

PRIVATE HOUSE

Ticineto, Alessandria - Italy

Terraced house

New Construction

ELFOSystem

Year 2007



The new multi-family house for residential use is structured in 4 housing units, each of them over two floors.

It is located in the Northwest of Italy, in an area with a continental climate of cold, damp winters and hot, humid summers.

The challenge

In designing the new house, the young couple immediately asked for the installation of plant able to provide constant and uniform comfort throughout the house.

Another important requirement was to have a complete and easy to use plant for both winter heating and summer air conditioning.

The installation and management costs were to be very low and the home safeguarded from the environment by limiting pollutants as much as possible

Last but not least, the distribution of natural gas was not available in the area, and the owners did not want to use LPG as it was economically expensive and difficult to manage as far as stock was concerned.



Private house – Exterior and interior view

The climate

- Degree days: 2.803
- Climatic area "E", according to Italian regulations

The Building

- Terraced house with 4 units
- Two floors
- South orientation without shading

The Size

- 150m²

The solution

To satisfy the owners requirements with regard to the annual air-conditioning, an electric Clivet ELFOSystem system has been adopted.

The heating, cooling and domestic hot water production is managed by an air-water ELFOEnergy Extended heat pump with separate storage tank.

Two solar thermal panels have also been installed as an additional energy source to produce hot sanitary water.

The air quality is being managed by a full fresh air heat pump unit, ELFOFresh, which guarantees air renewal and filtration, as well as ensuring a suitable humidity level. This avoids the formation of condensation in cooling operation. Thanks to the thermodynamic heat recovery provided by the ELFOFresh, demand is reduced on the main heat pump (ELFOEnergy) when the heating and cooling loads are minimal, such as in spring and autumn.

For the distribution of heating and cooling, under floor heating panels were installed in all the rooms and radiators in the bathrooms.

The high efficiency and optimum control of the various elements of the system were achieved by the central control system ELFOControl

The results

The system chosen has been proven to achieve uniform and constant comfort throughout the house in all seasons.

Being a single system for heating, cooling and hot sanitary water production, centrally managed by a single control, it was possible to ensure ease of use and, at the same time, to personalize the air conditioning in the various rooms.

The management costs that resulted from this system were significantly lower than those of a similar house next door. The neighbors, in fact, only had a heating system with condensing

LPG boiler and heat distribution thorough radiant panels. The costs they sustained for LPG supply was 2,400 € in 2008, while the costs sustained by the young couple for electricity was approximately half that value.

Thanks to the use of electricity also the CO₂ emissions have been halved.

Last but not least, the owners have expressed great satisfaction from the air quality provided by ELFOFresh in any weather condition

For further information about Clivet systems:
www.clivet.com



Private house –ELFOControl in the Kitchen/livingroom and ELFOFresh in service room.

The System

- One air to air Clivet ELFOEnergy Extended heat pump with scroll technology
- One 300 liter storage tank for hot domestic water
- One air renew and purification unit Clivet ELFOFresh
- Two solar thermal panels
- Distribution by means of floor radiant panels and radiators in the bathrooms
- Control of the plant by Clivet ELFOControl
- Clivet room thermostats

About ELFOEnergy Extended

A range of heat pumps designed for the residential sector, optimized for installations with floor distribution and terminal units. Ensuring good operation in all seasons thanks to the variable speed of fan and water circulating pump and to the "Ice Protection" system that protects the unit from icing. The use of electric heat pumps enables you to have zero local CO₂ emissions and in environmentally sustainable systems totally eliminates even indirect emissions (generated by power plants).