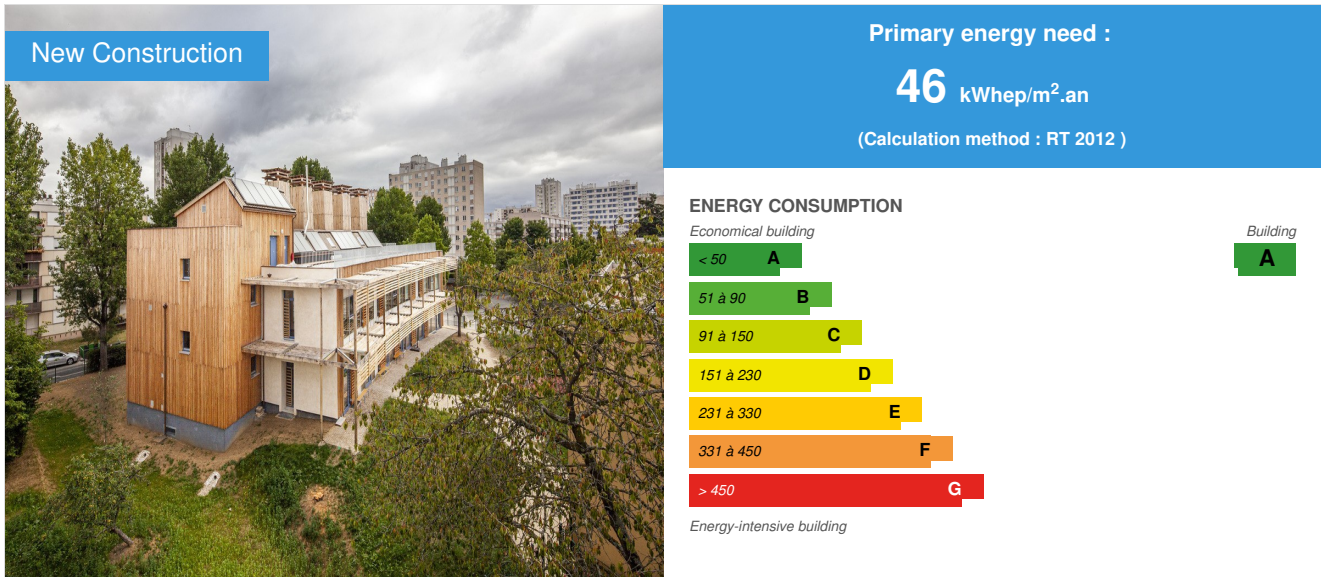


Jacques Chirac Leisure Center

by Charlotte Picard / 2021-03-25 22:15:41 / France / 7236 / FR



Building Type : School, college, university
Construction Year : 2019
Delivery year : 2020
Address 1 - street : 5-7 rue Jacques Offenbach 93110 ROSNY-SOUS-BOIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 1 126 m²
Construction/refurbishment cost : 3 700 000 €
Cost/m² : 3285.97 €/m²

Certifications :



General information

REGENERATIVE ARCHITECTURE THROUGH ECOSYSTEMIC DESIGN

In a context of widespread depletion of resources and species, the **Jacques Chirac leisure centre** represents for us a new step towards the **minimum objective of ecosystemic neutrality of the act of building** by aiming to enrich this ecosystem.

The project management department of the city of Rosny-sous-Bois, the research and territorial innovation department, has as its roadmap **the maintenance and improvement of the public good** in a context of climate disruption, leading to social disruption.

When designing and constructing new school buildings, we must ensure that they have the least possible impact on our environment, whether local or distant. In fact, certain construction techniques or materials that have too strong an environmental impact are discarded from our projects in favour of **bio-based materials** such as straw, wood, cotton, and **low-tech technologies**.

A JOINT REFLECTION

The Jacques Chirac leisure centre, which welcomes up to 180 children after school or during the school holidays, is located within the Bois-Perrier school complex. Its construction has made it possible to group the activities of the leisure centre in a single building, making it possible to reorganise the premises freed up as classrooms within the nursery and elementary schools.

The project's programme is the result of **exchanges between the future users and the design team**, all of whom are colleagues at the Town Hall. The technical choices are envisaged from the design stage to facilitate the operation of the building and the innovative technical choices are discussed upstream with the control office to eliminate any possible blockages.

STRENGTHENING THE LOCAL ECOSYSTEM, LESS WOOD, MORE STRAW

The use of **structural straw** makes it possible to limit the use of wood which, although a renewable resource, requires long-term management that respects biodiversity. The **local organic straw** comes partly from an agroforestry farm in the Eure-et-Loir, and the rest from the Yvelines. We are guided by the idea of a **forest rich in biodiversity** and home to forestry know-how that promotes **gentle forestry**. Thus, we seek to adapt our construction methods to the Ile-de-France forest, while limiting the use of wood that has undergone multiple energy-consuming transformations including petrochemical elements that are non-renewable and harmful to the environment.

The structure is made of **solid wood from the Ile-de-France region, without glue** (chestnut, poplar), in order to span the longest spans. This model makes it possible to use small-section wood and thus encourage the use of a variety of species, reflecting the rich diversity of the Ile-de-France forest.

Other uses of wood: exterior joinery, chestnut roofing, vertical cladding in larch and chestnut.

PROMOTING KNOW-HOW, LOCAL MATERIALS USED BY COMPANIES IN THE PARIS REGION

The Rialland Charpente company from the Val d'Oise carried out the wooden structure as well as the framework and the fixed sunbreakers on the façade. The social integration company Apibat in Saint-Denis helped us with this innovative **two-storey straw construction**.

HANDLING HEALTHY MATERIALS

Partitions, interior **woodwork, recycled cotton insulation, organic rapeseed oil paints**, repairable solid wood furniture: the construction and finishing materials chosen benefit both the workers on the site, who handle healthy materials, and the quality of the indoor air for the users.

WATER, AIR, ENERGY, BIODIVERSITY

With its **bioclimatic and passive design**, the building is the place where our research on **natural ventilation with heat recovery is applied**: the air intakes on the façade are directly connected to the plate heat exchangers. The draught is provided by the height of the wind towers and the winds.

To heat the building, an **inter-seasonal heating system** via a 55 m³ (second-hand) water storage tank providing 1/3 of the heating needs was studied, in cooperation with the National Institute of Solar Energy.

A **log burning stove** is installed on the ground floor to provide a cosy atmosphere and an additional and resilient heat source in case of power failure.

Two underground concrete tanks of 15m³ each allow the **storage of rainwater**. This water is potabilised before being distributed to the sprinklers used for summer water games.

Dry toilets for children and adults have been installed on the ground floor, allowing further savings in drinking water.

Finally, the roof terrace, which is inaccessible to the public, is planted and functions as a **biodiversity reserve**, while the children will be able to tend to their **vegetable garden in the open ground**, complete with **fruit trees**.

CITIZEN WORK CAMPS, INITIATING A CULTURAL CHANGE

Offering a leisure centre of this type and participatory workshops helps to raise awareness of environmental issues among Rosny's children and adults and to nurture their imagination.

50 people have been trained in raw earth and 3000 adobe bricks have been made during participatory workshops between 2018 and 2020 to build a small outdoor building whose traditional framework is made from trees felled for the site.

LIFE SKILLS AND ECO-CITIZENSHIP

The centre's activity leaders have also undergone pedagogical training to help them understand their new work space and enrich their educational project. With the participation of Living School, we are reexamining our pedagogy in order to be the driving force behind the architectural project.

SHARING, ENRICHING THE COMMON GOOD, CARING FOR THE ECOSYSTEM

The construction of this leisure centre is not an end in itself but a **step forward on the path**, a stage in our reflections and attempts to build an **architecture with a "light" footprint on its environment**.

Sharing our progress is essential to participate in the cultural change necessary to face the future. With the support of ADEME in the framework of the BATRESP call for projects, two research projects PPERP and VNRC are underway and will be published.

Restitution: giving back what we have taken from nature. To close the loop, our goal is to find a way to compensate for our constructions by replanting **working forest gardens**. To be continued!

[Architectural description](#)

Program : A 180 m² multipurpose room, 8 activity rooms from 30 to 90 m² including a manual activity room, a body expression room and an educational kitchen, reception hall, management office, animators' room .

[See more details about this project](#)

<https://regenerative-architecture.tumblr.com/>

Photo credit

Juan Sepulveda, Marie-Amélie Lombard, City of Rosny-sous-Bois, Joelle Mons

Stakeholders

Contractor

Name : Ville de Rosny-sous-Bois

Contact : Jean-Paul Fauconnet, maire

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

Construction Manager

Name : Ville de Rosny-sous-Bois, direction recherche et innovation

Contact : Charlotte Picard

<https://regenerative-architecture.tumblr.com/>

Stakeholders

Function : Thermal consultancy agency

Ville de Rosny-sous-Bois, direction recherche et innovation

Function : Other consultancy agency

Ville de Rosny-sous-Bois, direction recherche et innovation

Function : Assistance to the Contracting Authority

Living School

Caroline Sost

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

Skills and eco-citizenship training for center leaders

Function : Assistance to the Contracting Authority

Le centre de la terre

Denis Coquard

<http://www.villajanna.com/~Transmettre-.html>

Supervision of raw earth courses for the bike room

Function : Assistance to the Contracting Authority

Agence régionale de la biodiversité Ile-de-France

Marc Barra

<https://www.arb-idf.fr/>

Study of the biodiversity of the plot and recommendation to maintain or enrich it

Function : Assistance to the Contracting Authority

BatiDéHom

Christian Hamani

<https://cabinet-batidehom.twiza.org/>

Support on the design of the carrier straw prototype

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 46,00 kWh_{ep}/m².an

Primary energy need for standard building : 82,00 kWh_{ep}/m².an

Calculation method : RT 2012

Breakdown for energy consumption : Heating consumption 32.3 kWh EP / m² Air conditioning consumption 0 kWh EP / m² DHW consumption 0 kWh EP / m²
Lighting consumption 13.7 kWh EP / m²

Real final energy consumption

Final Energy : 39,00 kWh_{ef}/m².an

More information

As the building was commissioned in July 2020, we do not yet have a significant return on its consumption.

Renewables & systems

Systems

Heating system :

- Urban network
- Others
- Wood boiler
- Solar thermal

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar Thermal
- Wood boiler

Inter-seasonal storage thanks to a 55m² tank and 37m² of thermal solar panels

Environment

Urban environment

The recreation center is part of an existing school group comprising a nursery school, an elementary school, a refectory and a gymnasium. Urban context: district of high-rise buildings from the 1960s, near the RER E "Rosny Bois Perrier" stop.

Products

Product

Straw

Mathieu PENEL, 78120 SONCHAMP

info[a]foin.net

<https://foin.net/>

Product category : Structural work / Structure - Masonry - Facade

Organic straw bale, mattress type 50x80x120cm for the project, pressed at 120kg / m3 at least for structural use.



Costs

Construction and exploitation costs

Subsidies : 2 400 000 €

Health and comfort

Water management

Water Management :

Storage (30m³) and drinking water from rainwater

Dry toilets> no flushing

Infiltration on the plot by small infiltration basins

Retention by revegetation on the roof

Indoor Air quality

Use of solid wood to avoid glued laminated timber

Organic carrier straw

Earth-plaster and lime-sand plasters

Natural ventilation with heat recovery by thermal draft

Fan, night ventilation

Solid wood furniture

Comfort

Health & comfort :

Healthy materials, little or no transformation

Absence of VOC

Natural light in all spaces

Natural ventilation operable by users

Contest

Reasons for participating in the competition(s)

C'est un bâtiment bioclimatique et passif, isolation par 80cm de paille, triple vitrage façade Nord, utilisation maximum de matériaux biosourcés peu ou pas transformés (bois, paille bio issue de l'agroforesterie), géosourcés, origines locales des matériaux (bois, paille), matériaux recyclés (isolation à base de coton recyclé, de verre recyclé, ouate de cellulose), production solaire de chauffage, ventilation naturelle avec récupération de chaleur.

Par ailleurs, il y a excellente qualité de l'air intérieur grâce aux enduits intérieurs terre plâtre, paille bio, bois sans colle (utilisation de bois massif, pas de lamellé collé), ventilation naturelle avec récupération de chaleur, surventilation nocturne, mobilier pour partie en bois massif sans COV.

Building candidate in the category





Bas Carbone



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