


Modular positive energy nursery

by Jean-François Daures / 2018-07-19 11:16:03 / France / 9181 / FR

New Construction



Primary energy need :

136

kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION

Consumption Range (kWh/m ² .an)	Label	Building Type
< 50	A	Economical building
51 à 90	B	
91 à 150	C	
151 à 230	D	
231 à 330	E	Energy-intensive building
331 à 450	F	
> 450	G	

Building **D**

Building Type : Preschool, kindergarten, nursery
Construction Year : 2014
Delivery year : 2014
Address 1 - street : Rue du Cannel 34400 SAINT SÉRIÉS, France
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 149 m²
Construction/refurbishment cost : 420 000 €
Number of Children : 9 Children
Cost/m² : 2818.79 €/m²

Certifications :



General information

Located on the outskirts of the village in an old vineyard, without any natural shade, this eco nursery is designed to welcome children even under the heat of the summer.

The idea was to create a large photovoltaic cold roof forming a large courtyard of 358m² overlooking the buildings and its surroundings and the courtyard in the center. Curtains dressed with vines playing the role of vertical sunscreens of 6m high come close the faces of this canopy reserved for the smallest, and protected from solar radiation as well as bad weather.

Below, a set of "boxes" in local wood is the program that includes in addition to the 12 beds, a Maternal Assistant. It is planned to be able to create extensions by adding new "boxes" to increase the capacity to 20 beds.

This equipment is self-financing over a period of 15 years thanks to the revenues generated by the photovoltaic roof.

Sustainable development approach of the project owner

The town hall of Saint Sériés wanted to be equipped with an eco-nursery building.

The architect proposed a construction including a production of renewable energy in adequacy with the SCOT. The architect also proposed a equipment built in local wood to be flexible and adapt to the increasing number of children from 11 to 20. The architect has proposed to vegetalize with the vine, the most common plant in the town bio-climatic facades of this equipment that have variable transparency summer / winter.

Architectural description

The goal was to create a large courtyard of 358M2 to house a modular equipment and pavillonnaire dedicated to a nursery and a relay of maternal assistant. Located on the edge of the stadium, in an old vineyard and under the crushing Mediterranean sun this roof takes advantage of the sun while protecting the children and their crib from the direct solar radiation. Vertically curtained facades of vine all height make disappear the building in the landscape and ensure the summer cooling of the outer walls. this crib of 11 beds can easily go to 20 beds as needed by the addition of a "box" in additional wood under the yard.

If you had to do it again?

The difficult management of the PMI doctors who intervene on the project including in the construction phase because of their misunderstanding of the graphic and written documents produced as early as the sketch phase of the DCE.

See more details about this project

<https://www.archivision.fr/architecture>

HÉRAULT
Deux éco-citoyens bientôt en chantier

Stakeholders

Contractor

Name : Mairie de Saint Sériés

Contact : Madame Arlette Larman

<http://www.saint-series.com/education/>

Construction Manager

Name : Jean François Daures / VISION@

Contact : Jean François Daures

www.archivision.fr

Stakeholders

Function : Thermal consultancy agency

Greenbuilding

net-greenbuilding.com

RT 2005 study, BBC study, Photovoltaic efficiency study

Function : Structures calculist

Alteabois

Gilles Amblard

www.altéabois.com

Wood structure study

Contracting method

Separate batches

Type of market

Table 'c21_maroc.rex_market_type' doesn't exist

Energy consumption

Primary energy need : 136,00 kWh_{ep}/m².an

Primary energy need for standard building : 298,00 kWh_{ep}/m².an

Calculation method :

CEEB : 0.0004

Breakdown for energy consumption : Heating: 48.4

Sanitary hot water: 37.8

Lighting: 11.2

Heating auxiliaries: 4.9

Auxiliaries of ventilation: 34

Real final energy consumption

Final Energy : 136,00 kWh_{ef}/m².an

Real final energy consumption/m² : 30,00 kWh_{ef}/m².an

Real final energy consumption/functional unit : 31,00 kWh_{ef}/m².an

Year of the real energy consumption : 2 014

Envelope performance

Envelope U-Value : 0,33 W.m⁻².K⁻¹

More information :

Wood frame walls, isolated by cellulose wadding, heavy wooden cladding 2cm.

Air Tightness Value : 1,00

Users' control system opinion :

Automated management of solar panels

LED lighting, presence detectors. Security alarm

More information

Gain compared to the reference RT 2005: 53,4%

Renewables & systems

Systems

Heating system :

- Heat pump
- Fan coil

Hot water system :

- Individual electric boiler

Cooling system :

- Others

Ventilation system :

- humidity sensitive Air Handling Unit (hygro A)

Renewable systems :

- Solar photovoltaic

Photovoltaic roof of 358m²

Power 40.000 wc

46000 KW / H / AN

Smart Building

BMS :

Centralized and automatic management of solar panels.

Environment

Urban environment

Land plot area : 839,00 m²

Built-up area : 362,00 %

Green space : 477,00

The nursery is located on the edge of the village in a suburban fabric of subdivisions as we see everywhere in France.

The field on the edge of the sports field is an old vine court without any trees, no shade, to propose to make the young children stay implies a reflection on the Mediterranean climate.

Products

Product

Bosch Solarworld®

Bosch

Bosch France

http://www.bosch-solarenergy.com/en/bosch_se_serviceorganisation/landing_page_2/landing_page_3.html

Product category :

190 Solarworld Solar panels Power of 4000 wc

Guarantee of perfect operation over 30 years contract ERDF over 20 years Autofinancing over 15 years.



Costs

Construction and exploitation costs

Renewable energy systems cost : 203 600,00 €

Cost of studies : 45 550 €

Total cost of the building : 464 585 €

Subsidies : 219 423 €

Health and comfort

Indoor Air quality

Ventilation type Hygro A

Carbon

GHG emissions

GHG in use : 5,00 KgCO₂/m²/an

Methodology used :

Green building study

Life Cycle Analysis

Eco-design material :

Cellulose wadding insulation

Local wood cladding (douglas pine) Acoustic marmoleum flooring Wooden joineries Concrete imprint limited to studs.

Contest

Reasons for participating in the competition(s)

Positive energy public equipment that is self-financing over a period of 15 years

A photovoltaic over roof that protects buildings and its surroundings from solar radiation and bad weather. Vegetated facades of vines to create vertical sunshades and lower the outside temperature of the walls by 15 ° C. A scalable local wood building.

Building candidate in the category



Energie & Climats Tempérés



Prix du public



Prix des Etudiants

