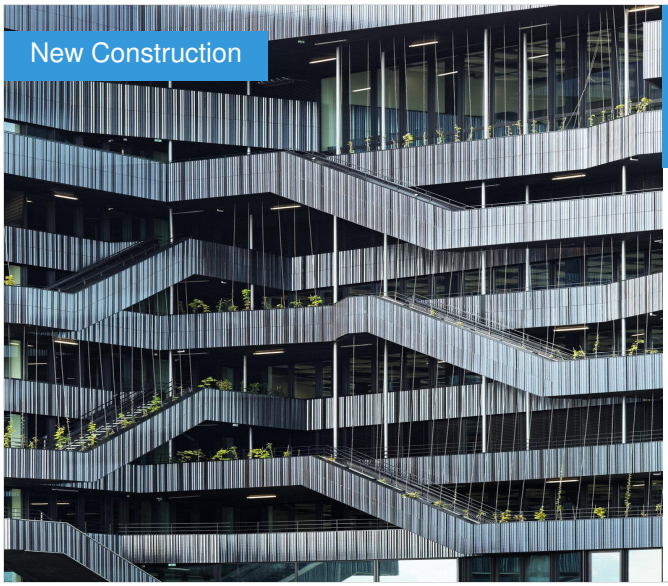
# JAVA office building

by stephanie Novara / 2019-06-03 14:21:22 / France / 5225 / FR




**Primary energy need :**

**47.8 kWhep/m².an**

**(Calculation method : RT 2012 )**

**ENERGY CONSUMPTION**

*Economical building*

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

*Energy-intensive building*

*Building* **A**

**Building Type** : Office building < 28m
**Construction Year** : 2017
**Delivery year** : 2017
**Address 1 - street** : 61 rue Mstislav Rostropovitch 75017 PARIS, France
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 24 200 m²
**Construction/refurbishment cost** : 51 000 000 €
**Cost/m2** : 2107.44 €/m²

**Certifications :**

## General information

The building is part of the extremely dynamic renewal of the Clichy-Batignolles district, characterized in part by the coverage of the rail network leading to St Lazare station.

Positioned **on the edge of the railway beam on the slab covering part of the** storage **tracks** , the site is between the opening to the large landscape and a new urban artery soon densely built. The building is considered as a body telluric, which meets the lines of forces of the site radiating in all directions with an intensity addressed. Consisting of a "ribbon" plan, it offers the rails, the street and the park an open facade in response to this context. Thus, in the manner of the Möbius ribbon, the exterior and interior spaces intermingle on all sides of the building, providing fluidity of use and visual continuity from the exterior, from the ground floor to the roof. . All the facades are designed with the same care, their continuity is in the image of a skin: continuous, homogeneous and without break. This succession of ribbons unfolds on the whole of the building, accentuating its horizontal lines like a sedimentation. On each floor, levels are detached from each other by overlays and offsets: their inflections lead to a stratification that naturally hosts a succession of terraces while avoiding significant vis-à-vis. **Each office tray can thus benefit from far-reaching views and outdoor spaces** like so many breaths in the heart of interior design. The facades are composed of an alternation of horizontal lines, formed by the glass bands and by the solid bands that are the lighters. These ribbons vary according to the height: **the low, light-deficient parts have full-height openings on the balconies, while the naturally brighter high floors have a reduced spandrel** offering panoramic views of

the city. The entire building, designed with this system, is dressed in enamelled terracotta. This material refers to the industrial buildings that line the railway networks. Applied to all facades, this skin becomes alive and its expression changes according to the directions of the facades and according to the light and the sky. Thus covered, the building reads like a landscape whose level lines are deformed under the effect of an interior tectonics. The modules were made to measure: the random effect is obtained by 3 different molds arranged according to an algorithm specially created for the project. The nature of the enamel, its vertical groove relief and the angles of the profile produce a hue in perpetual change that recalls the work of Soulages.

## Sustainable development approach of the project owner

Our objective was to carry out a real estate operation that meets the environmental specifications of the city of Paris, while offering future occupants a functional and pleasant working environment. Indeed, the City of Paris wanted to make Clichy-Batignolles a model of sustainable urban development, concretizing in particular in this project its ambitions in terms of functional and social mix, energy efficiency, reduction of greenhouse gas emissions and biodiversity. Since 2013, Clichy-Batignolles has hosted the first pneumatic waste collection system in Paris. The heating network is supplied by geothermal energy in the Albian and there are nearly 35 ha of photovoltaic panels on the operation.

Environmental excellence awarded several times:

- Eco Quartier Labelling - Ministry of Housing and Sustainable Housing (2016)

- Winner of the European Union's call for innovative urban projects for the creation of the first Parisian smart grid (2016)

- Winner of the Grand Prize "Sustainable City" of the international competition "Green Building & City Solutions Awards" awarded by the Construction 21 professional network (2016)

- Trophy "Adaptation to climate change & territories" awarded by ADEME (2017)

Our objective at the beginning of the project was to comply with the P&Ma charter (Paris & Métropole aménagement) and all the required certifications for this operation.

We wanted to create a green building but using innovative processes. As such, JAVA is a model of innovation in environmental and energy matters, fully in line with the City of Paris' Climate Plan. Holder of the HQE Excellent level label, it meets the environmental requirements of the ZAC Clichy-Batignolles, which include photovoltaic production and the limitation of energy consumption, in particular the use of active refrigeration (air conditioning type) as other significant requirements. Indeed, the building benefits from an innovative non-energy consuming system that will ensure the comfort of the offices even during the hottest periods of the year. Resolutely oriented towards the comfort of future users, the building offers large workspaces, optimal traffic quality, corridors planted to work in the heart of the vegetation, but also ideal luminosity and thermal comfort, respectively thanks to the 60% average glass surface and thermal slabs.

The absence of air conditioning in the building is compensated by the construction of a thermal slab left visible (just varnished) in the offices. The calories absorbed during the day are thus evacuated to the outside, during unoccupied periods, via water cooled by adiabatic dry-coolers. In winter, this system plays a major role in heat treatment by providing a heating base by water circulation at a temperature of around 27°C. The user's comfort is adjusted by natural convection baseboard heaters installed every two frames. This system does not generate ventilation energy. The distribution of the technical networks is carried out by the subfloor in order to maximize the concrete/ treated volume exchanges in summer and thus to take maximum advantage of the inertia of the structure.

This choice of energy concept is based in particular on the quality of heat exchanges between tempered water and concrete, which is superior to that of air and concrete exchanges. In addition, the possibility of spraying water on hot nights on the batteries of adiabatic dry-coolers makes it possible to continue to use this system even during these more delicate periods of the year.

To complete this system, air mixers were custom-made for the operation; this work made it possible to increase their thermal performance, reduce operating noise, while refining their aesthetics. This is the second building equipped with large-scale air mixers.

Java is not our first green building. We have built several certified buildings to date and have been pioneers in this type of construction since we built an office building in Aubervilliers, EMGP 270, the first commercial building in France to receive the "High Environmental Quality" certification in 2005 and we have several operations in progress.

What makes the difference between this project and the previous ones is its innovative design. No false ceilings are required, which allows the thermal slab to be installed. The entire ventilation system is provided by the floor (46 cm thick). We achieve the same comfort as traditional buildings with less energy. The workspaces are therefore the result of an aesthetic alliance that combines thermal, luminous and acoustic ambitions, while allowing a standard cutting of the trays.

## Architectural description

Architectural studio Brenac-Gonzalez & Associés, project in association with Chartier-Dalix Architects

The transformation of the Paris metropolis today involves the recovery and urbanization of the old railway sites. This is the case of the Clichy-Batignolles sector, which comes from an old wasteland occupied by railways and warehouses. Served by a new transmission line, the project of this new district implements a mix of programs and services: judicial district, park, schools, cinemas, offices and housing.

Our project is located along the railway beam, and placed over a tunnel. This situation has strongly conditioned the choice of metal for structure and meandering, volumes. The geometry of the plane thus shows three "lodges" opening onto a rich and varied landscape which houses in the center of the figure a monumental hall crossing.

As a metaphor for railways, the façades are composed of alternating horizontal lines, formed by the glass bands and the solid bands, formed by the spandrels. These terracotta ribbons with vertical grooves are dark and brilliant color, the irregular depth of the material recalls the works of Soulages. The superposition of these strata forms terraces, terraces and balconies supporting vegetation.

## See more details about this project

http://brenac-gonzalez.fr/projet/bureaux-batignolles/
http://www.chartier-dalix.com/project/24-200-m%C2%B2-de-bureaux-et-commerces-zac-clichy-batignolles-paris-17/
https://www.construction21.org/france/data/sources/users/14211/batignolles.docx

## Photo credit

Sergio grazia
Stefan Tuchila
Takuji Shimmura

# Stakeholders

## Contractor

Name : EMERIGE (promoteur) BNP Paribas Cardif (investisseur)
Contact : Julien DESENEPART
https://www.emerige.com/?utm_source=google&utm_medium=sea&utm_campaign=Marque&gclid=EAIaIQobChMI4vTPmf_P4gIVA57VCh0FVgnkEAAYASAAEgLBLfD_BwE

## Construction Manager

Name : ChartierDalix architectes (mandataire) Atelier d'architecture Brenac & Gonzalez & Associés (architectes associés)
Contact : Olivier Terrisse,o.terrisse@brenac-gonzalez.com
http://brenac-gonzalez.fr/projet/bureaux-batignolles/

## Stakeholders

Function : Thermal consultancy agency

BARBANEL

Baptiste LA LOGGIA,BLALOGGIA@barbanel.fr

https://www.barbanel.fr/projet/zac-clichy-batignolles-o7/

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Function :

KHEPHREN

Johan JACQUEMIN

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Function : Structures calculist

Acoustique & Conseil

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Function : Other consultancy agency

Alto

hqe

---

Function : Other consultancy agency

Ceef

Jean-Claude MARCHAL

FACADES

## Contracting method

Off-plan

# Energy

## Energy consumption

Primary energy need : 47,80 kWhep/$m^2$.an
Primary energy need for standard building : 92,70 kWhep/$m^2$.an
Calculation method : RT 2012

# Renewables & systems

## Systems

Heating system :
- Urban network

Hot water system :
- Urban network

Cooling system :
- Floor cooling
- No cooling system

Ventilation system :
- Nocturnal ventilation
- Double flow heat exchanger

Renewable systems :
- Solar photovoltaic

Other information on HVAC :
The project is equipped with 1600 custom air brewers, aiming to reduce the perceived temperature by 2 degrees

# Environment

## Urban environment

Land plot area : 4 541,00 $m^2$

Built-up area : 96,00 %

Green space : 599,00

It is on the reconquest of wastelands that the future eco-district of Batignolles writes a new chapter of the Parisian urbanism of which this building like the emblematic Tower of the future Palace of Justice conceived by Renzo Piano - will become one of the major signatures of the future tertiary pole of the district.

Surrounding the Martin Luther King Park of 10 Ha, apartment buildings and offices constitute this resolutely mixed landscape imagined by the Paris City Hall. Harmoniously integrated into this new approach, the building occupies a strategic location along the railway axis of the Gare Saint Lazare, junction between the old and the new district of Batignolles.

On both sides of the ring road, the exceptional geographical position of this new, connected and dynamic district is a real hinge between the central business district (CBD), the Defense business center and the historic heart of the capital.

The building is part of the extremely dynamic renewal of the Clichy-Batignolles district, characterized in part by the coverage of the rail network leading to St Lazare station.

In this neighborhood served by a new transmission line, the mix of programs and services (judicial district, park, schools, cinemas, offices and housing) offers lot O7 a quality environment.

Continuous ribbon

Positioned at the edge of the railway beam on the slab covering part of the storage tracks, the site is caught between the opening towards the big landscape and a new densely built urban artery.

# Products

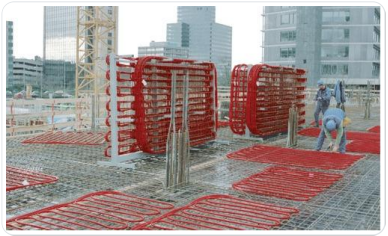
## Product

ACTIV + active slab system

REHAU

M.Walter ALEXANDRE, walter.alexandre@rehau.com, 01 34 83 64 83

https://www.rehau.com/fr-fr



Product category :

The principle of the active slab is based on the use of the mass of concrete structures of buildings. The mass of concrete is used as a reservoir of heat or freshness. It allows both heating and cooling with low temperature levels to reduce energy consumption. In cooling mode, it is here associated with adiabatic Dry Coolers to refresh without using an active air conditioning system. In heating mode, the active slab can only be considered as a basic heating, a backup system is essential

(here, baseboard heaters).

: According to our feedback, users are satisfied with this system and comfort has been good even during periods of hot summer.

## Costs

### Construction and exploitation costs

Reference global cost : 51 000 000,00 €

Reference global cost/Work station : 51000000

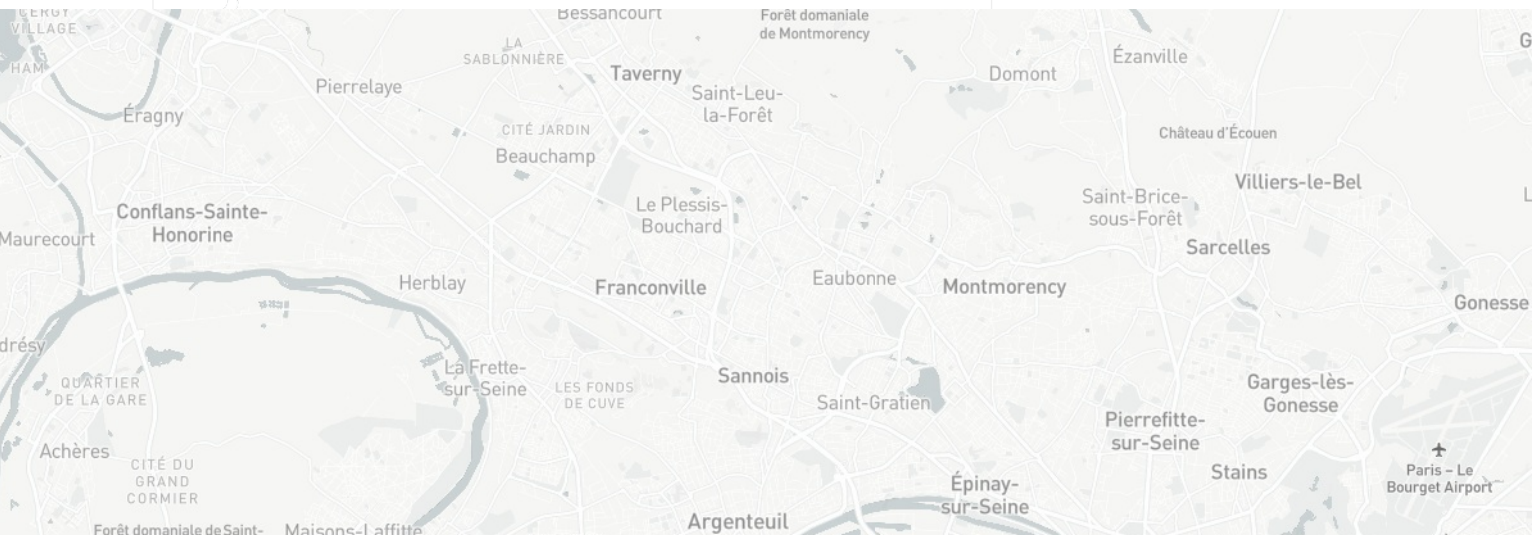
## Contest

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

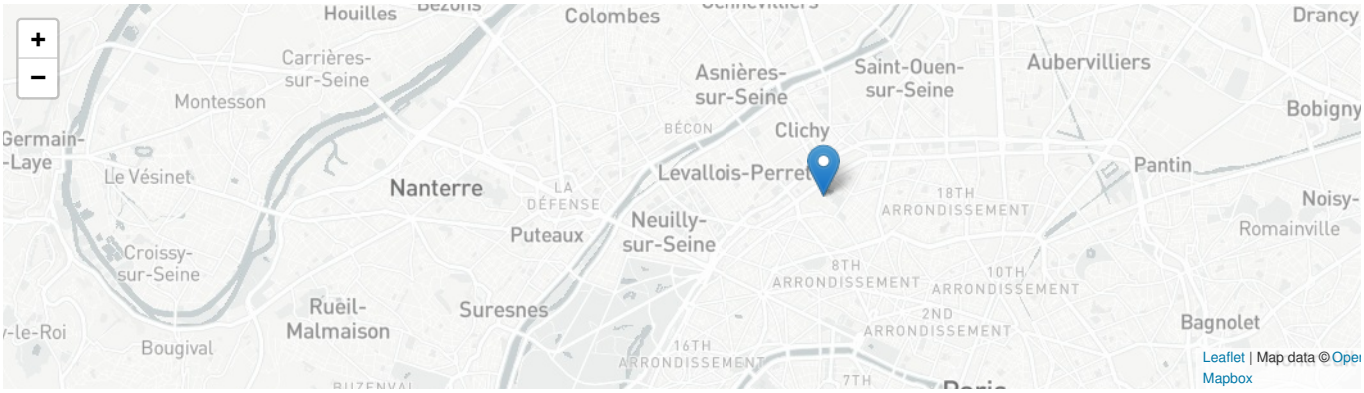
Une réflexion sur la domesticité des espaces de travail nous conduit à concevoir un parcours alternatif favorisant convivialité et usages plus spontanés. Ainsi, les espaces extérieurs et intérieurs s'entremêlent sur toutes les faces du bâtiment, offrant une fluidité d'usage et une continuité visuelle depuis les extérieurs du rez-de-chaussée jusqu'à la toiture, où un paysage suspendu accueille des espaces de travail d'une nouvelle nature. Un système de fenêtre-bandeau à chaque niveau du bâtiment augmente **l'apport de lumière naturelle qui est ici supérieur à la moyenne quelles que soient les expositions** (de 43% dans les étages hauts à 93% en bas). Pour un confort optimum en offrant un vrai contact avec l'extérieur, une fenêtre sur deux s'ouvre permettant aussi le désenfumage naturel. Par ailleurs, toutes les façades exposées au rayonnement solaire sont munies de stores extérieurs à lames, reliés à la GTB. **L'absence de climatisation dans le bâtiment est compensée par la réalisation d'une dalle thermique** laissée apparente (juste vernie) dans les bureaux. Les calories absorbées la journée sont ainsi évacuées vers l'extérieur, en période d'inoccupation, via de l'eau rafraîchie par dry-coolers adiabatiques. En hiver, ce système participe largement au traitement thermique en fournissant une base de **chauffage par circulation d'eau à température autour de 27°C**. Le confort de l'utilisateur est ajusté par **des plinthes chauffantes à convection naturelle** implantées toutes les deux trames. Ce système ne génère pas d'énergie de ventilation. La distribution des réseaux techniques s'effectue par le faux-plancher afin de maximiser les échanges béton/volume traité en été et donc de profiter au maximum de l'inertie de la structure. Ce choix de concept énergétique repose notamment sur la **qualité des échanges thermiques eau tempérée/béton supérieure à celle d'échanges air/béton**. De plus, la possibilité de vaporiser de l'eau lors des nuits chaudes sur les batteries des dry-coolers adiabatiques permet de continuer à utiliser ce système y compris lors de ces périodes de l'année plus délicates. Pour compléter ce dispositif, des brasseurs d'air ont été réalisés sur mesure pour l'opération; ce travail a permis d'augmenter leur performance thermique, de réduire le bruit de fonctionnement, tout en affinant leur esthétique. En sous face des dalles béton, des dalle acoustiques sur mesure permettent d'aménager les bureaux selon une trame standard. Les faux planchers assurent le passage régulier des éléments techniques pour le bon fonctionnement des bureaux laissant une hauteur libre sous plafond de 3 mètres sous dalle. Les espaces de travail sont donc le résultat **d'une alliance esthétique qui combine des ambitions thermiques, lumineuses, acoustiques, tout en permettant une découpe standard des plateaux**.
Certifications : HQE niveau excellent, RT 2012 -10%, Breeam, Plan climat Paris, sans climatisation

### Building candidate in the category

Bas Carbone



Prix des Etudiants

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