Social Housing Renovated, France

F1.4

Renovation of DHW production in 12 social dwellings

The DHW production was ensured by individual electric water heaters until now. The replacement of these by a collective heat pump induces a 50% reduction on the electric bill due to DHW production.

Key facts

Buildings

Location	*Soisson, France*
First Construction	*1975*
Project type	*retrofit*
Heat distribution	*collective*
Heated area	*841m² living*
Level of insulation	*average*

Heat pump and source

Number of	*1*
Installed power	*11kW*
Operation mode	*DHW only*
Heat source	*Outside air*

Domestic hot water

Type of system	*central*
Max. temperature	*50°C*
Hot water storage	*1500l*
Distribution system	*Thermodynamic loop heater*

Other information

Electric energy consumption 2013 for DHW	*29 kWhep/m2.yr*
Renewables ratio	50%

Some figures

- Before renovating, the primary energy consumption due to DHW production was about 75 kWhep/m2.yr.
- Final objective for ep consumption is 24 kWhep/m2.yr.

In this social housing building, heating is supplied by a renovated district heating grid connected to a wood-fired heating plant.

Until now, the Domestic Hot Water production was ensured by individual electrical water heaters. The replacement of these individual solutions (in twelve dwellings) by a collective heat pump induces a 50% reduction on the electric bill due to domestic hot water production.

HP outside unit

Hydraulic Station

Thermodynamic Loop Heater

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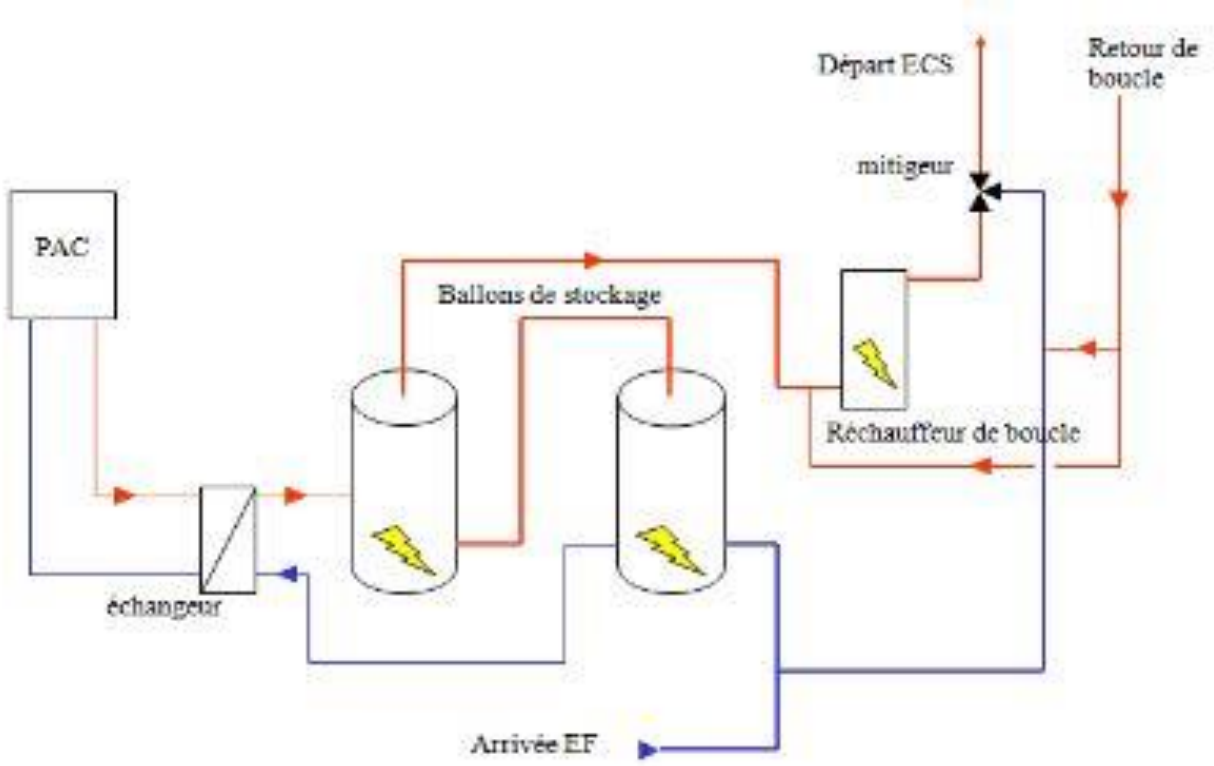


Description of the technical concept

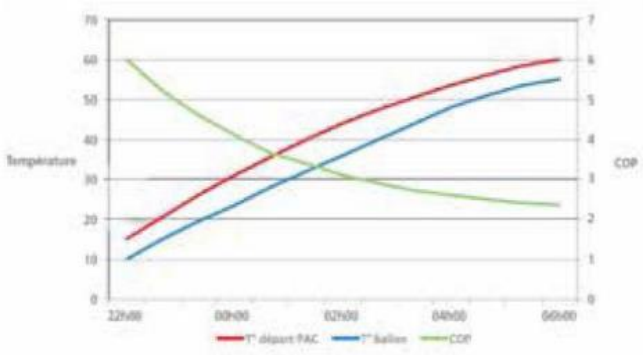
The system consists of:

- A 11kW Atlantic® air-to-water heat pump
- Two storage tanks with 750l capacity each
- An Atlantic® thermodynamic loop heater

The system functioning is based on an accumulated mode: the storage tanks allow to store the daily DHW needs. Then, the heat pump produces heat during the night, for eight hours continuously.

Even if the outside air temperatures are lower during the night, this type of operation offers advantages in terms of performances:

- After a day of draw-offs, the volume of water in the tanks is completely cold
  → optimized COP
- An operation during night allows to benefit from lower electricity tarrifs



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