

# Requalification of the city of electricians

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crédit : Philippe Prost, architecte / AAPP © adapp – 2017 © Aitor ORTIZ

## Urban reconversion

Address 1 - street : 62700 BRUAY-LA-BUISSIÈRE, France

Gross density : 11.18 logt/ha  
Starting year of the project : 2009  
Delivery year of the project : 2017

Certifications :



1.7 ha



9 200 000 €

## ID CARD

### The city of electricians, archetype of the mining city of the nineteenth century; a place at the same time of memory, life and creation for the twenty-first century

An archetype of the nineteenth-century mining town, a place of ordinary architecture, the city of electricians was built by the Bruay mining company between 1856 and 1861 to house families of miners. Remarkably, the Cité des Éctriciens owes its name to its streets (Branly, Volta, Marconi) and its character is that of the first coronas still marked by rurality. Its rehabilitation is the support of the testimony of a life and a past activity: the project aims to make it a place of memory, life and cultural creation for the twenty-first century.

Listed in the supplementary inventory of Historic Monuments in 2009, the City of Electricians Bruay-la-Buissière is one of five pilot cities of the mining basin of Nord-Pas-de-Calais entered the World Heritage of Unesco, in 2012 as Living Evolutionary Cultural Landscape. The terminology Cultural Heritage Evolutif Vivant is important because the agglomeration community of this site is a place to visit and discover the habitat and landscape of the mining basin without distorting it.

In 2012, the agglomeration community of Bruay-Béthune launches a consultation for the rehabilitation of the site. It was won in 2013 by Philippe Prost architecture studio. The winning team does not have the mission to make a sketch but to lead a reflection and propose a methodology on the conservation of this city, rare testimony of the industrial revolution. Hence the prospective reflection undertaken on this ordinary heritage that local actors describe as a "monument of everyday life" and that the designated prime contractor intends to transform in order to better preserve it. This coron of the Hauts de France, the oldest of the mining habitats, accompanies the four other sites labeled by UNESCO, the Loos-en-Gohelle, Oignies, Wallers and Lewarde pits.

This humble building on the outskirts abandoned and gradually abandoned requires a heritage treatment and an assignment in relation to its identity, namely, the creation of a center of interpretation of habitat and landscape mining, with residences of artists, educational workshops and gites of stages. Adapted to current energy requirements, this program is ginned in existing buildings according to their respective capabilities. The largest bar in the coron shelters the interpretation center of the mining habitat, the other existing buildings host, they, residences of artists

and lodgings of stages. The interpretation center of the mining landscape is housed in a new construction that confines this landscape composition.

- **The city of electricians, project winner of the EDF Low Carbon architecture competition**

Launched in 2008, the first Low Carbon Architecture competition organized by Bleu Ciel of EDF prefigures the procedure to follow and outlines technical answers that are destined to spread. Renewed for five years, it marks the stages of a building evolution towards "less CO2" by offering a stimulating framework for the collective reflection of the actors, starting with those of the habitat whose park is predominant in volume. It challenges project management teams engaged in the field and encourages innovation by supporting projects whose performances are analyzed and optimized during a complementary study phase, before their completion. The competition promotes bioclimatic and passive architectures in line with the introduction of innovative technical solutions. Having become a reference in terms of architectural quality and technical innovation, the competition highlights the architect's central role in the evolution of the design of new buildings or future renovations. From the building to the urban project, it is now recognized as an innovation driver for performance and quality of use.

-> The Requalification project of the city of electricians was winner of the EDF architecture competition in 2014.

Rewards:

- **2014** Jury Prize at the EDF Low Carbon Architecture Competition
- **2016** 1st Prize Architedance Tertiary Building
- **2017** Golden Gesture 2017

## Programme

- Housing
- Public spaces
- Others

## Project progress

- Delivery phase

## Prescriptions and zoning

- Heritage protection area

## Key points

- Quality of life
- Economic development
- Energy /Climate

## Certifications

- Autre

## Data reliability

3rd part certified

## TERRITORY

### Type of territory

Marked by nearly two centuries of coal mining, the territory of the Mining Basin has forged, around a geological reality, an economic, urban and human identity, which is still needed almost 25 years after the cessation of exploitation. Faced with the handicaps resulting from this heavy industrial past, it is now open to new project spaces and fully committed to the post-mine through emblematic and ambitious approaches that go beyond the simple "restorative" logic, to make them a territory resolutely turned towards the future.

### Climate zone

[Cfb] Marine Mild Winter, warm summer, no dry season.

### More info

<http://www.missionbassinminier.org/territoire.html>

## KEY FIGURES

### Public spaces area

Public spaces area : 17 000 m<sup>2</sup>

## Refurbished floor area

Refurbished floor area : 2 360,00 ha

## Number of residential units

Number of residential units : 19

## Number of social housing units

Number of social housing units : 12

## GOVERNANCE

### Project holder

Name : Bethune-Bruay Urban Community

Type : Conurbation

General description :

Built in 1856, listed as a historic monument, the city of electricians was preserved thanks to the involvement of the city council of Bruay-La-Buissière, then Artois Communities, which have initiated several studies to safeguard and highlight . Isabelle Mauchin is the head of the Cité des Électriciens. The site is owned by two entities: The communities of municipalities owns the artists' residence, vegetable gardens, interpretation center and public spaces. Maisons & Cité is primarily the owner of the housing. Public spaces will welcome both inhabitants and visitors.

### Project stakeholders

AAPP - Philippe Prost Architectural Workshop (Mandatory Architect)

Function : Construction manager

Authorised representative architecte

Catherine Seyler

Construction21 company page :

<http://www.prost-architectes.com>

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### FORR

Function : Construction manager

Landscape - Urbanist - Programming

Frédéric Roussel

Construction21 company page :

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### Verdi ingénierie

Function : Technical consultancy agency

TCE Engineering Economy - structure, fluid, VRD, OPC

Construction21 company page :



<http://www.verdi-ingenierie.fr>

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### Atelier Villar+Vera

Function : Other

Graphics and signage

Construction21 company page :

<http://villarvera.com/>

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### Du&ma

Function : Other

Museography and scenography

Construction21 company page :

## QUALITY OF LIFE

### Net density

-0

### Culture and heritage

The site has become today a place of artistic creation and welcomes artists in residence. In 2013, the Cité des Electriciens became the 5th largest mining memory site next to the major sites that are the 11/19 in Loos-en-Gohelle, the 9/9 bis in Oignies, the mine museum in Lewarde and the Wallers-Arenberg site.

Workshops will be organized and will take place outdoors, especially in educational gardens and show a very important part of the mining heritage, by the very act of gardening. A large table will allow group explanations and will be accessible to people with reduced mobility.

### Social diversity

In the project for the restructuring and conversion of The City of Electricians more than 50% of existing homes have been rehabilitated into social housing by Maisons & Cité, a historic lessor of social housing to preserve the life and mix of places. The first inhabitants will arrive in April 2018.

### Social inclusion and safety

A picnic area surrounded by fruit bushes (raspberry, mulberry) and a playground for children complete the services available outdoors and accessible permanently, the city of electricians remains a totally open site.

## SOLUTIONS

The center of reinterpretation of the mining landscape

### Description :

At the exact location of one of the barracks built on the site in 1910 and demolished fifty years later is the interpretation center dedicated to the landscape. It is housed in a new building on a parcel integral to the history of the site and participates in framing views; on one side on the distant terril, singular element of the mining landscape, on the other, on the city itself. This contemporary expression construction retains the same size of the existing buildings: it unambiguously retains the typology of the central building as well as the structural partition of the retaining walls. The iconic and familiar shape of the two-slope roof is diverted to a monolith that is both similar and different. The transverse slits are found in the form of continuous glazed faults, from wall to ceiling, in order to chant the museum space by giving it back light and a domestic scale. Prefabricated timber frame glued and assembled on site, interior woodwork of Aulnes, this new construction was used as a pretext for a comparative analysis of techniques and materials used at 150 years away. Lightening and performance are demonstrated for a substantially identical volume built (677 and 690 cubic meters), but the total weight of materials used is almost halved (from 1,141 to 693 tons). And if terracotta shapes the expression in both cases, its weight is divided by more than ten (from 932 to 75 tons) thanks to the abandonment of brick masonry in favor of a glazed facing tile. Of traditional manufacture and conceived and realized especially by a tilery of Burgundy intervening on the historical monuments, it is put on a frame in wood and metal. This red garment distinguishes the building and the envelope on all sides. The center is supplemented by a place devoted to temporary exhibitions, and another reserved for group workshops.



## ECONOMIC DEVELOPMENT

### Local development

The carin gourmand will offer residents, visitors or ordinary passers-by authentic cuisine made from fruits and vegetables harvested in the gardens of the City and the production of local farmers.

### Functional diversity

In the old bars, the City of Electricians also includes seven housing adapted to current energy requirements (winning project of the EDF Architecture Low Carbon Competition 2013-2014): they have a use of artist residences and urban lodgings. In residence, the Cité will of course welcome artists from the visual arts, performing arts artists, but also historians, archivists, architects, urban planners, designers, landscapers ... These residences will systematically be subject to refunds to the public whether in the form of exhibitions, meetings, or workshops.

### % of public spaces

100

## TRANSPORT

### Mobility strategy

## RESOURCES

## SOLUTIONS

Company :

## ENERGY/CLIMATE

### Climate adaptation, resources conservation, GHG emissions

New or renovated, all the buildings of the City of electricians meet the requirements of the Building Consumption Base (BBC), the existing being forced to adopt techniques tailored to promote energy savings. For example, the contribution of natural light by the northern walls of houses is treated by the installation of moucharabiehs. This sensitive work done on the geometry of the implementation of the brick avoids piercing and denaturing the solid walls. And in order to preserve the buildings' architectural appearance, the interior insulation uses a special complex, the Métisse, a material produced by a local jeans recycling subsidiary run by Emmaüs. The habitability suffers somewhat, especially in the narrow linear of the buildings reserved for artist residences and lodgings, but the appearance is safe, from the brick masonry to the wooden joinery, all equipped with a double frame glazing on the original holes.

### Energy sobriety

"Very quickly, I proposed to the EDF group to assist us in the R & D of its Low Carbon program, the project has seduced them. We were selected for the competition because our approach combined a technical reflection with a memorial dimension, explains Philippe Prost. We have also studied the rehabilitation of the tile for other uses in order to bring back to the taste of the day the old know-how. The logic was to use materials in masses and proportions that make the difference in order to give a cardinal virtue to energy savings. And to avoid the peaks in electricity consumption at critical times, we have developed with Verdi Ingénierie and TechniCity a storage system for hot water production to supply domestic needs and the operation of boilers. This ecological reasoning is articulated with the energy policy developed by Nord-Pas-de-Calais. This Region is, indeed, the first to put into practice the theories of the Third Industrial Revolution defended by the American economist Jeremy Rifkin, consultant, today, on this territory".

- **Energy consumption: 88,2 KWhep / m<sup>2</sup>Shon / year**

### Energy mix

The proposed heat network to irrigate all the buildings was studied under different energies before opting for two air / water heat pumps, with the additional gas. The central boiler room is installed in a carin enlarged afterwards to house the storage of water (12 000 liters) required by the stress of erasure of the electrical network. Sanitary hot water is produced by individual thermodynamic balloons operating on the extracted air (single flow adjustable hydro ventilation), with a supplementary electrical resistance.

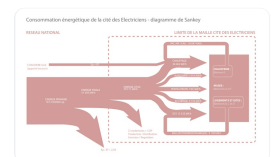
## SOLUTIONS

Energy consumption of the city of the Electricians

Description :

In photo the diagram of Sankey of the city

Company :



## BUILDINGS

### Buildings

Zoom on the housing workers

The City of Electricians is a real hinge in the history of housing workers and shows the gradual evolution from the coronas to the pavillions of the late nineteenth century. It is an exceptional example of the atmosphere of the first mining cities. The city has seven bars parallel to the street and a perpendicular bar. The conservation of the carins (outbuildings), the vultures (alleys) allowed the city to keep a very high integrity.

### Worker housing

It was in 1856 that began the work of the City of Electricians that can accommodate the first workers came to exploit the coal pit # 1. The comfort during construction was very rudimentary. The dwellings are individual and cramped; all aligned they form housing bars more known under the name of "coron".

Constructions designed by engineers are rational and competitive, built in bands, and grouped in groups of four or two in general. Originally, the mining companies have the idea to build these cities near the pits in order to fix the workforce. The coronas revolutionize the organization of space: they allow to accommodate a large number of workers in a small space while offering them quality living conditions for the time. It is a

building where brick dominates and reveals a landscape with tasteless appearance. But the glowing monotony of the bricks is thwarted by the attention to detail present on each facade: decorative elements, edges of doors and windows break the uniformity and provide each city an identity.

### Structure

The architecture is rational, simple and without ornament. These coronas are easy to build and easy to manage. The houses are located perpendicular to the main road, on the side of the "blind gear". These are detached houses with a single storey level, separated from the outbuildings by the street. Facing them, there is a vegetable garden and a "carin" that can contain the laundry with a stove for cooking, washing and laundry.

Each unit has a garden square whose size varies from 200 to 400m<sup>2</sup>. There are outbuildings with hutches and henhouses. The vegetable garden was an important element of comfort for the miners, it constituted a benefit in kind and a place of occupation for the "free time". It also served as a means of control for the company. In fact, poorly maintained gardens were penalized with fines in order to compel the worker to look after the garden and move away from trade union tendencies. The housing has evolved very little since its construction. The only major changes occurred with the arrival of running water and electricity. It is the birth of an industrial architecture and a rational spatial planning.

The model of the city is innovative and becomes a reference for other French industrial cities.

### Daily

Daily life is regulated and rationalized. Comfort is rudimentary, but these detached houses allow families to keep their independence. The inhabitants organize themselves and carry out many works themselves. They create workshops, expand outbuildings, cover the passages ... A maze takes shape in the heart of the city. In addition, to improve the quality of life and make it more pleasant, the facades are cleaned with lime, which keeps a clean and neat appearance.

### The new buildings of the city

Through seven main buildings and nine carins (modest annexes of the main housing unit), the fully rehabilitated site now houses museum equipment: the interpretation center for the landscape, urban planning and urban planning. mining habitat spread between two buildings, one restored, the other contemporary. The latter is located in the exact location of one of the two barracks built in 1923 and demolished fifty years later: it reactivates a place that is an integral part of the history of the site.

## Contest

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

Built in the middle of the 19th century by the Compagnie des Mines de Bruay, the second city is a rare testimony of the first revolution. Called City of Electriciens for its names of streets, it declines all the characters of the first coronas still impressed of rurality. Listed in the Supplementary Inventory of Historic Monuments in 2009, it is one of the five pilot cities selected for inclusion in the UNESCO World Heritage Mining Basin in 2012, as a "living evolutionary cultural landscape". Hence the prospective reflection engaged on this ordinary heritage that locals call "monument of the daily".

This humble building on the outskirts requires a heritage treatment and an assignment related to its identity, namely the creation of a center of interpretation of habitat and landscape mining, with residences of artists and lodges of steps. This small program is graced in existing buildings according to their respective capacities and in a new building that closes this composition more landscaped than urban.

Building candidate in the category



Grand Prix Ville Durable



Coup de Cœur des Internautes



