La Novella Marseille, France

New built private collective housing with a collective hot water system with heat pump supported by non-glazed solar thermal energy.

Key facts

Building

Location	Marseille, France
Construction	
Heat distribution	
Heated area	2833 m²
Level of insulation	BBC-Effinergie label

Heat pump and source

Number of heat pumps	2
Installed capacity	2 x12 kW
Operation mode	monoenergetic
Heat source	unglazed solar panels 100 m2
Brand and type:	heliopacsystem®plus
Refrigerant	R134A
Sound level	45 dB

Heating system

Heat demand	kW
Heating temperature	°C

Domestic hot water

Type of system	collective circulations with individual substations
Max. Temperature	65 °C
Circulation system	
Legionella measures	thermal
Storage size	6000 litres
Number of storage tanks	
Storage losses	
Temperature control	

Other information

Solar thermal	100 m²

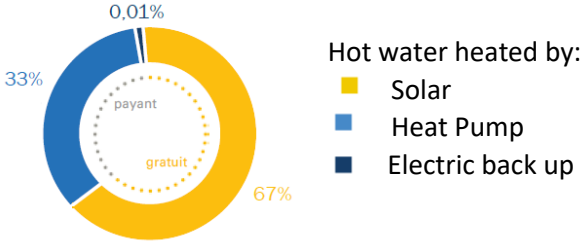
Similar projects

- Azureo Le Cannet - 43 new collective dwellings
- Le Castel, Colomiers - 67 collective BBC apartments
- Logements Normandie, Lille - 40 collective housing units rehabilitated

This new built private housing is located in Marseille, in South-East of France. Climate and sunshine are very favourable to the installation of a solar supported heat pump for the production of hot water. Unglazed thermal solar panels, installed on the building roof, in a glycol based water is circulated through the evaporator as source for the heat pump. The heat pump heats a hot water storage tank.
The system consists of:

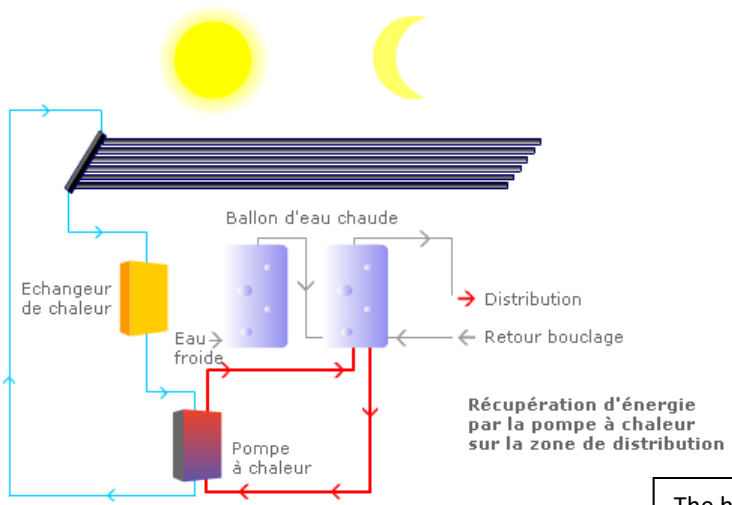
- 2 x 12 kW Brine/Water heat pump Solerpac®
- 2 storage tanks with a 2000 liters capacity each
- 100 m² unglazed solar panels

Heliopacsystem® is a domestic hot water production technology for collective applications. It uses specific solar panels able to collect energy from both sun and air. Here, heat is collected on the roof by 100 m2 unglazed solar panels. Brine heated in these panels is sent in the evaporators of the heat pumps. As more examples show this technology is not only viable for climatic hot areas as the solar collector can be regarded as an energy source for the heat pump.



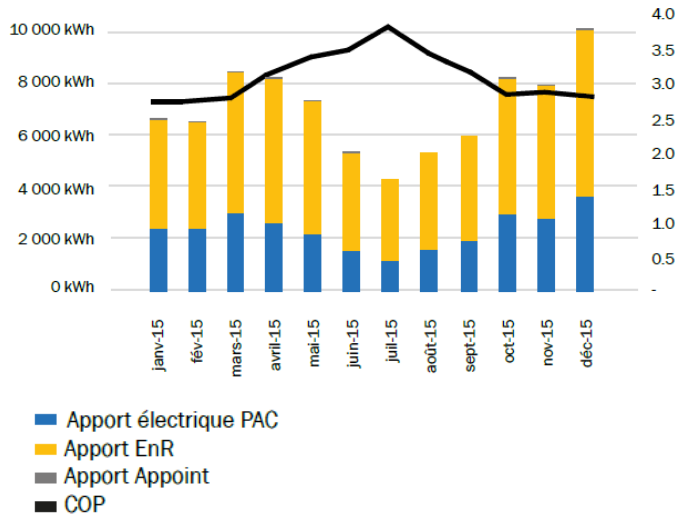
The experience in Marseille shows that a large amount of hot water is directly heated by solar thermal energy, which is less the case in the example in Lille.

La Novella Marseille, France, Technical details



The heat source is a group of flexible solar collectors in EPDM (elastomer). Flexible solar collectors are supplied in pre-assembled custom made coils, pressure tested in the factory. The coils are then to be unwound and connected on site.

Description of the technical concept



HELIOPAC invented in 1990 the principle of dynamic stratification. This consists of concentrating the heating power sequentially on different storage areas, using a set of motorized valves, rather than heating the entire storage area uniformly. Dynamic stratification has enormous advantages. It allows simultaneously:

- limit the installed heat pump power (as well as the solar collector surface in the case of a solar heat pump) by using this power,
- to allow the CAP to cover both the needs linked to DHW drawing as well as those linked to losses in the distribution circuit with the best performance,
- to cover exceptional peaks without having to add a safety margin on the power or the volume of storage installed,
- ensure excellent stability of the DHW distribution temperature while avoiding both the health risks linked to bacterial development and the risks of burns for users.

And finally, to optimize the annual performance coefficient of the heat pump by making it work in cycles on low temperatures downstream when the drawing conditions allow it.