Nursery school of Boutours

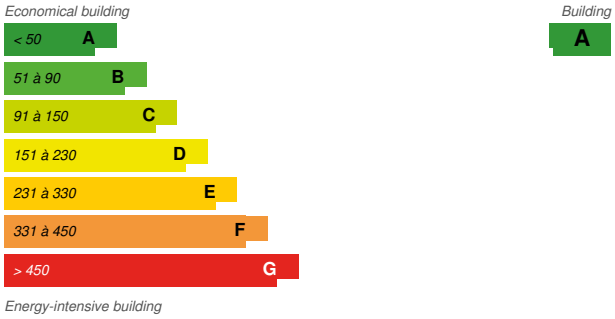
by emmanuel pezres / 2018-06-17 16:21:49 / France / 16609 / FR

Primary energy need :

15 kWhep/m^2.an

(Calculation method : RT 2012)

ENERGY CONSUMPTION



Building Type : Preschool, kindergarten, nursery
Construction Year : 2017
Delivery year : 2017
Address 1 - street : 93170 ROSNY-SOUS-BOIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 2 000 m^2
Construction/refurbishment cost : 5 800 000 €
Number of Children : 300 Children
Cost/m2 : 2900 €/m^2

Certifications :

General information

Kindergarten of 9 Classes made by recycling and extension of a market hall of the year 2000. The building is made of organic wood and straw (caissons, between-uprights and carrier) and earth-level passive and anticipating climate change. It is participative, citizen and educational:

- Through the mobilization of several classes of schoolchildren for the design and creation of mosaics on the theme of biodiversity.-by the participation of 90 citizens who made 4000 bricks of mud forming the building partitions.
- By the different formations (pro-straw, earth, airtightness ..) given on the occasion of the construction of the building.- by its social aspect by involving very widely, especially for the straw carrier a company of insertion.

The materials are almost all bio-based or geosourced (from the painting to the roof through the structure) with a particular attachment to the health of the most fragile users that are our children (0 VOC, Co2 sensors in each class ..) .The building is "very low carbon" by its materials and its heating mode (mass stove and wood boiler). It harbours biodiversity and urban agriculture. It boosts the local associative and economic fabric (the company the furthest was 90 km away)
Its ecological, architectural and civic quality has been widely recognized and awarded by various juries covering different aspects of construction:

- Wood construction price at the regional and national level - BDF Gold level with 93 out of 100 points - First element in the price of the best average city for Biodiversity.- Territoria d'or- Eco-action trophy ...

He is also recognized by various invitations to share his exemplary nature (Assises nationales de la construction bois, Forum international du bois, Printemps de l'éco-construction, Conférence Green building du moniteur....)

This building made it possible to win two calls for national research projects from ADEME, one on natural ventilation with heat recovery, the other on straw in public access buildings.

Sustainable development approach of the project owner

For more than 12 years, the City has been committed to sustainable construction, the most advanced action in its agenda. Faced with the challenges of climate change and the depletion of natural resources, the Municipality is defending a model of territorial development that reconciles economic growth. , environmental preservation and social equity, the three pillars of sustainable development. From the famous 1992 Earth Summit in Rio, it was recalled that local authorities, through the equipment they manage, their skills and their proximity to the citizens, had a decisive role to act concretely in favor of sustainable development. It is for all these reasons that, on October 7, 2010, the Rosny-sous-Bois City Council voted its first Local Agenda 21. Forty actions are included. They are the declension of 5 priotaires axes: to encourage the eco-citizenship, to reinforce the dialogue and the solidarities, to respect the environment, to develop the city sustainably and to be an eco-responsible administration. The concertation being a key factor for the success of this approach, a new body, the Local Council for Sustainable Development was set up in November 2012. Agenda 21 was revised in 2013/2014 and a second action plan, consisting of 42 actions, was voted by the Municipal Local Council on 23 September 2014. The result of the work of the Local Council for Sustainable Development, it always translates the same ambition: to promote the "better living together" in Rosny.

Architectural description

The school of the Boutours is part of a continuous process of construction by the City of Rosny-sous-Bois, its nine classes, its leisure center, all of its amenities (dormitory, kitchens, refectory ...) are born of an architectural process, where the arche (the first rule) is eco-systemic equilibrium and where the tecton (constructive capacity) is the citizen collective imagination.

The idea here is not only to be neutral or positive vis-à-vis the entire energy needed for the production and consumption of the building. It is not, only, if it were possible, the idea of fully integrating into a complete ecosystem cycle. The architecturerégénérative is, in order to advance in the path of this reintegration to the ecosystem, to be part of a fertile dynamic, a horizon, undessein enrich our world from human action. The architecturerégéraérative not only works matter, energy, their links but also all human phenomena.

On the occasion of the construction of the school of Boutours this objective we have obviously not reached. First of all, because regenerative architecture is not an end but a "becoming" that invites the journey. Secondly, in order to understand the problems and also the solutions, the important thing is to get on the road to this horizon. Finally, because if we are to recognize our present incapacity, the school is the place where the suite is elaborated. It is this sequence that we have tried to set in motion.

Innovate and experiment to go further in "sustainable development". Architecture, in its implementation, draws a consistent way of energy and matter in an eco-system already largely degraded. Our team, through its projects, is part of an attempt to equip the architecture with a capacity to destroy in no way the few resources that remain to share on earth, an attempt to make architecture a regenerative base of our ecosystem.

How:

as a continuation of the ongoing work on the other school projects of the City, carry out this project with strong regenerative objectives, in particular: a bioclimatic design tending towards the passive

the use of biobased materials

- wood, straw, earth, aiming to give this building a low carbon footprint

- the use of healthy local materials for our biotope and for the health of the children o the improvement of the controlled natural ventilation system, with heat recovery, which aims by the only shape of the building to reduce the share of technical elements that are not resilient, expensive and difficult to maintain

- the search for implementation of technologies of very low complexities

- the continuation of the participative approach in the construction process

- amplification of in situ training so that these new knowledge and know-how remain in the territory and form a first structure of territorial economy o reuse of "waste"

- the compensation of the energy consumed during the construction and use of the building

- the compensation of bio-based materials consumed.

Building users opinion

Happy to live in this building and patient in this year of perfect completion requiring some adjustments.

If you had to do it again?

We are currently working on a leisure center where innovative solutions implemented at this school are pushed a little further (better rates of performance of the exchangers and straw carrier in R + 1). And where architectural and technical design take root in our eco-system. For example, we adapt our framework techniques to the woods given by our invention of woody nourishing forest (framework of small section without glue, making work for what it has to give in

resistance each essence of wood present in this rich ecosystem)

See more details about this project

Stakeholders

Contractor

Name : ville de rosny-sous-bois
Contact : pezres@mairie-rosny-sous-bois.fr
http://www.rosny93.fr/

Construction Manager

Name : Ville de rosny sous bois
Contact : pezres@mairie-rosny-sous-bois.fr
http://www.rosny93.fr/

Stakeholders

Function : Company

APIJ bat coopérative

mathieudehaudt@apijbat.com

http://apijbat.com/
carrier straw

Function : Company

MEHA

contact@meha.fr

http://meha.fr/
Carpentry-straw-wood

Function : Company

Bouquet

contact@bouquet-treuil.fr

https://www.bouquet-treuil.fr/
piles screwed foundations

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 15,00 kWhep/m^2.an
Primary energy need for standard building : 70,00 kWhep/m^2.an
Calculation method : RT 2012
Initial consumption : 1,00 kWhep/m^2.an

Envelope performance

Indicator : n50

Renewables & systems

Systems

Heating system :

- Wood boiler

Hot water system :

- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic

Environment

Urban environment

The choice of the location of the school was guided by the immediate proximity of the station. The road has been converted into a bicycle zone.

Products

Product

Straw

paille service

paille service

https://www.paille-service.com/

Product category : Table 'c21_china.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 = '6'

High density straw bale

excellent

Costs

Health and comfort

Indoor Air quality

Indoor air quality is continuously monitored. The building benefits from the 0 COv policy put in place for 12 years by the municipality through research on building materials, household products and furniture. The school does not use any machine for the renewal of the air. which allows him a perfect resilience. This direct capture outside allows an educational question on the quality of the outside air, our polluting uses and ultimately our lifestyles.

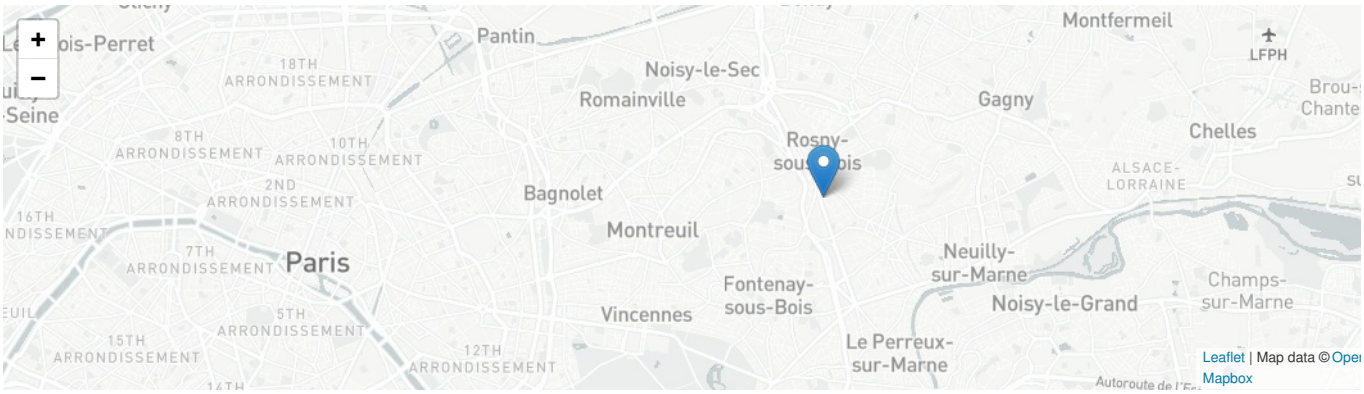
Reasons for participating in the competition(s)

1-As a world premiere on this scale, the building was an opportunity to invent a natural double flow ventilation with heat recovery. Inspired by its ancient concept while being avant-garde in the design of heat exchangers, this low tech and resilient solution naturally gives a unique character to the building. Each room is instrumented to know in real time the levels of Co, Co2 to act on the registers.

2-As a first too, at least at the French level in an ERP and therefore probably at the European level, the extension to the front of the building was made completely in straw carrier, thus saving wood and not impact the forest ecosystem.

3- The school is already at the moment of its design and construction a change of culture, by the participation of children and teachers in the design but also by an original approach to address the peaks of cold and hot present and to come up. Indeed after an over-insulation by the straw of envelope, a resilient low tech ventilation we tackle this problematic by a cultural displacement For example by the supply of sleeveless vests serving to heat the bodies rather than the spaces inspired by Japanese culture (made in French organic wool knitted in a intergenerational dynamic in an associative restaurant) for cold peaks. Or by setting up an "oasis course" where a rainwater collection tank allows low tech and educational water games.

4- In the context of the low carbon strategy, we compensate for the invention of a manageable forest, not in quantitative terms (Kg for Kg or M3 for M3) but in a qualitative aspect where we recreate a rich ecosystem. in which we draw food, the time that the trees become workable. All accompanied by a social and educational approach.



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