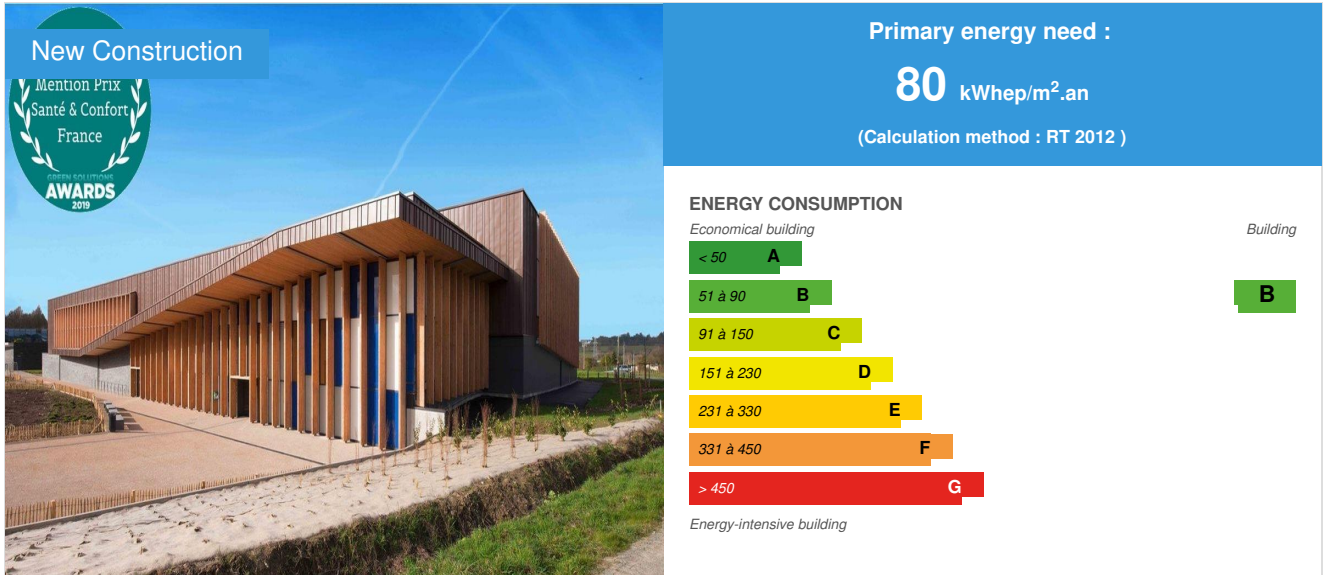


## Sport'Co sports complex in Beaucouzé

by Camille FAYET / 2019-05-13 16:54:57 / France / 9117 / FR



**Building Type** : Indoor gymnasium, sports hall, stadium  
**Construction Year** : 2019  
**Delivery year** : 2019  
**Address 1 - street** : Site de la Haye 49070 BEAUCOUZÉ, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 4 174 m<sup>2</sup>  
**Construction/refurbishment cost** : 6 000 000 €  
**Cost/m<sup>2</sup>** : 1437.47 €/m<sup>2</sup>

Proposed by :



### General information

Called Sport'Co, the Beaucouzé sports complex (49) opened its doors in early March 2019. In many ways, this positive-energy public school illustrates the right balance between fundamental values and innovative ideas. While meeting the functional requirements of a structure dedicated to team sports, it is characterized by exemplary technical and economic performances:

- Wood structure, dry chain
- One energy: electricity
- Heating and domestic hot water with heat pumps
- Solar air collectors for preheating fresh air
- Natural ventilation controlled
- Double flow ventilation with high recovery efficiency
- Radiant ceilings
- Optimized and controlled natural lighting
- Assigned and dimmable artificial lighting
- Building technical management for control, metering and maintenance of facilities

- Recovery of rainwater for the supply of all WCS

## Sustainable development approach of the project owner

The municipality of Beaucouzé wanted to make available to its sports associations and public / private schools a new sports hall on the site of The Hague. Equipment that aims to reinforce the existing offer (sports plateaus Aubineau site) and anticipate the disappearance of tennis courts Hautes Roches.

Committed to sustainable development, the municipality has integrated several environmental objectives into its program relating to eco-management, eco-construction, comfort and health. Among the priorities: thermal comfort, energy management and maintenance / maintenance as well as the concept of insertion in the site.

From a purely functional point of view, the multisport hall with a free height of 9 meters, allows to host handball competitions at the regional level and adapts to the practice of basketball, tennis, volleyball and badminton . Another room is reserved for basketball only.

## Architectural description

### **Implantation**

It was proposed to "sit" the new Sports Hall against the north facade of the aqua playful building Couzé'o. This stake of implantation constitutes a choice of conception and of major integration, namely:

- Strengthen the opening of all buildings of the equipment on the public domain
- Provide an obvious identification of each equipment
- Develop a central landscaped area

### **Lobby**

The foyer is both an essential architectural and functional element. It is the "communicating" volume, open on the public space and the "pivot", at the interface of multi-sports halls , badminton and basketball. It allows to clearly distribute these three major halls, on both sides, while dissociating the sports / public flows.

### **Consistency with the existing**

The proposed architecture is reflected in three pure volumes, articulated around the hall, with coherent and respectful volumes of the buildings COUZE'O (center aqualudique) and DOMINO (room desports).

A first volume, including hall-basket room, facing the main entrance of the site. It is the identifying and federating element with Couzé'o. Federator by under basement shale masonry, in the extension of the facade of Couzé'o. Identifying by the tension of the awning which accompanies the elevation of the hall and thus provides the composition, the dynamic movement of this new Hall.

### **Kinetic treatment**

A second volume, including the multi-sports hall, anchored to the field, opening widely to the north beyond the stands dedicated to the public. This volume accompanies the inflection of the road of the Houssaye at the entrance of town by a kinetic treatment. They are deflectors channeling the natural light in the room, offering by their treatment with variable geometry, the image of the facade in motion.

A third volume, which primarily houses badminton, completes the first two volumes and strengthens the overall composition. The trapezoidal opening energizes the facade and accompanies the visual break of the base with the high defaults treated with colored zinc.

### **Perennial materials**

Perennial materials, with a strong local reference, accompany this architectural design:

- the basement in shale masonry
- the glazed facade of the hall, shades of blue in reference to the color of the logo of the city of BEAUCOUZE
- zinc coating, bark-copper hue.

### **The evidence of operation**

The architectural coherence is also reflected by the rationality, the evidence of the operation. From the forecourt, the lobby immediately serves the two gyms, while offering a broad view of them. The public accesses the stands directly, while the athletes take an access that leads directly to the locker room.

### **A passive building**

With an obvious and dynamic architecture, the durability of the materials, the functional rationality, we propose a passive building. This behavior is achieved thanks to a high-performance envelope, simple radiant heating techniques and intelligent management of air exchange with heat recovery and recovery of external inputs.

## See more details about this project

<https://www.construction21.org/france/articles/fr/green-solutions-complexe-sportif-Soprt-Co-a-Beaucouze.html>

## Photo credit

© Isabel Tabellion

## Contractor

Name : Mairie de Beaucouzé

<http://www.beaucouze.fr>

## Construction Manager

Name : CRR ARCHITECTURE

Contact : Jean-Pierre Rambourdin

<http://crr-architecture.com/fr/>

## Stakeholders

Function : Assistance to the Contracting Authority

CERUR

[https://www.cerur-reflex.org/cerur\\_expertises\\_\\_programmation-architecturale-et-urbaine.htm](https://www.cerur-reflex.org/cerur_expertises__programmation-architecturale-et-urbaine.htm)

Assistance for project management

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Function : Thermal consultancy agency

CRR Ingénierie

<http://crr-architecture.com/fr/projets/>

Fluids, thermal and OPC

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Function : Other consultancy agency

Cabinet Gousset

<https://www.gousset-ingenierie.fr>

Economist

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Function : Other consultancy agency

Sylva Conseil

<https://www.sylva-conseil.fr>

Wood structure

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Function : Other consultancy agency

Even structure

<http://www.even-structures.fr/accueil/>

Concrete structure

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Function : Other consultancy agency

Salto Ingénierie

<http://www.salto-ingenierie.com>

Acoustic

## Energy

### Energy consumption

Primary energy need : 80,00 kWh/m<sup>2</sup>.an

Primary energy need for standard building : 120,00 kWh/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : CH = 9 kWh / m<sup>2</sup> ECS = 16 kWh / m<sup>2</sup> ECL = 7.7 kWh / m<sup>2</sup> AUX = 4 kWh / m<sup>2</sup> EQUIP = 3.5 kWh / m<sup>2</sup>

### Real final energy consumption

Final Energy : 40,00 kWh/m<sup>2</sup>.an

Real final energy consumption/m<sup>2</sup> : 40,00 kWh/m<sup>2</sup>.an

### Envelope performance

Indicator : I4

Air Tightness Value : 1,00

## Renewables & systems

### Systems

Heating system :

- Heat pump

Hot water system :

- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Nocturnal ventilation
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Heat pump

Renewable energy production : 115,00 %

1,200 m<sup>2</sup> of photovoltaic panels allow the production of 115% of the total energy needs of the complex.

Solutions enhancing nature free gains :

capteurs solaires à air, bioclimatique, surisolation

### Smart Building

BMS :

GTB (technical management of the building) , metering, steering and maintenance management

## Environment

### Urban environment

The implementation perfectly completes the development of the Haye site between Couzé'o and the Houssaye road.

Closed to the west under the prevailing winds, the building opens widely on the village side inviting the inhabitants to the collective sport practice.

The project is part of a landscape site open to the south-west to a very gentle hill line, to the south a tree edge provides a "backstage" equipment and spaces Couzé'o. The north and east of the site mark the current limit of urbanization.

The current site presents to date a voluntary composition plan that strongly integrates active modes of travel. Bike paths and pedestrian paths are very present and structuring in the reading of spaces.

Landscapes and tree and grass plantations reinforce this composition. Parking areas are present but not predominant in the perception of the site.

Landscape integration is at the heart of the design process of our project, the composition of the mass plan is based on the scale and structure of the rest of the site to join and complement the overall composition soberly.

The plantations of shrubs punctuate the space departure and other following lines parallel to the axes of composition of the site. The alignment of trees draws a limit to the north that "shelters" the space opposite the road. He leads the way to the building and recalls the south side of the site.

## Products

### Product

Rainwater recovery system

Murdeaux

<https://www.murdeau.bzh>

Product category : Outdoor facilities / Rain water management

Regional production and feeding of 100% of toilets in rainwater.

Well integrated into the structural frames of sports halls

## Costs

### Construction and exploitation costs

Total cost of the building : 6 000 000 €

Subsidies : 645 325 €

## Carbon

### GHG emissions

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

Methodology used :

RT calculation

## Contest

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

#### Respect de l'environnement

##### *Sobriété*

- Conception basée sur le scénario Négawatt (Sobriété, efficacité, énergies renouvelables)
- Un bâtiment RT 2012 souhaité : un bâtiment passif proposé et bientôt à énergie positive
- Chauffage à 12°C dans les salles de sport
- Pas d'eau chaude aux lavabos des vestiaires
- Récupération d'eaux pluviales pour tous les Wcs
- Mise en place d'une GTB pour chauffer, éclairer et ventiler aux niveaux juste nécessaire
- Ventilation mécanique seulement quand ventilation naturelle non possible

##### *Efficacité*

- Enveloppe très performante (27 cm de LR)
- Equipements très performants :
- Ventilation naturelle grâce à des grilles d'amenés d'air extérieur pilotées en fonction des températures intérieure et extérieure (système COLT)
- Ventilation double flux avec un système de capteurs à air pour le préchauffage de l'air en hiver (système Aérolog)
- Pilotage intelligent de la ventilation via une GTB avec priorité à la ventilation naturelle
- Puits de lumière naturelle SOLARSPOT
- 3 PACs air/eau qui génèrent du chauffage à basse température et de l'ECS pour les vestiaires
- Récupération des EP pour les sanitaires
- Niveau BEPOS atteint avec la location de la toiture pour l'installation des panneaux photovoltaïque
- Utilisation d'énergie renouvelable : air, eau et soleil/lumière

##### *Renouvelables*

- Préchauffage de l'air neuf d'une CTA DF à l'aide de capteurs solaires à air
- Bâtiments conçus pour installations photovoltaïques
- Ventilation naturelle pilotée

#### Qualité de vie

##### *Confort thermique d'hiver :*

- Température de confort 12°C salles de sport et 19°C ailleurs
- Plafonds rayonnants basse température
- Ventilation double-flux (préchauffage de l'air par système Aérolog)

#### Confort thermique intersaison et été :

- Ventilation naturelle tout temps fonctionnement piloté via GTB (système colt)
- Décharge du bâtiment hors occupation (système colt, free cooling)

#### Confort visuel :

- Etudes FLJ pour tous les locaux
- Vitrage polycarbonate diffusant à traitement anti-éblouissement
- Protections solaires minimisant le rayonnement direct sur toutes les façades
- Puits de lumière dans les vestiaires
- Modulation de l'éclairage artificiel en fonction de l'apport naturel et du sport pratiqué
- Mise en oeuvre de luminaire LED de haute qualité pour éviter l'éblouissement

#### Acoustique :

- Intégration des équipements techniques en locaux fermés ou protégés
- Locaux techniques jouxtant des locaux tampons
- Traitement acoustique dans tous les espaces (murs, plafonds)

#### Services :

- Espace de convivialité avec un bar
- Salle de réunion
- Infirmerie
- Salle de sport : salle de fête

#### Performances économiques

- Bâtiment ultra performant pour une facture énergétique nulle (après installations photovoltaïques)
- Choix d'acteurs locaux majoritairement pour la conception et la réalisation

#### Management responsable

- Pilotage interne à la MOE : CRR Architecture et CRR Ingénierie
- Présentation des calculs STD et FLJ à la MOA en APS et APD : aide à la décision
- Suivi, pilotage des performances et de la maintenance via GTB

## Building candidate in the category



Santé & Confort

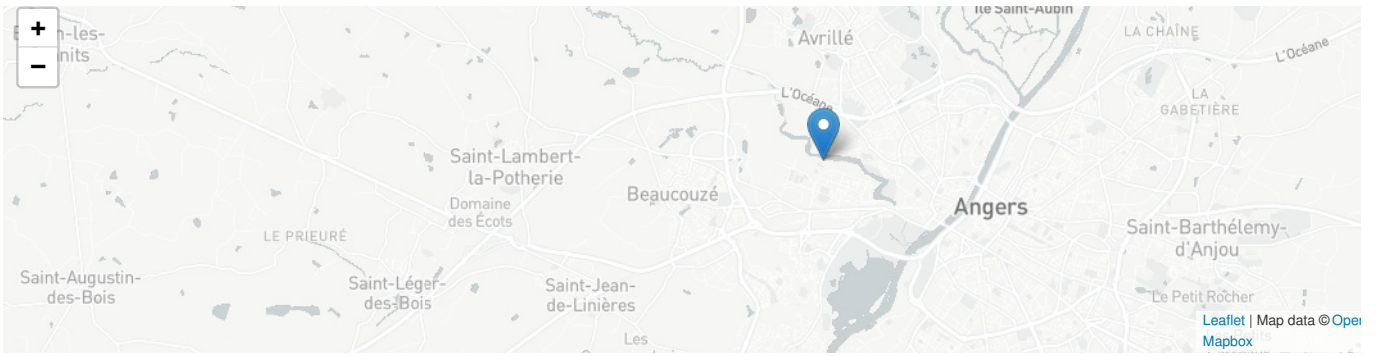


Prix du public



Prix des Etudiants





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