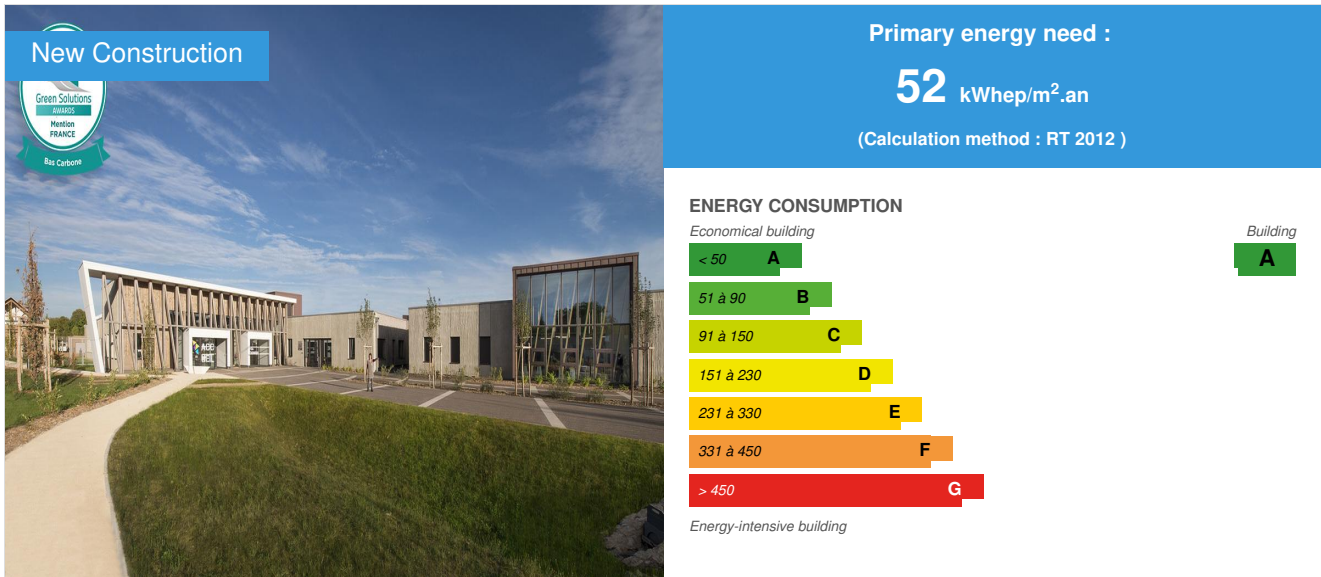


## CFA BTP in Blois

by jihenn jallouli / 2018-06-07 11:33:08 / Francia / 6922 / FR



**Building Type** : School, college, university  
**Construction Year** : 2016  
**Delivery year** : 2016  
**Address 1 - street** : 34 Rue Bernard Darada 41000 BLOIS, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 9 570 m<sup>2</sup>  
**Construction/refurbishment cost** : 14 000 000 €  
**Number of Pupil** : 1 100 Pupil  
**Cost/m<sup>2</sup>** : 1462.9 €/m<sup>2</sup>

### General information

Wood is the ecological anchor of the project. It represents 100% of the superstructure and constitutes at the same time the supporting structure, the protective envelope, the management of the natural light and the interior architecture.

- Bioclimatic design> patios, orientation, protection against prevailing winds, large openings.
- Durable facade cladding, low maintenance> wood, zinc, mineral fiber, prefabricated concrete.
- Natural ventilation thanks to the patios.
- Semi-intensive green roof (15cm thick substrate).
- Infiltration of rainwater to the plot, zero discharge to public networks.
- Area of evolution invasive sport. Involved vegetated parkings.
- EP recovery for maintenance and cleaning.
- Management of natural light.
- Passive acoustic treatment (noisy activities away from quiet places)
- EnR> wood boiler, solar thermal, wind, photovoltaic.
- Passive building. Primary energy consumption below 15kWh/m<sup>2</sup>.an
- Low Carbon Building. 173 kg CO<sub>2</sub> / m<sup>2</sup> of emission for the construction of the envelope and 1,25 kgCO<sub>2</sub> / m<sup>2</sup>.year.

### Sustainable development approach of the project owner

Wood is the ecological anchor of the project. It represents 100% of the superstructure and constitutes at the same time the supporting structure, the protective envelope, the management of the natural light and the interior architecture.

The building of technical education is major volumes provided with a cladding consisting of projecting vertical chevrons producing a game, evolving with the light of day by offering movement and rhythm to the facades while providing sun protection.

The "all visible wood" also brings an educational and ecological dimension for learners. He reveals himself and exposes himself demonstratively.

The wood allows the use of the advantageous dry chain in the management of the deadlines and the quality of execution. It also allows optimum implementation of thermal insulation, without thermal bridge, with a high performance sealing.

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- Low Carbon Building. 173 kg CO2 / m2 of emission for the construction of the envelope and 1,25 kgepCO2 / m2.year.

## Architectural description

The MOA wanted an innovative building, communicating, largely open on its territory. 30000m2 of land are arranged between the landscape, the organization of flows and the technical operation of the premises.

From the street, spaces of communication and those of life develop along the square thanks to dedicated volumes proposing an architectural sequence offering a qualitative reception. The building offers a strong relationship between the different entities through a transverse and concentric organization allowing to connect the whole.

The functional spaces are located around 2 patios dedicated to the expression of the know-how of the learners. They bring natural light and sunken landscape, at the heart of the built volume lantern. In fact, architecture offers the right balance between the technical expression of functionality, landscape and environmental response.

## See more details about this project

<http://btpcfa-centre.fr/index.php/accueil-loir-et-cher>

## Stakeholders

### Contractor

Name : BTP CFA CENTRE

<http://www.btpcfa-centre.fr/accueil-loir-et-cher>

### Construction Manager

Name : CRR

Contact : JEAN-PIERRE RAMBOURDIN [jp.rambourdin@crr-architecture.com](mailto:jp.rambourdin@crr-architecture.com)

<http://crr-architecture.com>

### Contracting method

Separate batches

### Type of market

Table 'c21\_spain.rex\_market\_type' doesn't exist

## Energy

### Energy consumption

Primary energy need : 52,00 kWhep/m<sup>2</sup>.an

Primary energy need for standard building : 55,00 kWh<sub>ep</sub>/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : primary energy: heating: 10.6 ECS: 1,3 Lighting: 20.6 Ventilation: 20

## Real final energy consumption

Final Energy : 26,80 kWh<sub>ep</sub>/m<sup>2</sup>.an

## Envelope performance

More information :

wood frame

## Renewables & systems

### Systems

Heating system :

- Water radiator
- Radiant ceiling
- Wood boiler

Hot water system :

- Individual electric boiler
- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar Thermal
- Wood boiler

EnR > wood boiler, solar thermal, wind, photovoltaic.

## Environment

### Urban environment

Land plot area : 30 000,00 m<sup>2</sup>

The MOA wanted an innovative building, communicating, largely open on its territory. 30 000m<sup>2</sup> of land are arranged between the landscape, the organization of the flows and the technical exploitation of the premises.

From the street, communication spaces and living spaces develop along the forecourt with dedicated volumes offering an architectural sequence offering a qualitative welcome. The building offers a strong relationship between the different entities through a transverse and concentric organization allowing to connect the whole.

## Products

### Product

PIGMENTO®

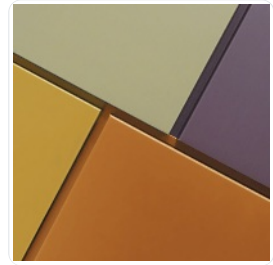
VMZINC

<http://www.vmezinc.fr/nous-contacter.html>

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

Product category : Table 'c21\_spain.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category

AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '12'  
PIGMENTO® is a range of colored surface finishes that preserve the natural pattern of pre-weathered zinc.  
It is made from the QUARTZ-ZINC substrate to which mineral pigments are added.



SOPRANATURE®

SOPREMA

<https://www.soprema.fr/fr/contact>

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

Product category : Table 'c21\_spain.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '29'

SOPRANATURE® is a planting process for roof terraces, which uses a plant complex made up of culture materials and plants, combined with a specific antiracin waterproofing complex, in accordance with the current professional rules.



## Costs

### Construction and exploitation costs

Total cost of the building : 15 000 000 €

## Carbon

### GHG emissions

GHG in use : 1,25 KgCO<sub>2</sub>/m<sup>2</sup>/an

Methodology used :  
building alone

GHG before use : 173,00 KgCO<sub>2</sub> /m<sup>2</sup>

Building lifetime : 50,00 année(s)

,ie xx in use years : 138.4

GHG Cradle to Grave : 905,00 KgCO<sub>2</sub> /m<sup>2</sup>

cf attachment

<https://www.construction21.org/france/data/sources/users/9242/synthese-bilan-carbone-cfa-blois-v2.docx>

### Life Cycle Analysis

<https://www.construction21.org/france/data/sources/users/9242/bilan-carbone-grisen-v200.xlsx>

<https://www.construction21.org/france/data/sources/users/9242/synthese-bilan-carbone-cfa-blois-v2.docx>

Eco-design material :

Buildings realized while wood frame

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## Contest

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

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