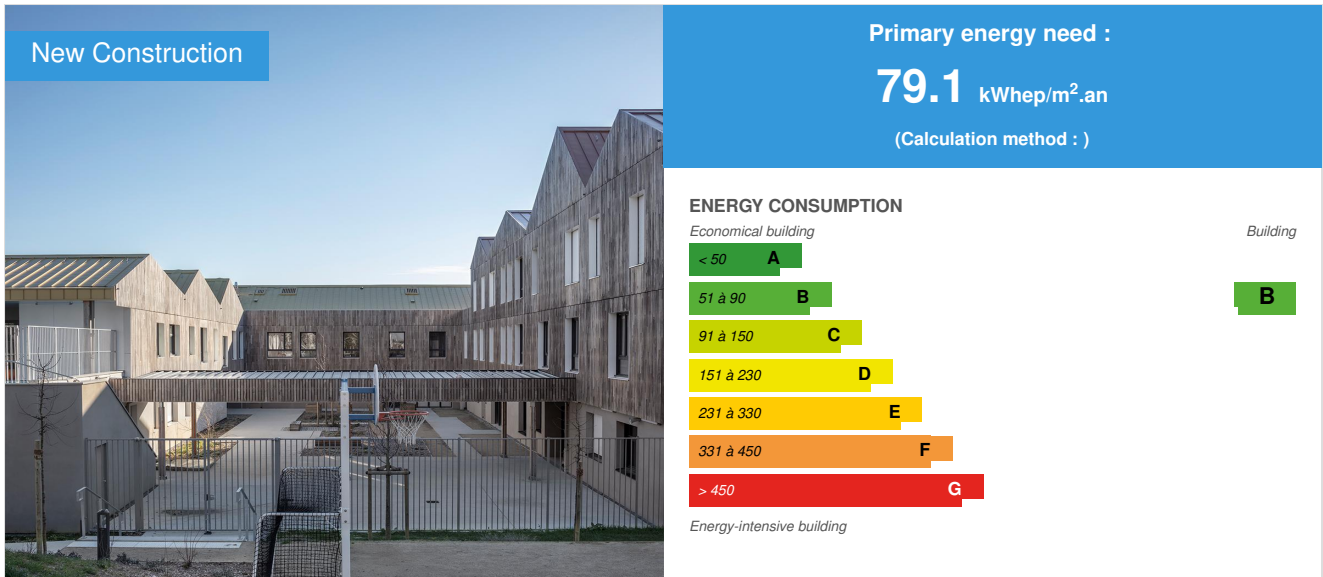


# IME (medical educational institute) -SESSAD La Fleuriaye

by Gilberto Pellegrino / 2019-06-14 16:22:32 / France / 4625 / FR



**Building Type** : Other building  
**Construction Year** : 2018  
**Delivery year** : 2018  
**Address 1 - street** : 5 rue Thomas Edison 44470 CARQUEFOU, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 2 092 m<sup>2</sup>  
**Construction/refurbishment cost** : 4 400 000 €  
**Number of none** : 53 none  
**Cost/m<sup>2</sup>** : 2103.25 €/m<sup>2</sup>

## General information

**Urban and architectural bias** The IME-SESSAD is located in the heart of the ZAC Fleuriaye 2. This area of development is the culmination of the development of a new district of the City of Carquefou. This last tranche of development benefits from a remarkable site in the heart of the Erdre Valley. In the immediate environment of the project, very diverse uses make this site a place where the children of the IME will be able to benefit from the cultural activities of the farm of Renaudières (school of music, exhibitions, ...), and the proximity of the horse club and residential areas. This implantation will encourage exchanges with the inhabitants of the district.

These environmental dimensions have guided us to imagine our architectural proposal that we have desired remarkable for children to identify themselves in a positive and integrative way resonating with the nearby urban landscape.

Thus, we take advantage of the natural elevation of the ground to implement the building with a low ground floor accessible from one level since the main access south. This device allows the north from the Chemin des Renaudières, to perceive by games of volumes, materials and roofs a project on the scale of nearby buildings.

We wanted the IME-SESSAD, in its architectural dimension, to take into account the singularity of the plot. The project assumes two different worlds, to the north the integration and to the south the affirmation of a remarkable, identifiable building.

### Environmental approach

The project is part of the **urban development zone** Carbon Zero of la Fleuriaye in Carquefou, the largest passive neighborhood in Europe. This approach results in a bioclimatic design whose orientations and constructive choices (wood-framed walls, bio-sourced materials, photovoltaic panels, etc.) meet the specifications

of the project management: a tool-equipment for the benefit of children which dialogues with its environment and meets a target RT2012-20% "low energy".

## Sustainable development approach of the project owner

Own workspace RT 2012 -20% "low energy"

## Architectural description

The medical-educational institute is part of a remarkable site in the heart of the Erdre Valley. Close to the Renaudières farm and facing the new eco-passive neighborhood of La Fleuriaye, he creates a dialogue between these two worlds. It takes the form and organization of a traditional farmhouse articulated around a central courtyard, protected and playful patio for children, offering north a facade cladding wood. To the south, the writing is contemporary and affirms a remarkable and identifiable building, in resonance with the near urban landscape. The project takes advantage of the natural elevation of the ground to be implanted with a low ground floor accessible of full foot from the main south entrance. This device allows the north from the Chemin des Renaudières, to perceive by games of volumes, materials and roofs a project on the scale of nearby buildings. We wanted the IME-SESSAD, in its architectural dimension, to take into account the singularity of the parcel. The spatial organization is meant to be simple and readable, allowing the children to orient themselves and to move independently. The orientation of the building allows to enjoy all day a generous natural light and controlled, accounting for the sun's course without dazzling or overheating. The ergonomics of the spaces, the quality of the sound environments, the thermal comfort and the durability of the materials offer a sustainable equipment favoring the well-being and the awakening of the children.

## Photo credit

Cécile Septet

## Stakeholders

### Contractor

**Name :** Association des Oeuvres de Pen Bron

**Contact :** Emmanuel Monnier, directeur technique T. 02 40 69 09 59 M. emmanuel.monnier[at]association-penbron.fr

<https://www.association-penbron.fr/>

### Construction Manager

**Name :** PADW - Pellegrino Associes Design Workshop

**Contact :** Isabelle Cojean, communication T. 02 40 48 41 42 M. i.cojean[at]pa-dw.fr

<http://www.pa-dw.fr/>

### Stakeholders

**Function :** Thermal consultancy agency

ALBDO

T.02 40 86 06 01 M. contact[at]albdo.fr

<http://www.albdo.fr/>

Studies in technical engineering and energy performance

**Function :** Company

CRUARD Charpente SAS

charpente[at]cruard.com

<https://cruard-charpente.com/>

Frame, frame, wood construction

## Energy

### Energy consumption

**Primary energy need :** 79,10 kWhep/m<sup>2</sup>.an

**Primary energy need for standard building :** 104,10 kWhep/m<sup>2</sup>.an

**Calculation method :**

**Breakdown for energy consumption :** heating: 36.5 domestic hot water: 10.6 lighting: 16.7 auxiliaries: 15.3

## Real final energy consumption

Final Energy : 79,10 kWh/m<sup>2</sup>.an

## Envelope performance

Envelope U-Value : 0,38 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Walls wood frame coats on primary structure concrete type post-beam, wood frame

## Renewables & systems

### Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Gas boiler

Cooling system :

- No cooling system

Ventilation system :

- Single flow
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic

The production of renewable energy produced on the building is connected to a global network covering the entire ZAC La Fleuriaye II. The building is part of the Armogreen "Photovoltaic Farm" built at the neighborhood level. Production does not benefit the building itself.

## Environment

### Urban environment

Green space : 2 382,00

The IME-SESSAD is located in the heart of the ZAC Fleuriaye 2. This area of development is the culmination of the development of a new district of the City of Carquefou. This last tranche of development benefits from a remarkable site in the heart of the Erdre Valley. In the immediate environment of the project, very diverse uses make this site a place where the children of the IME benefit from the cultural activities of the Renaudières farm (music school, exhibitions, ...), and the proximity of the club, horse and dwelling places. This establishment favors exchanges with the inhabitants of the district. These environmental dimensions have guided us to imagine our architectural proposal that we have desired remarkable for children to identify themselves in a positive and integrative way in resonance with the nearby urban landscape. Garden court: 309 m<sup>2</sup> Sliding platform: 164 m<sup>2</sup>

## Products

### Product

Product category : Gros œuvre / Structure, maçonnerie, façade

Wood frame walls (spruce, ISOMOB glass wool, Delta Vents rain cover, Delta Fol vapor barrier)

Traditional carpentry glued laminated wood and massive

Wood cladding with poplar strips

Tectiva mineral board cladding (ETERNIT)

very favorable

## Costs

## Construction and exploitation costs

Total cost of the building : 4 400 000 €

Additional information on costs :

Outdoor spaces: 379K € HT, closed covered: 2 129K € HT, finished work: 873K € HT, fluids: 947K € HT, private lots (elevator, kitchen): 103K € HT

## Health and comfort

### Indoor Air quality

The choice of materials and finishing products were selected in view of their low emissions of TVOC and formaldehyde, their durability and ease of maintenance. Activ'air interior partitions contribute to the improvement of air quality. The entire building is ventilated by efficient "double flow" systems. Specific pollution rooms (sanitary facilities) and rooms are treated by a single flow ventilation system by permanent extraction. In the workshops, a dust collection system is installed to guarantee the quality of indoor air.

### Comfort

Health & comfort :

*Visual comfort* Located in the Erdre valley in a green setting, the building is organized around a central patio open to the landscape to enjoy a generous natural light and mastered all day. The sun protection and the artificial lighting make it possible to regulate and to choose the level of natural or complementary light adapted to the sensitivity of the children. To secure and simplify mobility, the lighting is controlled by presence detectors in traffic, sanitary and teaching premises.

*Hygrothermal comfort* The building is a place of life, awakening and learning where it is good to live in summer and winter thanks to a powerful envelope. The insulation, the compactness and the inertia of the building contribute to this quality of life. Airtightness is also ensured by the concrete floors and walls, as well as a specific membrane device on wood-frame façades and roofed ceilings. The heating is provided by radiant panels hot water in "ceiling". They diffuse a gentle heat "low temperature" homogeneous and without movement of air. The temperature of each room is managed individually to meet the real needs of the users. *Signage and landmarks* The perception of spaces is unique to everyone. Color, material and signage processing creates a set of spatio-temporal landmarks to help locate, secure and give children confidence to explore and become independent in their movements. *Landscape* Because the game of the seasons is also a strong temporal landmark, the landscape contributes to the project of the equipment. The trees present in boundary of parcel have been preserved and welcome in the "garden of the oaks" a multi-sport ground. The central patio is a courtyard-garden which by its more horticultural and flowery nature allows to meet the vegetation.

Acoustic comfort :

The building develops around the garden courtyard with several sectors specific to each service favoring soft sound interactions between the spaces. Acoustic insulation between adjoining rooms is achieved by partitions made of gypsum plasterboard with interior glass wool, acoustic doors and technical comb networks from circulations that distribute each room individually to avoid interphonies. The quality of the soundscapes is also managed by false ceilings with high sound absorption and wall-mounted treatments at the top in sensitive areas such as the psychomotor room, the dining room, the workshops ...

## Contest

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

Among the values that led the project:

#### The structuring of the Space-Time ratio

Indeed, children will have various activities that will have to organize themselves in space to make the movements legible but also consistent with the various sequences that make up their day. This requirement is emphasized for children hosted on the site. The spatial organization prioritizes the different functions on the parcel to facilitate the identification according to the time of the day. For example, for the 16-20 age group, access to the workshops does not follow the same route as the meal time.

**Spaces of transition and landmarks** Displacement is an important issue; the ability of children to invest spaces is linked to the way architecture accompanies them. The simplicity of the spatial organization leads to a distribution of spaces that are easy to grasp and through which the treatment of colors, materials and signage make it possible to create a set of spatio-temporal landmarks.

**Putting the path into perspective** We organized the project so that the activities of the different age groups (units) can be seen to put into perspective the path of the child in the institution, to make him want to do, to go there, to participate. We have located the workshops near the main entrance so that they can be seen by all the children, especially the little ones. The 6/12 years go into their unit without crossing other spaces. They are supported on the 1st floor in their units, which are directly linked to a dedicated courtyard. They can observe the biggest in their outdoor activities. Growing up means being able to invest more broadly in the establishment.

**Protective spaces** We designed the spaces so that they are safe to allow a ritualization of everyday acts. Their design makes it possible to distance external stimuli to facilitate the concentration. A tool of work at the service of the Children. In order to make the staff more available to children, we have designed workplaces adapted to their activities. We have been vigilant about:

- the general organization of functions facilitating travel, control,
- the ergonomics of the spaces,
- the acoustic quality of the premises,
- the durability of the materials.

**Flexibility and scalability**

The constructive structure of the project will allow a transformation of the easy facilities, without major works. We know that today's truth is not tomorrow's; "When we freeze the walls, we freeze those inside". Eric Fiat - Philosopher.

**Building candidate in the category**



**Santé & Confort**

**Prix du public**

**Prix des Etudiants**

