

CSILLAGHEGY RESIDENCE

What are the benefits of the heat pump?

In our residential park we satisfy heating, cooling and hot water supply needs in an integrated manner through an efficient, low maintenance air to water heat pump system which is a reliable solution and is more cost-effective and environmental friendly compared to conventional equipment in all weather conditions.

How does an air to water heat pump work?

The essence of the heat pump is a high-quality compressor, on one side of which a pressure drop is created to cold down the air here to as low as -70°C , while on the other side a pressure rise is induced to increase the temperature of the water (as a heat transfer medium) up to $+70^{\circ}\text{C}$. When the air sucked in through outdoor units is passed through the heat exchanger installed on the cold side, the compressor draws energy from the air and transfers it to heat, or cool in the summer, the water circulated in the system through the heat exchanger installed on the warm side. With this solution we draw 75% to 80% of the energy demand from the environment and only the remaining 20% to 25% should be met by electricity.

What are the benefits of the ceiling heating and cooling system?

During the design stage we decided to use the invisible ceiling heating and cooling system on account of its numerous advantages. Due to its even thermal dissipation through a large surface area it ensures a good sense of comfort, and in case of heating, as a result, compared to conventional radiator solutions, at the same level of thermal comfort the temperature of the flat can be kept by 1°C to 2°C lower and it may lead to 6% to 12% of cost reduction in the energy bill. Another advantage of this system is that the furnishability of the living space is not restricted, needs no clean-up and will not stir the dust with the air flow generated. On the other hand, owing to its heat dissipation method, in case of cooling it ensures - without draft, noiselessly - the same sense of comfort at a temperature by 1°C to 2°C higher compared to other solutions, reducing energy consumption and costs.

What are the energy benefits of the selected walling technology?

An important element of the energy solution we selected is adequate thermal insulation of the building in addition to the aforementioned building engineering systems. To this end, we build external walls of our residential park by using the globally recognized, modern ICF technology (formwork with rigid thermal insulation that stays in place). The shell of ProKconcept wall elements of special composition serves as formwork during construction then is functioning as thermal insulation. Since the elements are connected to each other without any adhesive by snapping one element into another they ensure continuous insulation on the house in a free of cold bridge manner, reducing the necessary energy demand for heating and cooling. Another advantage is that the temperature of the internal walls not only even but almost identical with that of the living space: due to the even temperature vapours will not condensate, while owing to the identical temperature walls will not radiate cold towards the living space.

For information purpose without commitment