



Modern and renewable apartments in Lissago-Varese, Italy



The Barrico Residence are apartments set in a green landscape and situated near Lake Varese. All apartments are equipped with the most advanced solutions in terms of energy saving: the use of geothermal energy that allows definitive cost savings on heating, domestic hot water and cooling in the summer.

Modern and renewable apartments

The Barrico Residence

The Barrico Residence are apartments set in a green landscape and situated near Lake Varese. The Baricco residence suits active people and those that want a taste of tranquillity alike. The cycle path around Lake Varese passes just a few meters from the elegant homes and for those who love outdoor sports it is a place to be. The city centre is just minutes away by car. The Baricco Residence is perfectly located with respect to the historic city centre and major shopping streets of the city of Varese.

All apartments are equipped with the most advanced solutions in terms of energy saving: the use of geothermal energy that allows definitive cost savings on heating, domestic hot water and cooling in the Summer, up to high-efficiency solutions in thermal and acoustic insulation. A modern style and added value is presented also by the well regarded brand Ernestomeda kitchens that come with the price of the apartment.

For the open day and inauguration the first “show flat” was prepared. It was fully furnished in collaboration with Arredopiù (home furnishings) and Ernestomeda (modern kitchen supplier) that gave the buyer true inspiration into what could be their new home. The Baricco Residence offer includes also the free advice of an architect, the customer can choose their colours, finishes and furnishings that best suit their individual needs and style with the comfort of knowing they're in good hands.

Thermia heat pumps for heating and cooling demand

The geothermal hub to be planned should cover the entire thermal energy demand of the various real estate units designated for residential use. The insulation class and the system solution that were chosen place the property among residential units with low energy consumption.

In order to provide the required thermal output, it was decided to install a



The Barrico Residence



Sample furnished kitchen

“...it is observed that 100% of the output for heating is provided”

added Wolfgang Holzfeind, engineer at Geoliving

Characteristics of the building

BARRICO 1:

- heating energy demand: 585,083 MJ = 162,523 kWh
- domestic hot water demand: 17,100 l/day = 21,117 kWh/month (assuming 15°C inlet temperature and 50°C outlet temperature)

BARRICO 2:

- heating energy demand: 59,992 MJ = 16,645 kWh
- domestic hot water demand: 1,680 l/day = 2,075 kWh/month (assuming 15°C inlet temperature and 50°C outlet temperature)

series of ground source heat pumps, connect them in cascade and to activate them depending on the required heating demand. In this manner, both the electricity demand and wear of the pumps decrease significantly. Furthermore, the presence of more heat pumps which are autonomous but controlled from a single control unit guarantees full operation of the plant in the case of a breakdown. The following heat pumps were chosen:

Barrico 1:

6 x Thermia Robust 42 for a total of 249 kW (0–35°C)



Sample furnished room



Brine manifold



The Barrico Residence

Barrico 2:

2 x Thermia Diplomat Optimum for a total of 24 kW (0–35°C)

Renewable source of energy

The ground source collectors were designed taking into account only the extracted thermal energy that is necessary to cover the heating energy demand and domestic hot water demand. Summer cooling called passive cooling, thermal energy extracted from the building and sent to the ground, provides an additional safety margin for the system, even though it is not required to maintain energy balance of the ground source. "From a geological point of view, the mean thermal conductivity value of the soil layer through which the geothermal probes pass is 13.1°C" – says engineer Wolfgang Holzfeind from Geoliving. The ground



The heating room with Thermia Robust ground source heat pumps

source collectors are placed below the garage. The distance between the boreholes is 8-10 meters. 36 probes with a length of 120 metres add up to a total length of 4,320 metres. "Simulating the plant's operation for at least twenty years, with the thermal data obtained from the response test, with 36 probes with the total length of 4,320 m, it is observed that 100% of the output for heating is provided" – added Wolfgang Holzfeind.

Energy efficiency, comfort and environmental foot print awareness

The Response Test carried out confirms the soil thermal conductivity values (λ) on level 2.54 W/mK. The 36 ground source collectors are renewable energy to the heat pumps providing an output of 249 kW that covers the demand of 415 MWh/year for heating and hot water.

■ Solution: **Thermie Robust and Diplomat Optimum**
 ■ Location: **Lissago-Varese, Italy**

■ Installing contractor: **Geoliving**
 ■ Completion date: **2010**

Geoliving – renewable energy solutions provider



Geoliving strives to provide quality heat pump solutions, with a focus on low operational costs, utmost comfort and durability of the installed systems. Our knowledge, expertise and customer oriented approach guarantees the quality and durability of our installations. Geoliving srl was found in 2006 by Wolfgang Holzfeind, with the aim of distributing and providing installations of top quality heat pump solutions. Numerous projects have been implemented to date, both domestic and commercial.

Geoliving can support each and every part of the investment process: planning and ground source measuring, drilling, plumbing and installations works, including the heating room, delivery of heat pumps and boilers and finally commissioning. Normally geothermal installations do not need maintenance; nevertheless we offer maintenance contracts with after sales assistance. Geoliving has already built more than 240 geothermal plants in Italy and Switzerland.



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90 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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