 kW

Applied solution: Geothermal heating

- Ground water, two wells that give 16 m³ of water per hour
- Thermia Mega M 11 – 44 kW
- Buffer tank for heating 500 l



*Building Information Modelling is a concept that uses digital 3D models to generate and manage the building's data through its life cycle. Building Information Modelling and energy simulation tools are increasingly used for the analysis of energy efficiency of buildings and the comfort of their occupants.

Airwave OÜ – leading partner in heating and renewable energy in the Baltic States region

Airwave LLC is one of the largest heating, ventilation and air conditioning systems suppliers in the Baltic States, which has been engaged in this field since 1999. With head offices in Tallinn, Riga and Vilnius, it distributes equipment in Estonia, Latvia and Lithuania. Airwave Ltd's product range includes: heat pumps, air conditioners, ventilation machines, humidifiers, dehumidifiers, water chillers, installation accessories and tools. We are a major authorized distributor and service center of leading international brands in heating and air-conditioning. Airwave quality management system complies with ISO 9001: 2008 requirements.

After-sales service plays an important role in our business - that is why we have created a separate maintenance department, which is responsible for the quick spare parts or accessory delivery, necessary for good quality and on time maintenance services. Our customers are professional cooling and ventilation equipment installation companies and the contractors of specialized equipment for HVAC. Airwave has over 200 regular customers in the Baltics.



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Thermia – heat pump manufacturer with 40 years of experience

With more than over 90 years of history and experience in the energy sector, Thermia Heat Pumps offer renewable energy solutions for any climate, anywhere in the world. All Thermia heat pumps are designed, manufactured and rigorously tested in Sweden where one of the most harshest European climates can be found.

Ever since the beginning, the driving force behind our business has been the philosophy of our founder, Per Anderson: "The products one releases must not only be the best of their time, but before their time, over time".

At Thermia we are driven by this philosophy and our passion to deliver. For us every day is a new opportunity to create, build and serve a bigger purpose, for a greener and healthier planet, not only for ourselves but for everybody around us. Every challenge is Thermia's opportunity to make life a little more comfortable for our customers.



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