Leisure & Education pole: Bouc Bel Air

by William Martin / 2016-06-15 15:39:04 / France / 10517 / FR

Primary energy need :

67.6 kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION

Economical building — *Building*

< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Energy-intensive building

Building Type : Preschool, kindergarten, nursery
Construction Year : 2015
Delivery year : 2015
Address 1 - street : Rue Jacques-Yves Cousteau 13320 BOUC-BEL-AIR, France
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 2 815 m²
Construction/refurbishment cost : 5 620 818 €
Number of Children : 500 Children
Cost/m2 : 1996.74 €/m²

Certifications :

bdm BRONZE

General information

Construction of a facility to gather on the same site:

- Primary school
- Elementary classes.
- A youth center consisting of a recreational home without accommodation
- A youth shelter.

The site is on the edge of a natural space which is intended to remain with an unobstructed view of the plain. The land has an elevation across approximately 10 m.

Down the field, one level gives access at the school and to the restoration and its two separate courts.

At the top level, is the leisure center, it is accessible from the top of the site; in the hill the youth shelter.

Each program entity can operate independently. At the top, the views are unobstructed, access and outdoor spaces allow fluid circulation, suitable for children, families (strollers) and PMR.
The project is in close to the topography of the site. The buildings are implanted on the existing platform with courts and playground. The entire roofing is treated at 70% in revegetation.

Regarding the environmental approach, the architectural approach integrates bioclimatic scale efficiently and simply.

A performance envelope ensures by means of bio-based insulation and load-bearing structures and not wooden carrier, insulation and an effective phase shift as the winter comfort appearance and reducing losses on the aspect comfort summer .

Control of solar gains and ensured by appropriate orientation of premises according to the uses spread over the year and still effective sun protection for the most part for creating comfortable and protected outdoor areas.

Additionally the spatial organization of spaces, creating patio, ensures for almost all local a cross which allows firstly a generous and comfortable natural lighting, and the other a passive quality regulation air and thermal comfort conditions by using the torque natural ventilation through-majority, and the inertia of the concrete that is found in the supporting inner structure (seismic risk) and soil.

Mechanical systems, in line with the regulations are implemented for and optimize the building's passive behavior.

Sustainable development approach of the project owner

Establishment on the edge of a natural space and unobstructed view of the plain.
complex topography with an elevation of more than 10m between the bottom and top access.
Registration in the slope and clarification by the programmatic functions.
Sharing spaces between school groups and leisure center.
Easy access and trails.
Geographical proximity and clear links
Search for environmental quality, innovation and energy saving, integrated design, construction, maintenance.

Architectural description

The site is on the edge of a natural space which is intended to remain so, with a view on the plain. The land at an elevation across approximately 10 m. The play of volumes of nesting allows insertion of the building into the natural slope of the terrain. The selected party is simple: At the bottom of the field, one level gives access at the school and to the restoration and its two separate courts. At the top level, is the leisure center, it is accessible from the top of the site; in the hill the youth shelter. Each program entity can operate independently. At the top, the views are clear, accessible and outdoor spaces allow fluid circulation, suitable for children, families (strollers) and PMR.

Stakeholders

Stakeholders

Function : Contractor

Commune de Bouc-Bel-Air

http://www.boucbelair.fr/

Function : Designer

Adrien Champsaur Architecture

http://adrienchampsaur.com
Agent Architect

Function : Designer

Synthèse Architecture

http://www.synthese.archi
Associate Architect

Function : Assistance to the Contracting Authority

IQE CONCEPT

W.Martin, willmart.iqe@gmail.com

Environmental quality of building

Function : Thermal consultancy agency

Garcia Ingénierie

http://www.g2i.fr/
Environmental quality of building

Energy

Energy consumption

Primary energy need : 67,60 kWhep/m^2.an

Primary energy need for standard building : 80,00 kWhep/m^2.an

Calculation method :

Breakdown for energy consumption : - Heating: 8.8 kWh / m².year
- Ventilation: 23.8 kWh / m².year
- Lighting: 21.2 kWh / m².year
- Hot Water: 10.9 kWh / m².year
- Auxiliary: 2.9 kWh / m².year

Envelope performance

Envelope U-Value : 0,45 $W.m^{-2}.K^{-1}$

More information :
Joinery aluminum coated with break thermal bridge of medium color. Uf <2.5 W / m²K
Double glazed low emissivity argon blade. Ug = 1.1 W / m²K

Renewables & systems

Systems

Heating system :
- Gas boiler
- Individual gas boiler
- Low temperature floor heating
- Others

Hot water system :
- Individual electric boiler
- Solar Thermal

Cooling system :
- No cooling system

Ventilation system :
- Natural ventilation
- Double flow heat exchanger

Renewable systems :
- Solar Thermal

Other information on HVAC :
Heating:
2 x cascade gas boilers - 2x 129 kilowatts - 97% to 108.
1% low temperature heat emission by Radiator with thermostatic valve certified CA 0.50
Heated floor (mother, versatile home, maternal administration)
Heating coil Central Air treatment (restaurant and multipurpose youth hall)
Guardian home: individual gas boiler condensation and radiators with thermostatic valves = 0.41

Ventilation :
Comfort ventilation with central air processing engines on detachable pressure sensor, motorized dampers on rebate or building management contact to enhance natural ventilation by opening (automated or manual) windows intrusive anti-rotating blades.
Power consumption engines: single flow VMC: 0.25 W / m3.h turbofan <0.35 W / m3.h

Environment

Urban environment

To the east the JY Cousteau street connects the residential area at the sports complex, where road is the main access below (2m) of the platform of the school group.
The path link between the residential area and the college, staff access to the equipment and college students in youth center located in the wooded area in against the top of the set (11m).

Products

Product

automated natural ventilation

windowmaster

info.dk@windowmaster.com

http://www.windowmaster.fr/

Product category : Génie climatique, électricité / Ventilation, rafraîchissement

automated natural ventilation by motorized opening (pilot and controller: WINDOW MASTER Denmark) in addition to a double flow probe on air quality and thermal. When the outside temperature allows, the controller opens the windows dedicated to the VN, and blowing and CTA components of recovery are closed reducing ATK operation to 10% .A button for manual control allows the user to take control of the event of default automate.En every local has opened 100% manual

Engine power control difficulties particularly cylinder (where the leaf opening) different from the much more suitable channels including engines for anti-finger gripper devices.

Costs

Construction and exploitation costs

Total cost of the building : 6 075 321 €

Health and comfort

Water management

Consumption from water network : 1 495,00 m^3

Water Consumption/m2 : 0.53
Water Consumption/Children : 2.99
water-saving equipment: flush with flow limiter (presto urinal valves and maternal toilet, reduced volume 3/6 liters normal toilet, presto timed to limited flow 3 l / min ...

Indoor Air quality

Low emissivity materials VOC concrete, untreated wood or glue certified EMICODE E1, facing plaster or cement slab, tile, glass and aluminum, PVC certified Greengard, European ecolabel paint.Mechanical ventilation equipment (CTA) with G4 air intake filters and F7.Sanitary flow insured and guaranteed by the controlled mechanical ventilation on occupation.Valuation of natural ventilation: triple ventilation flow "manual or automated: dual flow and single flow mechanical ventilations opening or closing an opening in manual, manual or automated natural ventilation.Servo motorized dampers of mechanical ventilation at the opening of the doors on the front.Minimum flows by thermal draft (Allard method) for DT 1 ° C: 3-5 vol / h.

Natural ventilation as possible in case of vacancy day or night: non-intrusive system set up opening blades or horizontal railing.

Comfort

Health & comfort : Thermal comfort: fixed solar protection: Roof overhang or caps (south), vertical fishnet strips of wood.Visual comfort: transversal and second days

Contest

Reasons for participating in the competition(s)

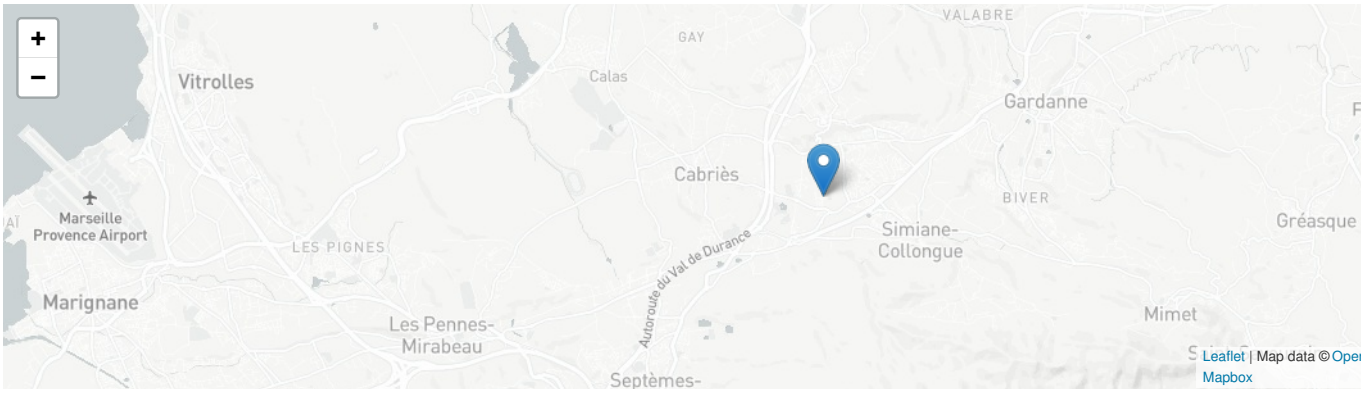
The building is constructed according to BDM silver approach: "Mediterranean Sustainable Building", ensuring a project and a rational realization, adapting to the environment and respecting environmental concerns.
Elements emphasized:

- Energy performance of the building envelope.
- Inserting the slope allowing differentiated access, independent programmatic entities, and frees views.

Building candidate in the category

Energie & Climats Tempérés

Coup de Coeur des Internautes



Date Export : 20230521231957