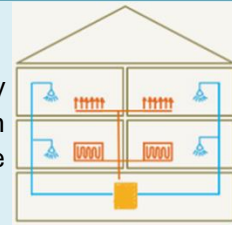


**St-Julien, Geneva, Switzerland**

This project concerns the replacement of an existing oil heating system by a HP only solution in a multifamily building. With the goal of having the total heat production from HP origin, two air/water heat pumps were implemented on the rooftop. One of the previous fuel oil boilers was kept for back up.



F1.1

**Key facts****Building**

Location	Geneva, Switzerland
First Construction	1972
Project type	retrofit
Heat distribution	radiators
Heated area	4049 m <sup>2</sup> living
Level of insulation	low (1972 standard)

**Heat pump**

Number of	2
Heat source	ambient air
Installed power	2 x 125 kW (A-7/W65)

**Heating system**

Operation mode	HP only
Existing oil boiler	300 kW (back-up)

**Heat demand**

ongoing monitoring	
Heating temperature	65 °C (@ -7° ext)
Type of system	centralized
Max. temperature	60 °C
Circulation system	yes

**Other information**

Consumption	ongoing monitoring
PV installation	no

**Lessons learned**

Ongoing monitoring, but so far:

- Major air HP constraints encountered: noise emissions, vibrations, safety... These implied important costs and planning work.
- Building's electrical connection had to be reinforced due to HPs massive absorbed power
- Adjustment of rooftop infrastructure, including insulation, in order to withstand the compression forces of larger HP chassis.

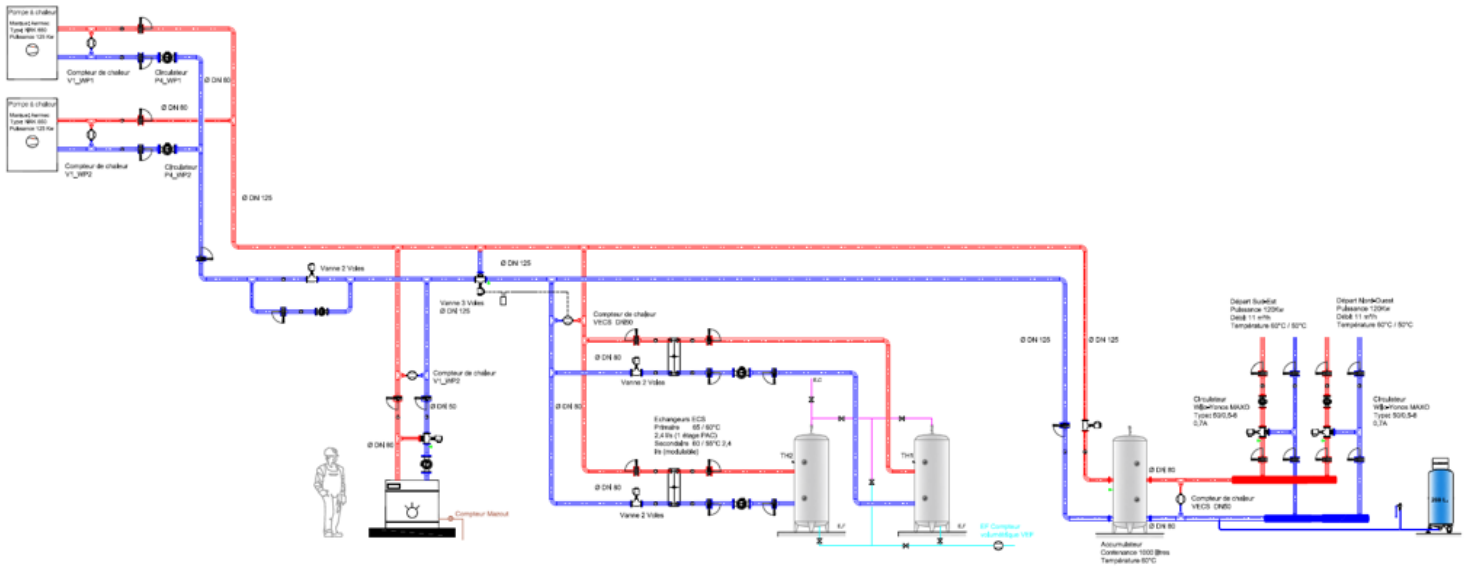


This existing MFH (multi-family building), built in 1972 in Geneva, contains 53 apartments over eight floors. It suffered no major envelope retrofit before this project and the total oil consumption amounted to 700 MWh/yr (for space heating and domestic hot water of its 4'049m<sup>2</sup> of heated area). (Photo credit SIG, CSD Ingénieurs SA)



## St-Julien, Geneva, Switzerland, Technical Details

### Hydraulic scheme of the system



### Description of the technical concept

This project, part of a Geneva pilot program to replace fossil fuel boilers by heat pumps (HP) in MFH, concerns the replacement of a oil heating system by HP only heating system. For this purpose two 125 kW air/water heat pumps were implemented on the rooftop. As a back up, 300 kW oil boiler was maintained.

It should be mentioned that:

- The building rooftop was retrofitted before the HPs were installed. No other retrofit action was undertaken.
- The heat and DHW distribution system was not modified.

The two HPs work in turns, except when both are needed simultaneously. They provide the total heat for both space heating and domestic hot water.

