

Malicounda High School

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Building Type : School, college, university
Construction Year : 2021
Delivery year : 2022
Address 1 - street : 934F+366, Rte Mbour -Joal 23000 NIANING, Other countries
Climate zone : [BWh] Subtropical dry arid

Net Floor Area : 584 m² SHON (fr)
Construction/refurbishment cost : 187 000 €
Number of Pupil : 400 Pupil
Cost/m2 : 320.21 €/m²

General information

This project won the Hot Climates Prize both at the national and international levels of the Green Solutions Awards 2022-2023.

This project is located in Nianing, in Senegal, and consists in creating eight new classrooms and an amphitheater for the public high school of Malicounda.

The layout of the classrooms is inspired by the morphology of xerophytic plants to create an exterior envelope that promotes natural convection. Openings have been made in the lower and upper parts of the classrooms to promote air circulation and cooling. The walls are made of raw earth bricks and the ceilings are made of Ronier palm fiber.

The building is completely autonomous thanks to solar panels and rainwater recovery.

See more details about this project

<http://www.insitu-architecture.net/fr/projets/14558-lycee-de-malicounda.html#>

Photo credit

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Stakeholders

Contractor

Name : G2C

Construction Manager

Name : G2C

Stakeholders

Function : Developer

Ministry of Education of Senegal - Malicounda Public High School

Function : Investor

Enfance et Nature Association

Function : Designer

IN SITU Architecture

Contracting method

General Contractor

Building users opinion

Please find attached a letter from the director of Malicounda High School

Energy

Energy consumption

Primary energy need : 5,17 kWhpe/m².year

Calculation method : Other

Envelope performance

Envelope U-Value : 0,35 W.m⁻².K⁻¹

More information :

Hygrometric property = 13,2 kg of water / m2

Constant hygrometric rate = 40%

R = 0.35

Renewables & systems

Systems

Heating system :

- No heating system

Hot water system :

- No domestic hot water system

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Nocturnal ventilation

Renewable systems :

- Solar photovoltaic

Renewable energy production : 100,00 %

The construction has an autonomus energy supply through solar panels.

Environment

Biodiversity approach

The use of local materials for the construction:

- Local palm tree for the ceiling
- Raw earth bricks for the walls

Mitigation actions on soil and biodiversity :

The excavated soil have been preserved and reused.

Products

Product

BTC (Compressed adobe block)

Elémenterre, Fann Hock Pavillon E Appart 9, Dakar Tél. : (221) 77 596 42 56

Amadou Doudou Dème

<https://au-senegal.com/elementerre-construire-en-blocs-de-terre,13630.html>

Product category : Structural work / Structure - Masonry - Facade

Adobe block 12*24*10cm

Bio fiber of Roner Palm and Typha

Local hand craft

Henri Diene Mboundor, G2C 197 Patte d'Oie - Dakar Tel 77 421 4502

Product category : Finishing work / Partitions, insulation

Fibers 1inc per 10 feets

Costs

Construction and exploitation costs

Total cost of the building :187 000 €

Health and comfort

Water management

The building has an autonomous water supply through rainwater recovery.

Contest

Reasons for participating in the competition(s)

- The use of local materials for construction
- The reuse of excavated soil
- The integration of the building in its environment
- The construction has an autonomous water supply by collecting rainwater
- The construction has an autonomous energy supply provided by the installation of a solar energy system

Building candidate in the category



GREEN

Niakhniakhal

M'Bour

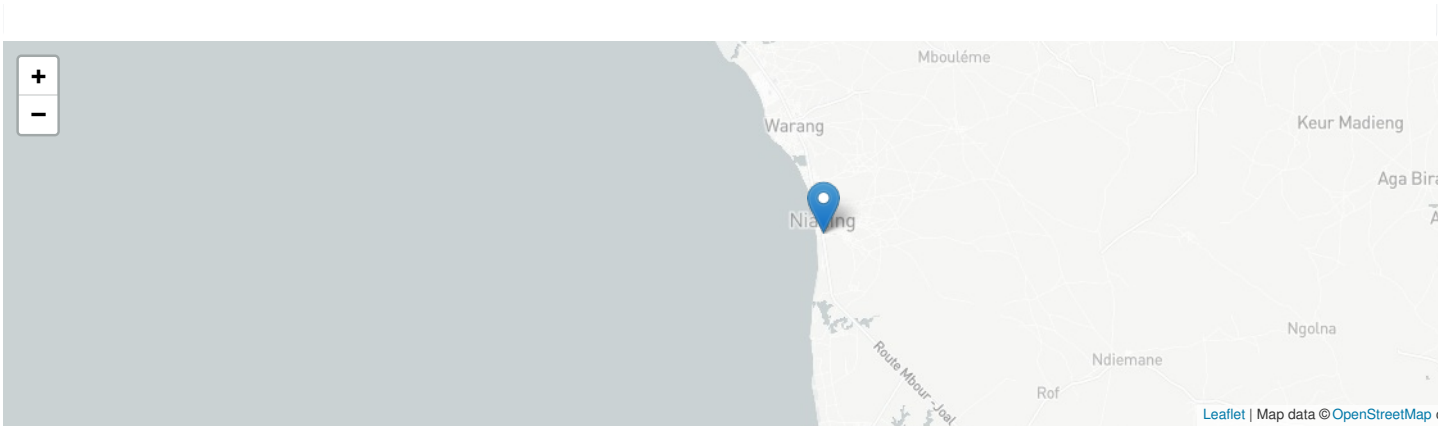
Mbourokh Cisse

Mbouléme

Ndioukh
Thiorokh

A1 M'bour - P

Ndioukh



COMPETITION WINNER



**GREEN
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