Citizen Eco-Project

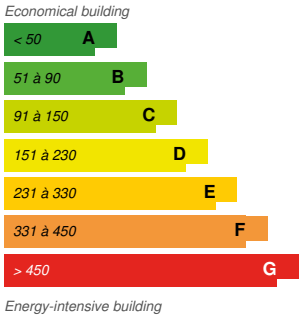
by Nicolas Guignard / 2014-10-20 15:49:03 / France / 16276 / FR

Primary energy need :

95 kWhep/m².an

(Calculation method : RT 2005)

ENERGY CONSUMPTION



Building Type : Preschool, kindergarten, nursery
Construction Year : 2012
Delivery year : 2013
Address 1 - street : 04860 PIERREVERT, France
Climate zone :

Net Floor Area : 1 190 m² SHON
Construction/refurbishment cost : 4 165 000 €
Cost/m2 : 3500 €/m²

Certifications :

General information

The eco-citizen project cuts across different services areas to population:

- Catering (early childhood, school and elderly)
- Childcare facilities to childhood and early childhood (nursery and leisure centre for after-school activities)
- and practice of cultural activities and sports by the construction of a multi-activity building for local associations and schools.

This project takes place in a **bioclimatic building** connecting outdoor spaces with a quality educational garden and many public spaces.

Special care is given to the integration into the site, by the choice of materials as well as proportions of its different components, without neglecting the aesthetic transition with surrounding elements, especially the ancient village.

Sustainable development approach of the project owner

The eco-citizen project Pierrevert is a multi-use public building, in time as in functions. The client wanted a new kitchen suitable for the preparation of fresh local

products coming from organic agriculture. In addition, a new nursery was built close to the city center and the school.

Architectural description

The project has integrated an environmental approach to control the project management from the conceptual design phase. It was inspired by the "Environmental Quality of Buildings", a regional (PACA) charter, known as CodeBaQuE. The architects agency has responded to the program, while integrating the constraints and challenges of the site. The bioclimatic architecture, renewable energies and a strong presence of vegetation largely contribute to the definition of a Mediterranean and sustainable construction.

Building users opinion

Excerpts words:
-"I have never been that hurry to come back from vacation! kindergarten director, Emmanuelle Hollender in Marseillaise
-" We are close to paradise! " At the opening ceremony, Ms. Dominique Bertinotti, Family Minister
-"The cafeteria is great! There is color everywhere, blue, purple, yellow ... so I find it really beautiful!" Gaston 4 years

See more details about this project

http://www.enviroboite.net/scolaire-projet-eco-citoyen-pierrevert-04

Stakeholders

Stakeholders

Function : Contractor

Commune de Pierrevert

info@mairie-pierrevert.fr

http://www.mairie-pierrevert.fr/

Function : Other consultancy agency

DOMENE

Charles Delaunay / 04 90 55 92 89 / c.delaunay[a]domenescop.fr

BET QEB

Function : Designer

R+4 ARCHITECTES

04 92 75 70 70 / architectes@rplus4.com

http://www.rplus4architectes.fr/

Function : Thermal consultancy agency

ADRET

04 92 43 10 29

http://www.adret.net/

Function : Structures calculist

Renault & Brot

04 92 72 18 72 / renault.brot[a]wanadoo.fr

http://www.renault-brot.fr/

BET concrete

Function : Structures calculist

E. Tech. Bois

04 92 62 05 52 / etechbois[a]polebois04.com

Wood BET

Function : Environmental consultancy

Sarl NOEL Daniel

04 92 51 39 84

Economist

Energy

Energy consumption

Primary energy need : 95,00 kWhep/m^2.an

Primary energy need for standard building : 190,00 kWhep/m^2.an

Calculation method : RT 2005

Breakdown for energy consumption : Restaurant / building actvities, CEP: 95 kWh / m².year Heating: 15 kWh / m².year Hot water: 57 kWh / m².year lighting: 20 kWh / m².year Auxilliaire: 3 kWh / m².year Crèche: CEP 74.42 kWh / m².year heating: 21 kWh / m².year Hot water: 24 kWh / m².year lighting: 26 kWh / m².year Auxiliary: 4 kWh / m².year

Envelope performance

Envelope U-Value : 0,39 $W.m^{-2}.K^{-1}$

More information :

- Walls multi-activity room: Concrete (200 mm) + black glass wool Isofaçade 32R (145mm) + mineral type panel Eternit - Walls + Restore Crèche: Plates fermacell + wood frame + tissue paper (140 mm) + wool wood (80 mm) + mineral type Eternit panel

Indicator : I4

Air Tightness Value : 0,87

More information

The figures given above are those of the school cafeteria and multi-activity room. The nursery has in turn a CEP of 74.42 kWh / m².year and U bat of 0.28 W / (m².K)

Renewables & systems

Systems

Heating system :

- Boiler fuel
- Low temperature floor heating
- Wood boiler

Hot water system :

- Solar Thermal
- Wood boiler

Cooling system :

- Others
- Tape

Ventilation system :

- Nocturnal Over ventilation
- Free-cooling
- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Solar Thermal
- Wood boiler

- Photovoltaic Production: 108,000 kWh or 270 640 kWhEp elec
- Solar collectors production: 9 000kWh / year or 50% of total energy demand for hot water production.
- A photovoltaic modules surface of 643 m², generating about 87 kWp eligible power, southern orientation and a gradient of less than 12%.
- Solar thermal system (14 m² of tubular panels)

Environment

Urban environment

Green space : 6 000,00

The building surrounds the town center, next to the existing school group. The land has a steep slope greater than 11% northeast oriented. It was already occupied by a two-way service road and a parking area for about 40 cars. The newly created buildings are located in the high part of the land which required significant infilling works.

Products

Product

YGE 60 cell 40 mm SERIES

YINGLI SOLAR

04 78 79 87 10

http://www.yinglisolar.com

Product category : Second œuvre / Equipements électriques (courants forts/faibles)

polycrystalline solar cells high efficiency combined with high transmission textured glass Comments: production on a surface of 600 m²: 108 000 or 270 640 KWh elec kWhep

The modules are perfectly integrated into the roof and fit into the contemporary architecture of the project while remaining discreet with the landscape and patrimony. These panels ensure the tightness of the buildings and contribute to the educational purpose of this eco-citizen space.

Costs

Construction and exploitation costs

Renewable energy systems cost : 211 418,00 €

Total cost of the building : 4 165 000 €

Subsidies : 2 858 063 €

Health and comfort

Comfort

Health & comfort : The use of bio-based materials to create a very healthy environment for children with low emissive materials. The design of the building has created an outwardly strong link with constant views of the landscape and child-friendly, but also accessible gardens and terraces where children can eat. It thus captures both the views and natural light thanks to generous glazing as well as sunscreens systems that help maintain a qualitative summer comfort. In a building with high performance envelope , natural ventilation or double flow systems and air blowers optimize quality and renewal of healthy air.

Carbon

Life Cycle Analysis

Eco-design material : - Mixed Concrete Frame / Wood - Wood Joinery - Painting bio - ground natural rubber - Wood decking - wood wool insulation - green roof - local wood heating

Contest

Reasons for participating in the competition(s)

By participating in the program "**Acting for energy**" of the PACA region, the project aims to develop comfort to users while providing the more sustainable

possible architecture. Thus, the sustainable approach has gone through a design consultation with residents and users, the use of renewable energies and bio-based materials, with particular attention given to outdoor spaces up organic meals served in the school cafeteria developed thanks to the production of local farmers.It is therefore a global thinking which helped to build a positive energy building respectful of its environment, but above all of its users: an eco- citizen project. The project got the Gold level of "***Mediterranean sustainable buildings approach***" (BDM).

Building candidate in the category

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Energies renouvelables

Bâtiment zéro énergie

Santé et confort

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