

Kostak d.d.



Our new office building

**With you for 50 years already
With you into the future**

Rational use of primary and renewable energy sources based on their combination and optimum use of geothermal energy for heating and cooling of business premises.

Joint-stock company Kostak d.d. is engaged in the provision of public services (collection, purification and distribution of water, collection and disposal of municipal waste, treatment and discharge of waste water and run-off rain water, cemetery and funeral services, management and maintenance of public markets) and market activities in the fields of municipal, maintenance, and cleaning services, trade, and civil engineering. At Kostak, we are strongly committed to satisfying our customers, employees, business partners, and owners, while at the same time acting to the benefit of the environment. Environmental awareness and a rational approach to nature require from us consistency and precision. We have made it our mission to ensure and bequeath a cleaner environment to future generations. We are proud of our tradition in working with the young in the educational sense as well as of our educational influence on the older population at home and abroad. We are trying to raise staff motivation for education and training and encourage their active participation in achieving the company's objectives. The successful-

ly passed external audit of compliance with the ISO 9001:2000 standard proves the quality of our work. We have also introduced the HACCP (Hazard Analyses Critical Control Point) standard in the area of drinking water supply. We are a recognizable player in field of electronic commerce and education. In our computer classroom we carry out educational courses, with a number of experts being qualified for the acquisition of the European Computer Driving Licence (ECDL).

At Kostak we pursue the set objectives in all areas of our activity. We are implementing our plan of action in the field of renewable energy sources and efficient energy use. We want to further develop our consulting, design, and investment management activities, paying special attention to development activities: from greater possibilities for education and information communication technology to project management, consulting and design particularly in the public utilities and energy sectors. This, however, was not possible without suitable facilities. To overcome the shortage of space, we undertook a well-planned and innovative extension of our office building at the end of 2004. This expansion will enable us to provide services and attend to our customers in one location, in a pleasant, instructive, and orderly environment. In designing the building we paid special attention to the use recycled materials (foam glass) and renewable energy sources (heat pump, ground loop) and to efficient energy use (quality insulation, concrete core heating and cooling system also called hydronic radiant heating and cooling system).

One of our main goals has been care for our environment. We are all becoming more and more aware that all of us have to change the way we treat our environment if we wish our grandchildren to be able to experience some of its beauty.

Detailed description of our business building expansion project:

The building is designed as a reinforced concrete skeleton with a structural glass façade. The glass surfaces are executed in double reflective glass with gas filling and exterior shading, which produces a 50 percent reduction in primary energy consumption for cooling. The parapets are heat-insulated with glass wool.

The flat roof is insulated with rock wool and recycled foam glass – technopor, which forms the inclinations above the flat reinforced concrete roof plate.

Special attention was paid to the heating and cooling project with the aim of rational use of primary energy sources (natural gas, electric power). The heating and cooling system is designed to make optimum use of renewable energy from the ground, using a reversible heat pump and ground loop. In concrete core heating and cooling reinforced concrete plates are used as accumulators of heating or cooling energy.

Two stores of heat/cool energy are installed to cover the need for fast heating and cooling at peak times.

Ventilation is effected by means of a heat recovery ventilation system that recovers up to 80 percent of the heat from the outgoing air.

The project's innovativeness lies in the minimal use of primary energy sources coupled with the use of renewable energy sources. Primary energy (gas) is used only to overcome peaks at extremely low temperatures, and electricity only for pumping the energy from the ground by means of a heat pump and ground loop. The pumped geothermal energy is accumulated in reinforced concrete plates that maintain constant temperature. In practice this means that in peak times we only need to heat or cool air, while the high-mass concrete core is already heated or cooled. In our conventional heating and cooling system, a lot of primary energy was taken up by the concrete mass in peak times. This resulted in the need for high power consuming heating and cooling devices, which, however, operated at low utilization rates in off-peak times.

In winter the concrete core is heated in a low-temperature regime and in summer it cools the air with the cooling energy coming directly from the ground. The pumping of energy from the ground through a reversible heat pump and its accumulation in the concrete core yields a saving in primary energy of up to 80 percent compared to conventional heating and cooling systems.

Our new office building may be one of the first buildings in Slovenia where this combination of various energy sources produces optimum results, reducing the consumption of fossil fuels and increasing the use of renewable energy sources. At Kostak we will form a team of experts who will advise, design and implement such projects and, if necessary, also help provide financial resources to interested customers, a topic which is already being discussed with manufacturers. While this innovative solution is a significant milestone in Slovenia's energy efficiency efforts, our expertise gives us a competitive edge in the international market too.

Božidar Resnik

President of the management board of Kostak d.d.



Our team with CCI award for new office building

Apart from the described energy-saving effects, which will reduce primary energy needs from 110,000 kWh to 38,500 kWh a year, the new heating and cooling project will also have considerable environmental effects, reducing CO₂ emissions by 20 tons a year and NO_x by 35 kg a year.

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