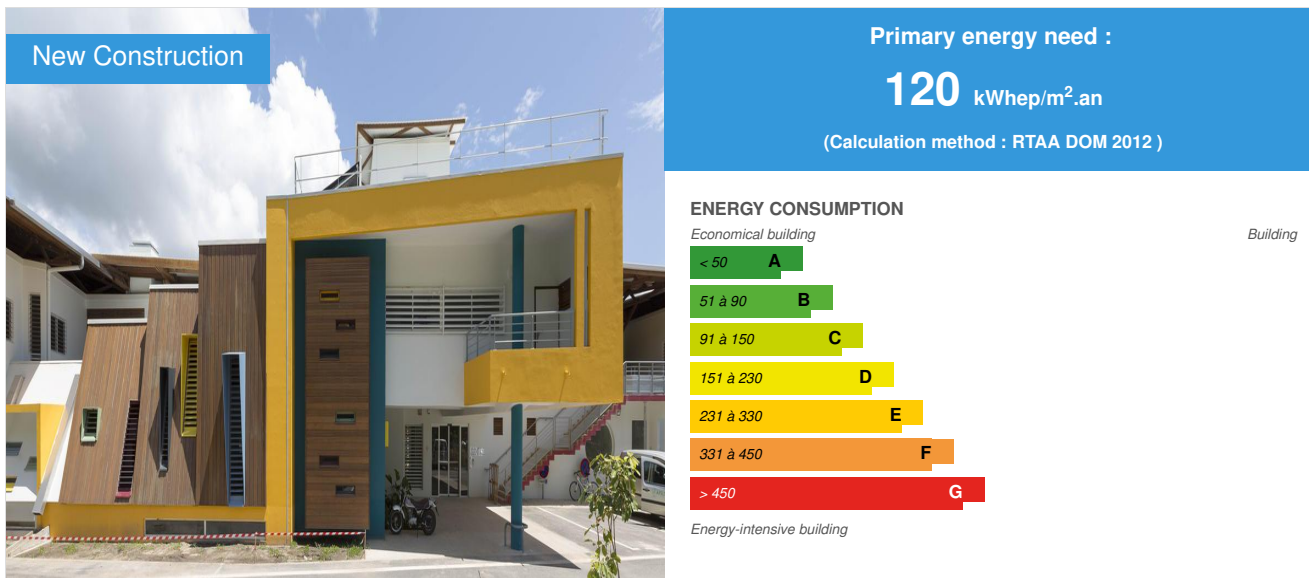


IME Yépi Kaz

by Frédéric PUJOL / 2016-06-08 12:38:46 / France / 15631 / FR



Building Type : Nursing home or Retirement home
Construction Year : 2015
Delivery year : 2015
Address 1 - street : Remire Montjoly 97354 GUYANE FRANÇAISE, France
Climate zone : [Af] Tropical Wet. No dry season.

Net Floor Area : 4 950 m² SHON
Construction/refurbishment cost : 12 700 000 €
Cost/m2 : 2565.66 €/m²

General information

The IME Yépi Kaz project aimed to respond to the crucial lack of this type of equipment in the Antilles-Guyana area and to allow children to stay in Guyana with their families.

The association wanted a very functional building, but also territorially rooted.

The project design was done with a bioclimatic approach and energy efficiency based on the Amazonian Environmental Quality approach(QEA).

In agreement with users, conditioned spaces have been limited to the maximum and Guyanese climate elements were utilized to create different atmospheres offer to stimulate sensory children.

The architecture of the project significantly recourse to local material with low embodied energy expressed by its rich and dynamic volumes as well as through its atmosphere the role of the establishment: the awakening and stimulation.

Sustainable development approach of the project owner

To be consistent with the development plan which aimed to keep children in Guyana, the client wanted a building that fully inscribed in an Amazonian Environmental Quality approach is a rational adaptation of the approach HQE in Guyana.

Architectural description

The project is divided into two distinct parts: the main building which hosts business premises, accommodation units and administration in front of the site, and

living units in ground floor, in the back of the ground.

The implementation on the site meets the will to treat the majority of local operating bioclimatic with a natural ventilation strategy and sun protection strategy. The main building is therefore developing its facade facing east to catch the wind while having adapted sunscreens. It expresses its dynamism, its colors, and its developed forms the purpose of the institution which aims to promote the development of children greeted by various sensory stimuli.

The facades of the administration upstairs are oriented north and south to minimize solar gain.

The main building develops front length of land and hosts on the ground floor lobby, business premises (physical therapy rooms, occupational therapy, etc.), medical and social services and local staff . The lobby, the center distributes all these spaces and provides access to the living units at the rear of the site, in a sensory garden.

The floor houses the administration in the central part, and the accommodation units of both sides, organized in staggered so as to have for each room with two windows on different fronts, one to wind, to ensure good cross natural ventilation, even with the door closed for reasons of fire regulations (type J 4th category with sleeping areas).

The entire site is landscaped and peaceful acoustically. The living units are part of plant boxes that connect sensory walk alternating flooring, plant species, arbors, etc ...

In the equatorial climate Guiana to the weak trade winds, bioclimatic approach begins with optimum sun protection all local, continues with a envelope design promoting cross ventilation for the discharge of internal loads and s 'ends with the use of efficient equipment to ensure comfort.

The prevailing winds are East-North East, average speed between 1.5 and 3 m / s. Components or parts of the main building naturally ventilated are oriented along the axis of the prevailing winds, the living units at the rear have four ventilated facades with an average porosity of about 30%.

The arrangement of the rooms allows staggered to have two windows consist of mobile blinds on two separate fronts.

The business premises on the ground floor are broken by large sets of glazed facade blinds and circulations for a minimum porosity of 60%.

Circulations are naturally ventilated by complex wooden blinds fixed.

All air-conditioned spaces or natural ventilation are equipped with ceiling fans ceiling performance (Hunter brand) to compensate for the lack of wind on some days and create comfort through evapotranspiration.

The building was designed to stimulate by its architecture and ambience foster children. Thus, architecture deploys dynamic and varied volumes never repetitive. Natural light, sensed in various ways diffuses to the spaces of alternating illuminated areas more or less, decorated with color sets as units. A particular work was conducted on the diversity of ceilings, volume material and color to avoid monotony for children spending much of the day lengthened.

The diversity of materials involved in the diversity of environments, visually as sensory. Changes coverings (wood, soft ground, brushed concrete, ribbed, etc.) at the traffic part of this diversity by offering a varied experience when traveling in a wheelchair.

The high porosity of facades allows air circulation in all the EMI spaces; the internal organization of the parts and the presence of large internal jealousies follow the recommendations of the ventilation study by Meteodyn.

The living entities treated as independent pavilions allow to limit noise nuisance from the premises.

The landscaped treating the entire site reinforces all these architectural arrangements by bringing fresh, smells and even sounds depending on the species chosen.

The building is mainly treated natural ventilation and surrounded by planted areas, the quality of the indoor air is guaranteed. Conditioned spaces have air new treaty.

All premises are accessible course, without artifice, whatever the handicap ergonomics of space, light contrasts, directional guides, specific operating members (handle "ULNA"), etc ...

The building works almost permanently autonomy in natural light, contributing to a better overall comfort and having a beneficial effect on the health of occupants.

See more details about this project

http://www.acapa-architecture.com/projets_hosp_ime.html

<http://www.apajhguyane.org/etablisements-services/polyhandicap/ime>

<http://www.apajh.org/index.php/apajh-en-regions/1333-christiane-taubira-visite-lime-apajh-yepi-kaz-en-guyane->

Stakeholders

Stakeholders

Function : Contractor

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Function : Thermal consultancy agency

ALTER

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Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 120,00 kWh_{ep}/m².an

Primary energy need for standard building : 250,00 kWh_{ep}/m².an

Calculation method : RTAA DOM 2012

Breakdown for energy consumption : air conditioning = 37% / extra solar hot water = 7% / ventilation = 2% / interior light = 17% / exterior lighting = 3% / ceiling fan = 3% / meal preparation = 16% / IT = 6% / various = 9%

Real final energy consumption

Final Energy : 46,00 kWh_{ef}/m².an

Real final energy consumption/m² : 90,00 kWh_{ef}/m².an

Real final energy consumption/functional unit : 2,25 kWh_{ef}/m².an

Year of the real energy consumption : 2 015

Envelope performance

Envelope U-Value : 0,60 W.m⁻².K⁻¹

More information :

Ubat criterion unrepresentative because the building designed mainly in natural ventilation humid tropics.

A more significant criterion is the solar factor, which here for the roof is 1%.

Renewables & systems

Systems

Heating system :

- No heating system

Hot water system :

- Individual electric boiler
- Solar Thermal

Cooling system :

- Roof-top
- VRV Syst. (Variable refrigerant Volume)

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar Thermal

Renewable energy production : 13,00 %

63 MWh/an

Other information on HVAC :

efficient ceiling fans in all rooms.

Environment

Urban environment

Land plot area : 10 000,00 m²

Built-up area : 33,00 %

Green space : 6 783,00

The building is located in the heart of town, close to amenities such as town hall, school and college. A line of transit passes access to the site. Landscaped grounds provided in the amenities of the city frontage.

Products

Product

Mud Brick

B2TG

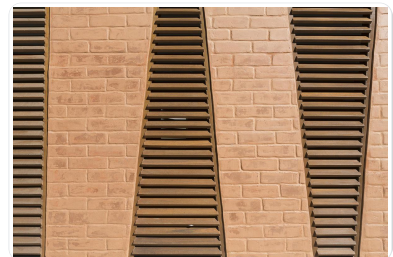
b2tg973@gmail.com

<http://www.labriquedeguyane.com/>

Product category : Gros œuvre / Structure, maçonnerie, façade

Mud bricks stabilized and locally produced, very low gray energy material.

This product, posed for the first time in Guyana, was very well accepted, first by its aesthetic side and on the other side by its local production. The association was very attached to the project to be in line with the purpose of the building, that allow children to remain in Guyana, close to their families.



Guyane Wood

CBCI

cbci@cbci.fr

<http://www.guyane-bois.net>

Product category : Gros œuvre / Charpente, couverture, étanchéité

Realization of all structures, of collaborating wood -concrete floors and part of Guyana wooden facades. Guyana is PEFC certified wood and many species are naturally durable , including " Angelica " used on this project.



The Guyana wood is high quality material, produced locally. Its extensive use has been popular for the same reasons as the mud brick.

Costs

Construction and exploitation costs

Reference global cost : 2 200,00 €

Renewable energy systems cost : 132 220,00 €

Reference global cost/Bed : 2200

Cost of studies : 967 845 €

Total cost of the building : 13 500 000 €

Subsidies : 96 000 €

Energy bill

Forecasted energy bill/year : 31 000,00 €

Real energy cost/m² : 6.26
Real energy cost/Bed : 775

Carbon

GHG emissions

GHG in use : 67,50 KgCO₂/m²/an

Life Cycle Analysis

Eco-design material : Local wood certified PEFC, stabilized mud brick

Contest

Reasons for participating in the competition(s)

This projet runs in the energy and hot climates class to demonstrate a bioclimatic approach adapted to the humid tropics that can satisfy comfortable conditions with a very low energy consumption. Also to showcase sustainable local materials such as certified wood or raw land .



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