



## Justice nursery

by BFV ARCHITECTES / 2021-05-25 00:00:00 / France / 11324 / FR

Primary energy need :

# 92 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	C
151 à 230	D	
231 à 330	E	
331 à 450	F	
> 450	G	

*Energy-intensive building*

**Building Type** : Preschool, kindergarten, nursery  
**Construction Year** : 2018  
**Delivery year** : 2020  
**Address 1 - street** : 21/23 rue de la justice 75020 PARIS, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 1 198 m<sup>2</sup> Autre type de surface nette  
**Construction/refurbishment cost** : 4 300 000 €  
**Cost/m2** : 3589.32 €/m<sup>2</sup>

**Certifications :**



### General information

## Adaptation and innovation

In its efforts to create new nursery places and in the face of the shortage of land, the Paris City Council has come up with an unusual scenario to facilitate the installation of a 99-bed nursery in the 20th arrondissement. On a plot of land occupied by a social housing project and a protected green space (EVP), the City proposes to install a crèche on a small area of 330 m<sup>2</sup>.

The architects sketched out an atypical type of nursery, with a programme spread over 4 floors and a very small footprint. To compensate for this lack of floor space and the absence of a large courtyard for the children, large south-facing balconies provide an outdoor play area on each level, extending the early learning rooms. A nice little garden in the shade of the existing large trees is also provided at the back of the building for the children on the ground floor. A large outdoor terrace accessible to children is built on the roof, overhung by a pergola supporting the solar panels and surrounded by thick planters with dense and varied vegetation.

## Reuse and circular economy

The Justice Nursery is part of a circular economy dynamic: the idea was to do more with less. First of all, more performance from an environmental point of view, but also more efficiency in the optimisation of surfaces, and finally more control over investment and maintenance costs.

In addition, there is the desire to demonstrate that the city of Paris is taking an innovative and demonstrative stance on the issue of the reuse of materials, and on the natural and landscaped dimension of its facilities. Thus, the project revolves around a solid oak façade made entirely from recycled and transformed landing doors.

## A partially prefabricated building that blends into its environment

This second skin gives the building the image of a coherent, airy, luminous whole; a porous facility, both open and protective. In its physiognomy, the nature of its façade and its planted roof, the building constitutes a landscape element in itself: it is more a facility in a garden than a facility on the street.

The use of dry concrete pre-cast walls on the facade made it possible to reduce the nuisance of the construction site in the neighbourhood and to speed up the construction.

## Natural ventilation and self-consumption

The ventilation system used is natural. Only the hygiene rooms (sanitary facilities, cloakroom, changing area) are equipped with eco-adjustable ventilation outlets. All the living spaces are through-ventilated and have large opening windows to ensure complete air circulation.

Self-consuming photovoltaic panels supply the interior equipment, as well as the exterior lighting.

Hot water panels on the roof provide additional heating for the water in the kitchen and sanitary facilities.

This building was designed to achieve an RT2012 -20% energy performance. It has the Effinergie + and HQE circular economy labels.

### VIDEO REEMPLOYMENT

### VIDEO OF THE PROJECT

## Sustainable development approach of the project owner

In its effort to create new nursery places and faced with the land shortage, the Paris City Hall imagines an unusual scenario to facilitate the installation of a nursery with 99 cradles in the 20th arrondissement. On a parcel of Paris Habitat of 2,740 m<sup>2</sup>, occupied by an operation of social collective housing and a protected green space (EVP), the City proposes to install a nursery on a small area of 330 m<sup>2</sup> taken from the EVP. Consequently - and while the school equipment intended for young children are generally designed, for obvious operational reasons, on a building with R + 1 maximum - BFV outlines a typology of atypical nursery with a program that is deployed on 4 floors with the lowest footprint. To compensate for this lack of floor space and the lack of a large courtyard for children, large south-facing balconies offer an outdoor play area on each level, extending the awakening rooms. A pretty little garden taking advantage of the shade of large existing trees is still provided at the back of the building for children installed on the ground floor. The slender figure of the building is accentuated by the rounded shape of its bow which conceals the fire escape. Its concrete facade covered with a singular wooden mesh constitutes a porous wall, both open to its environment and protective of direct sunlight and prying eyes. Established in the continuity of the gable of the neighboring building, the project operates a retreat from the alignment on the street resolving two urban issues: preserving the views and the southern orientations of the balconies of the adjoining dwellings and clearing a first landscaped space, a entry sequence for access to the nursery. By its physiognomy, the nature of its facade and its planted roof, the building constitutes a landscaped element in itself, a surprise in the urban environment. The nursery affirms its presence in the street and signals the renewal of this upper twentieth district.

## Architectural description

In order to satisfy a strong desire for sobriety, both energy and financial, but also to meet the need to carry out a low-nuisance site, BFV implements a construction principle essentially in the dry sector consisting of load-bearing facades made of concrete premurs with an integrated insulator (ISOPRE 2.0 pre-walls from Spurgi). This method of construction involves a strict stacking of levels in an elementary form. A simple gray stain on the exterior facade and a colorless pore filler on the interior facade assume the raw finish of the concrete and the elementary look of the building. At each level, the balcony slabs are secured by stainless steel mesh nets stretched to any height. Added to this is a metal frame which, fixed to the slab noses, supports the facing of wooden sleepers. The last level is dedicated to a roof garden thanks to the installation of planters planted with a depth of 80 cm of soil. A pergola, supporting the photovoltaic panels, generates an additional outdoor play area sheltered from bad weather. Inside and out, concrete systematically replicates wood. In order to counterbalance the relative austerity of the concrete skin of the interior facades, the interior partitioning is made of timber framed walls, just like the false ceilings in order to reduce the use of plasterboard as much as possible. Based on the observation that 74% of waste comes from the building sector, and based on the desire of the City of Paris to position itself on an innovative and demonstrative line on the issue of reuse, BFV is initiating a collaborative approach to respond to this new circular economy challenge. After having identified a rehabilitation project for 630 HBM housing units carried out by the RIVP on Boulevard Mortier, less than 300 meters from the nursery plot, an agreement was reached for the recovery of the 630 landing doors intended to be discarded. While waiting for the start of work on the nursery, they are stored in containers at the Workshops of the City of Paris, then delivered, one year later, to the company designated to carry out their transformation. From these 630 doors, solid oak sleepers from the frames are recovered. Transformed by the carpenter into protective clothing, the sleepers are assembled in the image of fine wood lace forming both a sunscreen and a privacy screen from the public space. This second skin which envelops the building offers the nursery the image of a coherent, airy, luminous whole. This harmonious dialogue between materials greatly contributes to the soft and soothing atmosphere of the interior spaces.

## Building users opinion

The opening is very recent (January 2021). The staff team in place is delighted with the workspace, in particular the supply of light and the organization of the outdoor spaces.

## If you had to do it again?

We were quite constrained on the layout of the premises, due to the compactness and small dimensions of our very open facades with a lot of glazing (very small solid parts)

## See more details about this project

<https://bfv.team/media/pages/projects/faire-plus-avec-moins/336746910-1602077435/dossier-de-presse-justice.pdf>

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## Photo credit

COB Studio - Like Bocabeille

## Stakeholders

### Contractor

Name : Ville de Paris

Contact : Gilles Merlin

<https://www.paris.fr/>

### Construction Manager

Name : BFV Architectes

Contact : Jean Bocabeille

<https://bfv.team/fr/#/home>

### Stakeholders

Function : Structures calculist

VIVIE

HERVE PEREIRA

Function : Others

AGENCE LAURE PLANCHAIS - PAYSAGISTE

LAURE PLANCHAIS

<https://www.laureplanchais.fr/fr/>

Function : Company

BOYER

NEIMA LEGER

Function : Environmental consultancy

BELLASTOCK - Conseil réemploi

MATHILDE BILLET

<https://www.bellastock.com/>

Function : Other consultancy agency

BERIM

MATHIEU SINTAG

Function : Environmental consultancy

## Type of market

Realization

## Energy

### Energy consumption

Primary energy need : 92,00 kWhep/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : Heating plant 52.00 kWhep / m<sup>2</sup> (in accordance with the Paris city climate plan) DHW plant 14.40 kWhep / m<sup>2</sup> Lighting heat 25.40 kWhep / m<sup>2</sup> Prod. photovoltaic 8.00 kWhep / m<sup>2</sup> Solar thermal 4.00 kWhep / m<sup>2</sup>

### Envelope performance

More information :

DHW panels (hot and sanitary water) for the kitchen and the cloakroom. Self-consumption photovoltaic panel.

## Renewables & systems

### Systems

Heating system :

- Urban network
- Water radiator
- Low temperature floor heating
- Solar thermal

Hot water system :

- Urban network
- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Humidity sensitive Air Handling Unit (Hygro B)

Renewable systems :

- Solar photovoltaic
- Solar Thermal

Other information on HVAC :

The ventilation system implemented is natural. Only the hygiene rooms (sanitary facilities, cloakroom, changing area) are equipped with Eco-adjustable ventilation vents. All living spaces are through and benefit from large opening bay windows allowing complete sweeping.

The installation of photovoltaic panels works in self-consumption, that is to say that all the electrical energy produced is reinjected into the nursery network during the operation of the interior equipment as well as the exterior lighting.

## Environment

### Urban environment

Land plot area : 2 740,00 m<sup>2</sup>

Built-up area : 330,00 %

Green space : 200,00

The nursery is less than 50 meters from the Tramway and a post office. The PARIS HABITAT plot retroceded to the city of Paris allows immediate proximity to the inhabitants.

### Product

Prémurs ISOPRE 2.0

Spurgin

02 37 26 26 70

<https://www.spurgin.fr/isopre/>

Product category : Second œuvre / Cloisons, isolation

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### Costs

#### Construction and exploitation costs

Total cost of the building : 4 300 000 €

### Circular Economy

#### Reuse : same function or different function

Batches concerned by reuse :

- Facades
- Indoor joineries

#### Economic assessment

Total cost of reuse : 181 615 €

### Health and comfort

#### Indoor Air quality

Natural ventilation in all rooms, following the guide given to users when delivered as an attachment

#### Comfort

Health & comfort :

Speaking of air and light, one of the primary objectives is also to create very bright spaces by offering great depths that allow air and light to flow through the waking rooms from the large circulations to the protected balconies. The bays being arranged on opposite walls, the lighting of the rooms is through and the opening of these generates an optimum air sweep. The nursery thus benefits from natural ventilation by opening the windows benefiting from large clear windows with integrated openings. This solution is preferred over a double flow type solution, which consumes too much energy and poses maintenance problems for the Technical Services of the City of Paris. The opening time necessary to lower the CO<sub>2</sub> concentration in the rooms was calculated in the different spaces. This estimate varies depending on the outside temperature, the presence of wind and the size of the openings. Cooler outdoor temperatures allow more efficient ventilation. Powered by a heated floor with good inertia, the rooms will remain warm despite the opening of the windows in winter. Compared to another type of heating, children will therefore feel relatively little cool drafts when opening windows.

Calculated thermal comfort : 19

## GHG emissions

GHG in use : 12,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

## Contest

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

An operation on which we have a lot to say: we had to invent a plot, warn residents and make them participate in decisions on the shape of the building, imagine a new type of nursery in floors, find smart and economical solutions to satisfy to demanding environmental specifications and provide a specific response to reuse! An operation that required a lot of collective intelligence.

### Building candidate in the category



Bas Carbone

