

# Bioclimatic energy refurbishment, installation of photovoltaic pannels in the Potable Water Plant of Longueville (77) - France



**industrial site :** energetic refurbishment, interior wall insulation (ITI)  
With BIOBASED materials + DOUBLE GLAZED WINDOWS + SOLAR PROTECTIONS + PHOTOVOLTAIC SHADES  
energetic objective 293 kWhfe/m<sup>2</sup>.Year ANTICIPATING THE tertiary Decree 2030 - 2040 - 2050.

**PUBLIC BUILDING** Eau de Paris

**Location** LONGUEVILLE (77) - France

**Project mission** Bioclimatic energy refurbishment,  
installation of photovoltaic pannels

**consultants** AR ARCHITECTES, BOST  
INGENIERIE, EUROELEC SMART  
ENERGY

**area** 1 023.5 m<sup>2</sup> (building footprint)  
37 002 m<sup>2</sup> (plot)

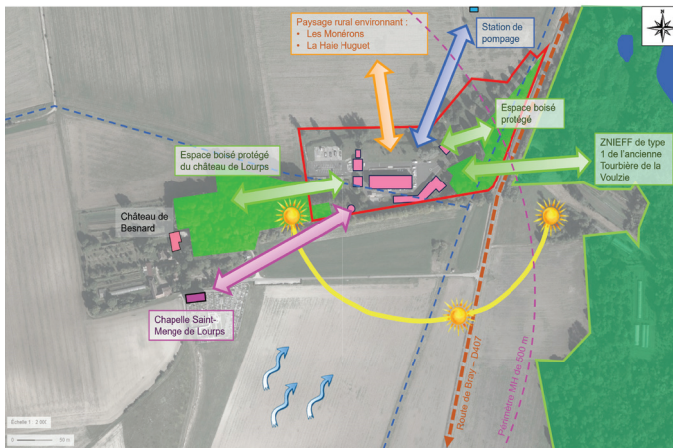
**cost** 1 500 k €

**Date** Studies in progress 2025



Northern facades of the main operating building - Existing state

The refurbishment of the potable water plant of Longueville, aims to **decrease its global energy consumption from 404.2 kWhfe/m<sup>2</sup>.year to 293 kWhfe/m<sup>2</sup>.year (within 2030)**. Our mission consists in the **refushishment of the operating building** including interiors, the **thermal insulation** as well as the installation of **PV pannels** above the parking. The total set is designed to be **integrated into the natural and protected envrionment**.



Bioclimatic mass plan of the project

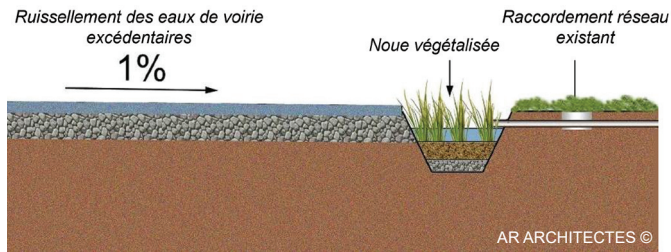




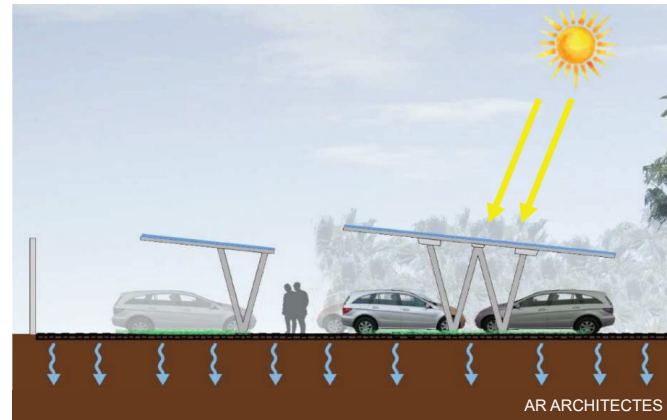
Eastern corner facade - Existing state



View of the northwest corner - Existing state



Section of the rainwater management



Section showing the PV panels above the planting



Blind integrated into the glazing



Wooden fiber



Cellulose panel



Green hollowcore slabs



PV pannels

## SUSTAINABLE COMMITMENTS (HQE®)

### FIRST COMMITMENT : QUALITY OF LIFE

#### AIR QUALITY

- The air inside of the building will be **renewed and improved** by the installation of a **central air extraction**.

#### HYGROTHERMAL COMFORT

- The hygrothermal comfort will be assured by the use of **wooden insulation pannels** as well as **double glazes windows**.
- During the hot season : windows could be opened at night to assure the **freecooling**.

#### VISUAL COMFORT

- Blind will be integrated into the glazing to reduce the impact of the sun inside of the building. As well as to assure a good interior lightning for the users.

### SECOND COMMITMENT : RESPECT OF THE ENVIRONMENT

#### ENERGY MANAGEMENT

- To reduce energy consumptions, the building was refurbished with a bioclimatic approach.
  - Biosources materials are used for the thermal insulation.
- The southern facades will be insulated and protected from the heat during summer.
- The western facades will be insulated from the cold during the low temperatures.
  - Heating pump will be used as a renewable energy to heat the building during winter.
  - PV pannels will be installed as shades above the outside created parking.

#### CLIMATE CHANGE

- Planted ditches will be created to collect rainwater runoff of the parking.
- Hollow core slabs were designed on the parking making it possible to infiltrate the water into the ground.

#### MATERIAL RESOURCES

- All materials used are sustainable and require **low maintenance** (structure, framework, insulation).

