

IL GLICINE BUILDINGS

Olgiate Comasco, Como - Italy

Service Center and residential
real estate redevelopment

Hydronic System

Year 2011



The service center "il Glicine" is the result of a careful redevelopment of an area once occupied by an iron construction company.

The two buildings with three and two floors host 18 flats, offices, shops, a Police station and the Land Registry office.

The complex is located in an area characterized by cold winters and hot, humid summers.

With the buildings hosting different types of users, the selected plant had to ensure total flexibility in order to grant the maximum comfort.

Economically the chosen plant would need to be optimized for minimal energy usage

The Challenge

The main objective of the builder was to create a building aesthetically pleasing, but energy efficient, aiming for Class A efficiency.

Located within the historical center, the building had to have zero environmental impact, completely eliminating local emissions resulting from combustion.

Due to the close proximity of other residential buildings it was important to minimize sound levels resulting from the plant selected..



Polo di servizi –vista esterna e dal tetto

The climate

- Continental climate (2.719 degree days / Climatic area E, according to Italian regulation)
- Winter project temperature -5°

The building

- Permanent structure in A energy class
- 2 buildings on 3 and 2 floors
- 1500 m² total

The team

- Building company Impianti Gnatta, Solbiate, Italy
- Plant design and construction Brusa Impianti, Bizzarone, Italy
- Energy certification Studio Tecnico Guffanti, Guanzate, Italy

About Energy certification

The Energy certification aims to increase energy efficiency in buildings, rewarding good design.

At European level it is expressed through the obligation to respect energy efficiency standards, achieved by reducing the demand (by acting on the building envelope) and the consumption (with highly efficient plant) of primary energy. On a worldwide level there are more advanced certifications, such as the voluntary LEED Certification, which extends the concept of environmental sustainability to water consumption, CO₂ emissions, air quality improvement and building realization impact.

The solution

The builder has adopted a Casaclima type of construction. The casing is made of high performance walls and windows with high thermal and acoustic insulation. Thermal bridges have been removed.

The system selected is an all-electric system for year round air conditioning, and domestic hot water production, as far as for hobs and ovens.

For year round air conditioning, the designer chose a radiant panel system in order to increase heat transfer surfaces, allowing the reduction of heating fluid temperature and consequently reducing energy consumption.

For heating and domestic hot water production a Clivet Vulcan Medium heat pump was installed, because of its ability to ensure maximum performance in conjunction with radiant systems and to provide high efficiency heating in very cold climates (down to -18 °).

The heat pump located on the roof powers two 1,500 liter storage tanks equipped with recharge pump for domestic hot water production, installed in the thermal plant. When there is demand for air conditioning an exchange valve directs the water for the heating plant to the storage tank that serves the radiant panels.

Every single room of the building is equipped with an autonomous management system providing each user with their own control. All the system is supervised by a tele-control system.

The results

The all-electric power supply has completely eliminated the use of gas and local emissions resulting from its combustion. It has also made it possible to greatly simplify practices and inspections related to fire prevention, in addition to increasing building safety.

By combining an autonomous management system with a general management system has ensured the personalized comfort for users together with the best use of energy.

The high efficiency of the heat pumps has helped to bring the whole complex to "A" Class, ensuring an energy (Eph) of only 18.7kWh/m² (very close to the "A +" Class), well below the value of energy performance required for the A class (68.59).

The heat pump design has made it possible to fully satisfy the required sound levels, fundamental in a block of flats which rises between other residential units.

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For further information about Clivet Systems

www.clivet.com



Service and residential centre- View from the roof with heat pump and view of thermal plant with sanitary hot water and air conditioning storage tank.

About ELFOEnergy Vulcan Medium

The heat pump range which produces hot water up to 60° with external air at -10° and grants high efficiency operation down to - 18°. It is a unique solution for the year round air conditioning of block of flats, hotel and commercial applications in centralized plant, including those with radiators.

It autonomously manages the sanitary hot water production and can be combined with boilers for thermal solar panels, enabling to exploit direct solar energy too.

The system

- A high temperature air to air heat pump Clivet ELFOEnergy Vulcan Medium to A Class both in heating and cooling operation
- Two 1,500 litres domestic hot water storage tanks for each building
- Distribution through radiant panels
- Thermal power required: max 99 kW with external air at 7