Recycl'eau, eco-design of the sewage treatment plant in Claye-Souilly - France

Industrial site, HQE® approach : water, treatment and phytoepuration

Client	City of Claye-Souilly
Location	Claye-Souilly
Project	Eco-design HQE® and landscaping
Mission	Design concept and follow up mission, architecture HQE® and landscaping
Design and build	AR ARCHITECTES, Degrémont
Area	Suez, Zub, Pinto, génie civil
Capacity	3 500 m²
Cost	12 000 inhabitants
Date	7 800 000 €
	From 2008 till 2011

View on the operating and technical buildings

View of the project

The objective of this project was to combine sustainable technical architecture with a setting rich in fauna and flora, by reducing impact on the surroundings.

View on the exterior terrace

View on the recycled civil work into and an aquatic garden

Sculpture realised by Atelier Pennaneac'h for educational tour inside the plant

HQE® targets

Target 4: energy management

• Thermal solar sensors are set up on the operating building to make it self sufficient in hot water supply .

• Canadian well provides a supply of fresh air into the building carrying it in an underground air duct. According to the temperature, this air duct cools down or heats the air using the ground's thermal inertia.

The air acts as a heat transfer fluid whereas the duct acts as a thermal exchanger while transfering the air to the building. It is mainly used as an air conditioning system but also in the winter to pre-heat incoming air.

The air circulates in the underground piping (150 to 200mm in diameter) and "exchanges" its calories with those in the Earth. In winter, the air coming into the well is heated progressively due to the Earth's highest temperature. In the summer, the opposite occurs.

•advantages:

- Thermal comfort.
- Increase in temperature from 5 to 8°C in the winter, drop in temperature from 5 to 8°C in the summer.
- Natural ventilation system.
- Natural air conditioning system.

Target 5: water management

• This is an essential target of this project. The goal is to store and treat all roof rain water for decades to come.

A sloped roof with sedum plants is planted on a 10 to 15 cm of substrate and will soak up all rainwater before channelling it to an underground storage tank of around 5m3.