

## Païamboué Middle School

by Adrien BOUJU / ⌚ 2016-07-01 02:13:15 / Francia / 👁 15649 / 🇫🇷 FR



New Construction

Primary energy need :

**30** kWhep/m<sup>2</sup>.an

(Calculation method : Other )

### 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** : School, college, university

**Construction Year** : 2015

**Delivery year** : 2016

**Address 1 - street** : Koné, Province Nord 98860 NOUVELLE-CALÉDONIE, France

**Climate zone** : [Aw] Tropical Wet & Dry with dry winter.

**Net Floor Area** : 3 470 m<sup>2</sup>

**Construction/refurbishment cost** : 15 500 000 €

**Cost/m2** : 4466.86 €/m<sup>2</sup>

## General information

In service since February 2016, the Païamboué middle school is located in the municipality of Kone, in the Northern Province of New Caledonia. Sized to accommodate 400 students (with a land reserve allowing quick expansion to 600 students), it consists of six buildings in educational and administrative functions, as well as a sports field. This project particularly innovative in the territory, has been the subject of a local label approach QEC (for Caledonian Environmental Quality) notably driven by ADEME and the Government of New Caledonia.

Therefore, it was built from the design of the project, strong sustainability criteria, which focus on two areas: the use of materials locally to innovative and sustainable features, and adaptation to topographical, hydraulic and pneumatic land concerned. The first axis is reflected in the use of techniques such as rammed earth concrete (subject to Atex type b with CSTB) and the timber frame, using raw materials harvested locally. The objective is to obtain a low carbon footprint and thermal quality for use while minimizing air intakes.

The second organizing implantation from buildings and side of a trough, at high points, land characterized by a trough (respect the natural terrain, storm water management, natural ventilation). A metal bridge for communication between the two "zones".

## Sustainable development approach of the project owner

- Objectives: to integrate a local environmental labeling process to a structuring project for its territory and beyond, sustaining the integration of sustainability criteria in the construction of public facilities on the VKP area
- Translation in the project using an innovative material and operated locally (stabilized earth concrete) to reduce the supply channels, the carbon footprint and costs eventually work on the thermal characteristics and the maximum adaptation constructions and development of all the natural ground
- This is the first time that we push as much exercise on one of our site, also for the first province north and almost to New Caledonia, an island territory where changing practices (be it in terms cultural or economic sectors) in construction is particularly complicated
- A total success of the project, in the quality of life for the user (and 5 months of service), for the progress of the site, communication on the processes of aesthetic quality, except perhaps for the costs (prototype appearance)

## Architectural description

6 buildings (3 wood frame, 3 concrete stabilized earth) located on two high points of a land in the basin, with conservation of the vegetated central trough for stormwater management.

Selection guidelines for optimal natural ventilation. Earth exploited locally, worked on site, wood from cut situated in a radius of 50 km, sawing and local treatments.

## Building users opinion

Comfort, especially in a school setting (heat and sound), natural setting, few artificialities soil, point of vigilance on stormwater management (even with precautions, build around a trough always has some risk)

## If you had to do it again?

We have already integrated the concrete ground stabilized in our subsequent projects. The aim is to mount a real alternative sector, medium or long term course. This remains a confidential process, even on the scale e New Caledonia.

## See more details about this project

<http://terra-award.org/project/college-paiamboue/>

## Stakeholders

### Stakeholders

**Function :** Contractor representative

SAEML Grand Projet VKP

Ange Marie BENOIT, Directeur Général, am.benoit@semvvp.nc, + 687 47 58 04

### Contracting method

General Contractor

### Type of market

Table 'c21\_italy.rex\_market\_type' doesn't exist

## Energy

## Energy consumption

Primary energy need : 30,00 kWh<sub>ep</sub>/m<sup>2</sup>.an

Primary energy need for standard building : 50,00 kWh<sub>ep</sub>/m<sup>2</sup>.an

Calculation method : Other

## Envelope performance

Envelope U-Value : 1,00 W.m<sup>-2</sup>.K<sup>-1</sup>

## Renewables & systems

### Systems

Heating system :

- No heating system

Hot water system :

- Heat pump
- Solar Thermal

Cooling system :

- Roof-top

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar Thermal
- Heat pump

## Environment

### Urban environment

A suburban area in strong development, predominance of housing and public facilities, with

an axis of structuring circulation, lack of overall planning strategy, future urban area still characterized by large natural spaces.

## Products

### Product

Stabilized earth concrete

ALTERNATIVE CONSTRUCTIONS

Clovis MUTIN

<http://www.alternativeconstructions.com>

Product category : Table

'c21\_italy.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'



soil mix riddled, cement and water, and stabilized rammed manual compressor, implemented between two form panels with a thickness of 40 cm and successive layers of 60 cm in height

First time in new caledonia, Atex type B on this project

## Costs

## Contest

### Reasons for participating in the competition(s)

The local context: An Island Territory in the Pacific Ocean, tropical climate, remoteness of the site from the capital Noumea (strain in the delivery of materials and their cost). The project has the following advantages:

- Use of environmentally friendly and innovative materials locally: earth poured concrete (land use extracted "on the spot", freedom from traditional concrete sector, notable

thermal characteristics) and wood frames (walls and nets brise soleil)

- Detailed thinking about building insulation and natural ventilation in relation to climate (minimizing the presence of the air conditioner and thus power consumption)
- Maximum respect for the natural topography terrain shaped trough, especially for efficient management of rainwater and optimal orientation to the prevailing winds: construction of buildings on the two water points of the bowl-shaped land conservation in the state of the central trough, vegetated originally. Minimization of cut / fill.

## Building candidate in the category



Energie & Climats Chauds



Coup de Coeur des Internautes

