

Renovation in Rennes, France

Renovation of 21 collective dwellings in Bédée with individual heat pump water heaters

Key facts

Building

Location	Rennes, France
Construction	1979
Renovation	2015
Heat distribution	<i>in building</i>
Heated area	1333 m ² living
Level of insulation	89 kWh _{ep} /m ² .an (heating, DHW, lighting, ventilation)

Heat pump and source

Number of heat pumps	21
Installed capacity	1.6 kW (HP+back up each)
Operation mode	Back electric resistance heater
Heat source	Air source
Brand and type	Auer EDEL 80, 100, 150
Refrigerant	Propane
Sound level	36 -42 dB
COP EN147	2.45 to 2.59
	(M profile)

Heating system

Heat demand	
Heating temperature	°C

Domestic hot water

Type of system	<i>see overview</i>
Max. Temperature	55°C
Circulation system	
Legionella measures	
Storage size	80/100/150 litres
Number of storage tanks	22
Storage losses	
Temperature control	

Other information

Electric energy	
Consumption year	kWh
Investments costs	unknown
PV installation	
Solar thermal	



[Espacil Habitat](#) is a corporation in Rennes renting houses and apartments. The residence Le Floréal has been delivered in 1979.

It includes 21 rental units:

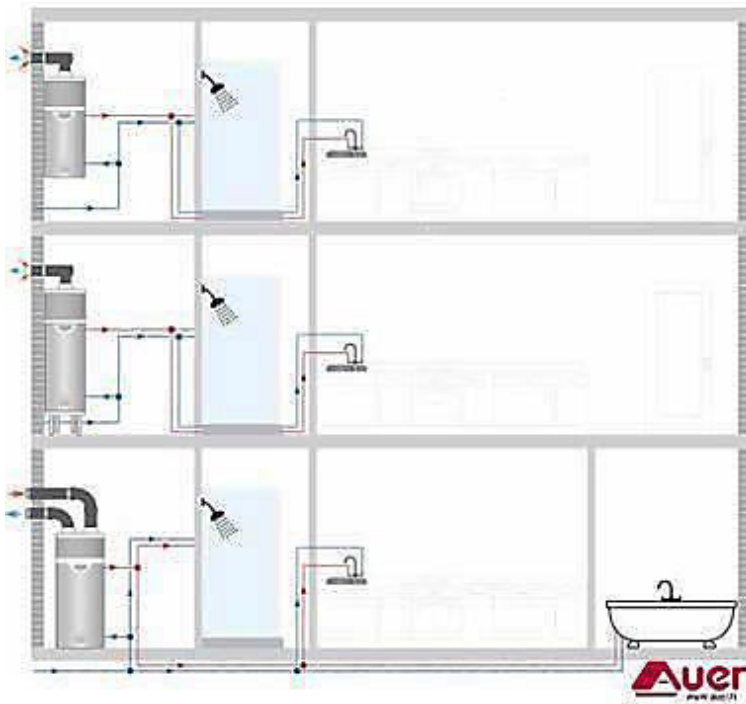
- 1 with an average surface area of 35 m²
- 11 with an average surface of 53 m²
- 4 with an average surface area of 67 m²
- 3 with an average surface area of 87 m²
- 2 with an average surface area of 93 m²

The garages are in the basement.

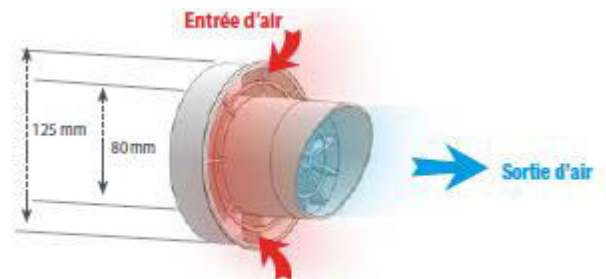
Energy is part of the strategy by Espacil Habitat to increase the value of the properties. In the renovation of the residence Le Floréal, Espacil Habitat provides answers to expectations of residents, by improving their comfort and better control of their energy use. This deep renovation concerns:

- Thermal insulation of the outside with finishing plaster,
- Installation of PVC joinery with double glazing reinforced insulation and shutters,
- Modification of the ventilation system "Humidity-controlled VMC B",
- The installation of heat radiators soft in the stays with integrated presence detection system and programmer installation,
- Installation of individual EDEL Heat Pump Water Heaters with propane as refrigerant

Renovation in Rennes, France Technical details



Site during renovation



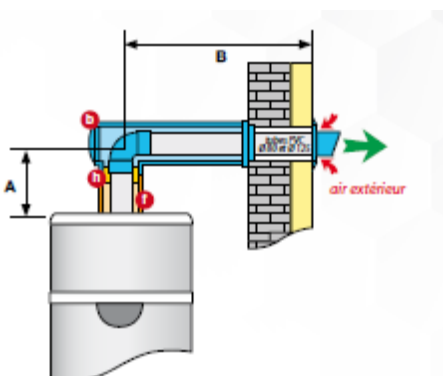
Lay out of individual air source DHW Heat Pumps with different capacities

Description of the technical concept

The project consists of replacing the electric storage water heaters with Domestic hot water heat pumps with a volume adapted to the type of housing. The specifications are:

- T1 Edel 80 L ([product fiche](#))
- T2 Edel 100 L ([product fiche](#))
- T3 Edel 150 L ([product fiche](#))

The air source heat pumps are individually connected to outdoor air with a concentric suction cup DN 80/125.



The energy performance of the building will move from class E to class B, which corresponds to a division by more than 3 of the energy consumptions heating and hot water. In this residence, previously very permeable in the air (via the windows, ventilation system ...), the renovation should also allow to divide by 3 air leaks. The inhabitants will benefit from a reduction of their heating and hot water bills. For an average dwelling of 64 m², the economy theoretical charges could reach 524 € per year.

