


# Bourdelle

by Florian Bosc Malavergne / 2022-05-17 00:00:00 / France / 1230 / FR



Primary energy need :

## 99.85 kWhep/m<sup>2</sup>.an

(Calculation method : RT 2012 )

**ENERGY CONSUMPTION**

*Economical building* *Building*

< 50	A	
51 à 90	B	
91 à 150	C	<b>C</b>
151 à 230	D	
231 à 330	E	
331 à 450	F	
> 450	G	

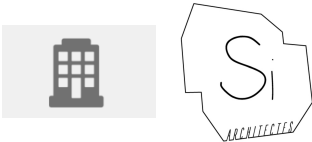
*Energy-intensive building*

**Building Type** : Office building < 28m  
**Construction Year** : 1947  
**Delivery year** : 2021  
**Address 1 - street** : 7 rue Antoine Bourdelle 75015 PARIS, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

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**Net Floor Area** : 4 631 m<sup>2</sup> SHON  
**Construction/refurbishment cost** : 6 547 000 €  
**Number of Work station** : 200 Work station  
**Cost/m2** : 1413.73 €/m<sup>2</sup>

Proposed by :

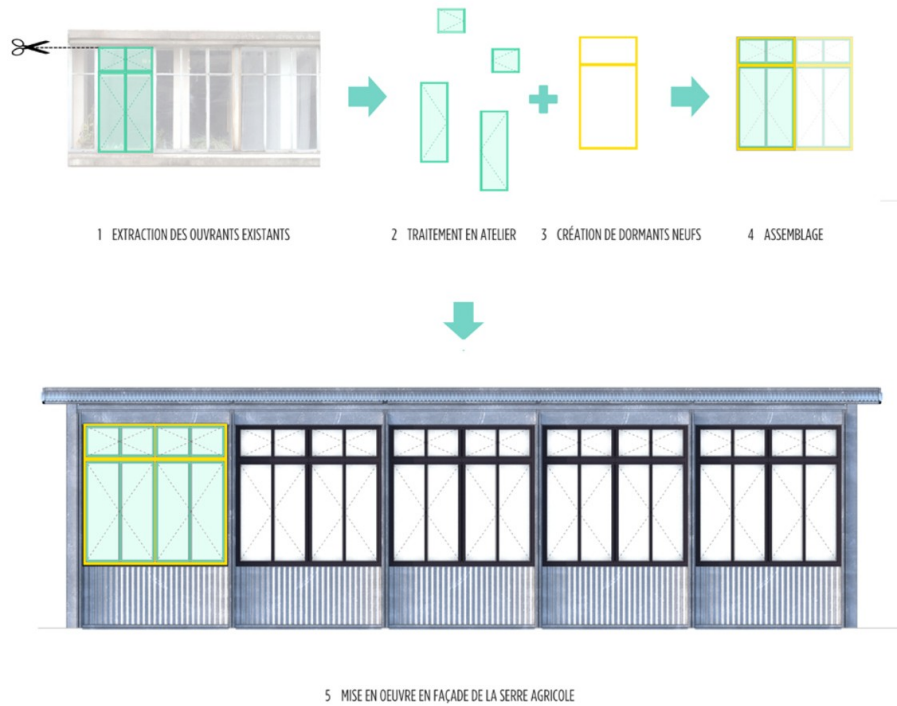


## General information

Close to Montparnasse train station, this building was built by the ancestor of the EDF company, the "Compagnie de Distribution d'Electricité Parisienne" (CPDE). It has always been dedicated to the management of Parisian public lighting.

Designed in 1938 by the architect Urbain Cassan, it was originally supposed to be twice as large. Only half of the program was built! Combined with the pre-brutalist architecture of the exposed concrete structure, its accidental asymmetry gives its facades an elegance that is as austere as it is atypical.

The renovation of this office and logistics building in a circular economy includes **the creation of an agricultural greenhouse on the roof**. The construction cycle allowed **the reuse of deposits from the renovation site in the extension project**. Thus the exterior joinery making up the existing running strips was reused to form the new openings of the agricultural greenhouse.



More broadly, the renovation project involves **an impact reduction approach by promoting reuse, the use of recycled, sustainable materials, and refined and transformable furnishing solutions.**

### If you had to do it again?

In the private market, the logic could lead to involving the company upstream to carry out more "test" removals and validate a reuse process. The same goes for the technical controller, whose conventional involvement can sometimes lead to impasses during construction. Preliminary tests should be reinforced in the same way.

### See more details about this project

<https://www.siarchitectes.com/portfolio/eco-bureaux>

### Photo credit

Credits: Si Architectes - Damien Boboc & Florian Bosc Malavergne  
 Except video of the assembly of the greenhouse, credit: Serres Anciennes - Guillaume Durost

## Stakeholders

### Contractor

Name : EVESA  
 Contact : Frederic GALLOO

### Construction Manager

Name : Si Architectes  
 Contact : Florian BOSC MALAVERGNE  
<https://www.siarchitectes.com>

### Stakeholders

Function : Designer  
 Florian BOSC MALAVERGNE  
 Florian BOSC MALAVERGNE  
<https://www.siarchitectes.com>

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Function : Designer

Damien BOBOC

Damien BOBOC

<https://www.siarchitectes.com>

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Function : Thermal consultancy agency

SOLENER

Arnaud FAVAREL

<https://www.solener.fr>

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Function : Structures calculist

Atelier MASSE

Raphaël FABBRI

<https://www.atelier-masse.fr>

---

Function : Other consultancy agency

OXYENERGY

Pascal BACH

<https://www.oxynergy.fr>

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Function : Company

BOUYGUES ENERGIES SERVICES

Alain CASULE

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Function : Company

SITCF

Anthony DECAMPOS

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Function : Company

ENERGIES SB

Philippe HOCHART

---

Function : Company

SERRES ANCIENNES

Guillaume DUROST

<https://www.serre-ancienne.fr/>

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Function : Company

Bouygues Energies Services

Kevin Dy

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## Type of market

Design and implementation

## Energy

### Energy consumption

Primary energy need : 99,85 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 50,00 kWhep/m<sup>2</sup>.an

Calculation method : RT 2012

CEEB : -0

Initial consumption : 250,70 kWhep/m<sup>2</sup>.an

### Systems

#### Heating system :

- Gas boiler

#### Hot water system :

- Individual electric boiler

#### Cooling system :

- No cooling system

#### Ventilation system :

- Double flow heat exchanger

#### Renewable systems :

- Solar photovoltaic

#### Renewable energy production : 3,08 %

The technical terrace located in R+7 has been equipped with a fleet of 45 photovoltaic panels with a total power of 19.84 kWp. The production is distributed in the building and consumed instantaneously.

### Smart Building

#### BMS :

The BMS installed in the building contains the following information:

- Monitoring of electricity consumption by floor ;
- Monitoring of water consumption by floor ;
- Weather monitoring ;
- Monitoring of boiler production ;
- CTA operating status.

### Urban environment

In the **dense urban environment of the Montparnasse district in Paris**, the renovation of the building has restored all its brilliance to the facade, decayed by time, which dialogues again with the other buildings of the 1930s. The agricultural greenhouse installed on the roof is integrated into the shades of gray of traditional zinc roofing with its galvanized steel structure.

### Construction and exploitation costs

Total cost of the building : 6 547 000 €

### Reuse : same function or different function

#### Batches concerned by reuse :

- Outdoor joineries
- Floorings
- Suspended ceilings
- Electricity
- Plumbing

For each batch : Reused Materials / Products / Equipments :

**Exterior metal joinery:**

- Openable carpentry making up the running strips of the R+2 level - 43m<sup>2</sup> - 40 units - in-situ

**False ceilings :**

- Slabs reused in-situ - 980m<sup>2</sup>
- Reuse slabs - 1000m<sup>2</sup> - from another company removal site

**Floors:**

- Parquet floors - 150m<sup>2</sup> - in-situ
- Carpet - 30m<sup>2</sup> - company unused stock

**Exterior floors:**

- Protective gravel for technical flat roofs - 7m<sup>3</sup> - in-situ

**Plumbing:**

- PVC tube (EU) - 35ml - company unused stock

**Electricity :**

- Downlight luminaires - 71 units - in-situ
- LED tiles - 247 units - in-situ
- Exterior wall lights - 7 units - in-situ
- Fluorescent tubes - 126 units - POLIX lamps - Maximum Design

## Environmental assessment

Impacts avoided : water, waste, CO2 :

**Waste** : 194 tons of which 94.7 tons were recovered or reused (Tricycle Environnement).

**Asbestos** : 30m<sup>3</sup> of asbestos waste recycled by inerting (vitrification by Intertam). This is the only way to avoid landfill and to guarantee the safety of the residue. The vitrificate obtained (Cofalit) is used as a road surfacing underlay, but many other uses are being studied.

Categories	Avoided CO2 (kg)	Avoided water consumption (m3)	Avoided waste (kg)
Outdoor facilities	758.87665	7.615624425	1062.454084
Exterior fittings / Locksmithing - Metalwork	0	0	0
Carpentry	0	0	0
Partitions	0	0	0
Coverage	0	0	0
Roofing / Exterior fittings	14.322	0.1666455	771.7832388
Lighting	35654.18594	182.3319846	33899.91834
Safety lights	0	0	0
Climatic engineering equipment	0	0	0
Electrical equipment	0	0	0
Facades	0	0	0
False ceilings	9211.653825	94.392628	16385.14013
False floors	0	0	0
False ceilings	0	0	0
Structural work	0	0	0
Sanitary installations	0	0	0
Insulation	0	0	0
Exterior carpentry	5234.175	51.7419	3881.482903
Interior carpentry	0	0	0
Furniture	0	0	0
Paint	0	0	0
Plumbing	0	0	0
Floor coverings	990.4555122	26.97398957	605.55344
Floor and wall coverings	0	0	0
Wall coverings	0	0	0
Building security	0	0	0
Locksmithing - metalwork	0	0	0
VRD	0	0	0

TOTAL	Avoided CO2 (kg)	Avoided water consumption (m3)	Avoided waste (kg)
	51863.66893	363.2227721	56606.33214

**Km in a small car      Nb of rectangular bathtubs      nb of years of household waste of a French person**

Equivalent trajet Paris- Nice

471.0

The re-use operation saved the equivalent of 414909 kilometers driven by a small car, or 471 trips from Paris to Nice, 2421 rectangular bathtubs filled with water and 113 years of household waste of a French person.

## Social economy

### Social economy and professional integration :

- TRICYCLE ENVIRONMENT: 11 employees in professional integration
- METISSE LE RELAIS: all company profits are reinvested in the creation of sustainable jobs.

## Contest

### Reasons for participating in the competition(s)

The circular economy renovation approach, jointly supported by the Project Owner and the Project Management on the project, experimentally prefigures the future of rehabilitation. It is part of an optimization of resources specific to the site and the building in terms of functionality, equipment and architecture. It organizes the project according to opportunities related to existing spaces, to demolitions. It favors the use of biosourced, recycled or reused materials. It optimizes the processing and recycling of construction site waste.

### Building candidate in the category



Bâtiments tertiaires / prix de la rénovation

