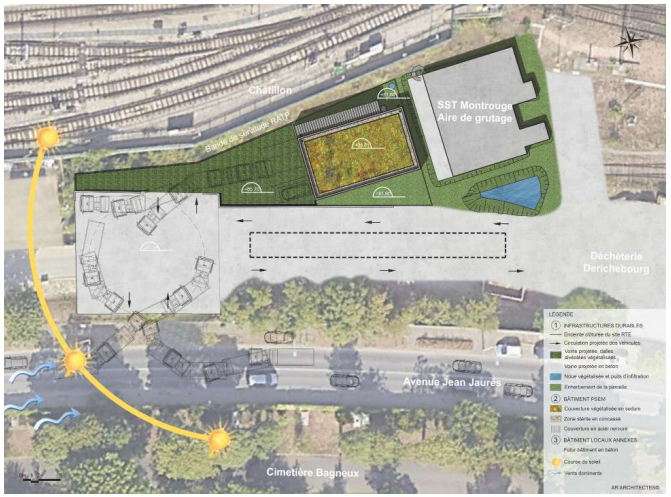
Low-carbon architectural eco-design of the Jean-Jaurès 63 kV metal-enclosed substation (PSEM) in Châtillon (92) - France

LIИEA
PSEM JEAN-JAURÈS

Industrial site, HQE® approach : electrical substation

Maître d'ouvrage	RTE
Localisation	Châtillon (92) - France
Projet	Architectural design of the Jean-Jaurès metal-enclosed substation 63kV
Maîtrise d'oeuvre	AR ARCHITECTES,B.E.bâtiTECH
Capacité électrique	Metal-enclosed substation 63kV
Surface	510 m²
Budget	1 958 000 euros
Calendrier	2025 competition

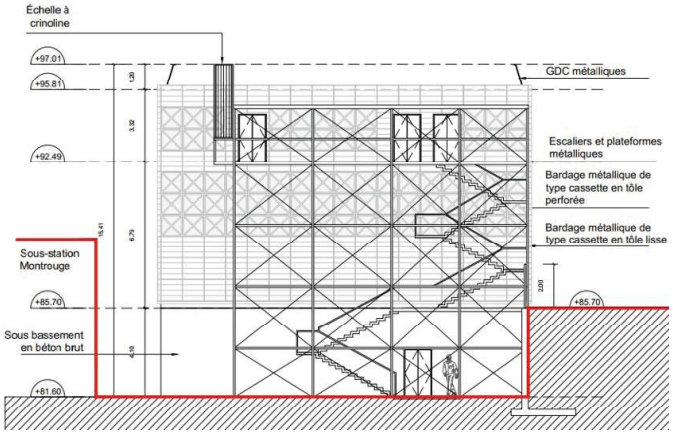


Bioclimatic masterplan

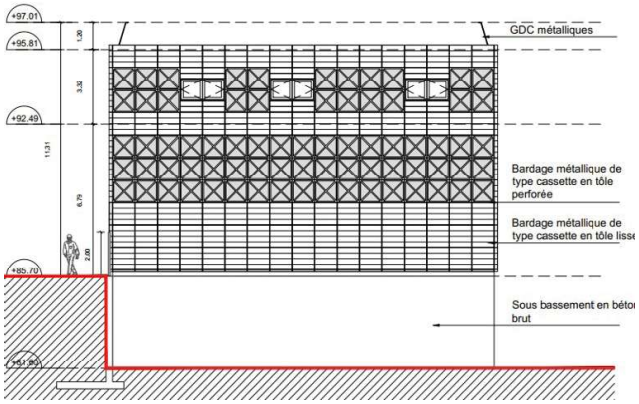
Perspective of the project intergrated into its environment

Located at the junction between an area predominantly dedicated to railway activities and a natural zone, we envision an industrial **project** that forges **a connection with its surrounding landscape: LIИEA © – Jean-Jaurès Primary Substation (PSEM) in Châtillon (92).**

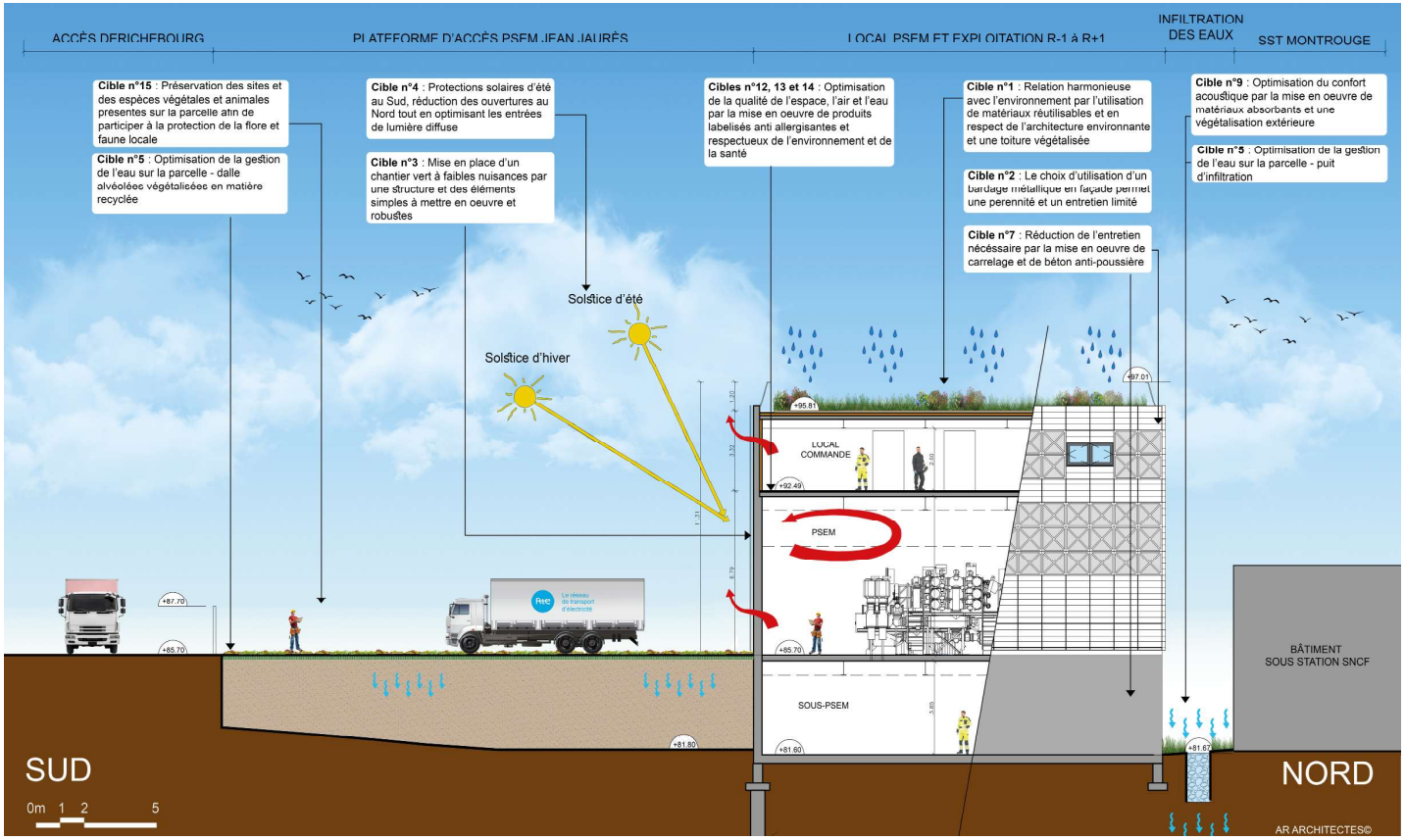
A bioclimatic building with a low environmental impact, expressed through **a strong, distinctive, and lightweight façade**; engaging with both its immediate and distant surroundings, while evoking t**he lines and axes around which architecture develops in industrial and urban contexts.**



West elevation



East elevation



High Environment Quality® section

HQE® targets

target 1 : Harmonious relationship between the building and its environment

- **Low environmental impact** building.
- Architectural integration of the building with its immediate surroundings, evoking the lines and axes around which architecture develops.

target 2 : Choice of intergrated products and building materials

- **Low-carbon concrete** structure and metal profiles made from steel produced in an electric arc furnace using **100% renewable electricity.**
- **Metal cladding in recyclable aluminum.**

Target 3: Low-nuisance construction site

- **Reduce nuisances** at the scale of the construction site and its immediate surroundings.
- **Minimize environmental and general population impacts**.

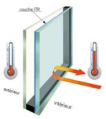
Target 4: Energy management

- **Bioclimatic architecture:** building strategically positioned according to climate, sun orientation, and prevailing winds; designed in compliance with **RE2020** (construction and energy requirements: carbon emissions, reversible Air/Air heat pump, double-flow ventilation, LED lighting)

Target 9: Acoustic comfort

- Unheated spaces are located on the railway side, acting as an **acoustic buffer zone**; combined with insulation solutions, a green roof, and acoustic double glazing, effectively reducing noise disturbances and improving occupant comfort.

Load-bearing structures composed of low-carbon concrete and metal profiles made from steel produced in an electric arc furnace using 100% renewable electricity



The elements highlight the acoustic treatment and provide comfort for the operators.