


The Takienta

by Ibrahim Tchan / © 2021-03-29 13:10:14 / International / 3639 / EN



Primary energy need :

12 kWhpe/m².year

(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 : Other building
Construction Year : 2021
Delivery year : 2021
Address 1 - street : Yarika 229 TANGUIÉTA, Other countries
Climate zone : [H] Highland Climate(mountainous terrain).

Net Floor Area : 12 m² Useful area (es)
Construction/refurbishment cost : 1 000 €
Number of none : 4 none
Cost/m2 : 83.33 €/m²

Proposed by :



General information

The Takienta (Otammari construction) is the only one-story dwelling in the world built entirely of local materials. It is original and elaborate and is in perfect correspondence with the culture and beliefs of its inhabitants. The Takienta dwelling presents a symbolic division between the first floor where we find: the mortar, the millstone, the kitchen, the cattle, the altar, the old man's room and the floor where we find: the attics, the terraces, the toilets and the bedrooms. Thus, the first floor constitutes the place of the living while the second floor is the one of the dead. The dwelling thus shelters both the living and the ancestors, and must also be considered as a temple dedicated to worship.

The construction of this dwelling allows a judicious and rational use of eco-materials still called "bio-based" materials available locally. These materials are of natural origin (water, earth), vegetable (wood, fruits of the néré and the karité, straw, raffia, kenaf, millet stem, rice straw, fonio straw) and animal (cow dung). During construction, everything is designed to adapt to the intrinsic qualities of the raw materials, or to minimize the quantities used, or to avoid or delay possible degradation, and thus facilitate maintenance.

All these characteristics make takienta an exemplary ecological house.

Photo credit

Ibrahim Tchan

Stakeholders

Contractor

Name : Ecomusée Tata Somba

Contact : Ibrahim Tchan

<https://sites.google.com/view/ecomuseetatasomba>

Construction Manager

Name : Ecomusée Tata Somba

Contact : Ibrahim Tchan

<https://sites.google.com/view/ecomuseetatasomba>

Stakeholders

Function : Others

Contracting method

Other methods

If you had to do it again?

Take the time to document the process and the different traditional techniques used

Building users opinion

The materials and the traditional know-how are the main factor of the comfort of life of this house.

Energy

Energy consumption

Primary energy need : 12,00 kWhpe/m².year

Calculation method : Other

Real final energy consumption

Final Energy : 10,00 kWhfe/m².year

Renewables & systems

Systems

Heating system :

- Others
- No heating system

Hot water system :

- Other hot water system
- No domestic hot water system

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation

Renewable systems :

- No renewable energy systems

The materials used make the takienta bio climatic

Smart Building

Users' opinion on the Smart Building functions :

During the construction of the tata somba, the exclusive use of natural materials respectful of the environment, improving the comfort and the quality of the internal air of this dwelling. These eco materials also have a strong capacity of bio-climatization for an additional comfort to the construction Otammari. Thus by their capacity of inversion of temperature thanks to their multiple thermal and insulating properties, these eco materials (biosourced) bring a wellbeing as well when it is hot as when it is fresh. The thermal insulation is designed to be as efficient as possible (natural insulation, choice of innovative windows on the walls, etc.).

Environment

Urban environment

Composed of turrets assembled by a surrounding wall with a footprint of more or less 12m in diameter of the construction itself, the tata somba (takienta) have a fortress-like appearance. Often built in the country of a giant baobab or near a vegetation composed of trees, the tata somba habitat is built for defensive purposes and allowed to ensure the security of its residents. The symbols associated with the Otammari construction include the orientation of the door, the opposition between the ground floor and the upper floor, the male-female duality and the aesthetic features of this dwelling.

Land plot area : 30,00 m²

Built-up area : 12,00 %

Green space : 8,00

Products

Product

Ecological binder

Local communities

Ibrahim Tchn

Product category : Finishing work / paints, mural, wallcoverings

Ecological binder used in the construction and rehabilitation of the Takienta. It is made from natural elements (clay, laterite, termite mound), cow dung and powder of the epicarp of néré.

It is a traditional technique that is passed on from generation to generation



Costs

Construction and exploitation costs

Global cost : 200,00 €

Reference global cost : 1 000,00 €

Global cost/none : 50

Reference global cost/none : 1000

Total cost of the building : 1 000 €

Health and comfort

Life Cycle Analysis

Eco-design material :

The use of bio-sourced materials contributes significantly to the storage of atmospheric carbon and the preservation of natural resources. The main impact of these materials is their ability to reduce the carbon footprint of modern construction for a more sustainable world, given that the manufacture of cement worldwide accounts for 5% of CO2 emissions. Otammari's building materials are derived from inexhaustible and renewable natural resources; their manufacture does not generate any greenhouse gases or cause any damage to the environment. In addition to coming from the local environment, it consumes little energy.

During the construction of the tata somba, the exclusive use of natural materials respectful of the environment, improves the comfort and the quality of the internal air of this house. These eco-materials also have a strong capacity of bio-climatization and ensure an additional comfort to the Otammari construction. Thus by their capacity of inversion of temperature thanks to their multiple thermal and insulating properties, these eco materials (biosourcés) bring a wellbeing as well when it is hot as when it is fresh. The thermal insulation is designed to be as efficient as possible (natural insulation, choice of innovative windows on the walls, etc.).

Comfort

Health & comfort :

Many materials used in the construction of a building can have an impact on the health of the inhabitants and workers. The risks are mainly carcinogenic, toxic or allergenic. Otammari architecture, in order to limit the impacts, chooses the materials well and according to several criteria: mix, depletion of resources, low energy consumption, local materials. Natural paints are less harmful than finishing materials such as usual paints, ditto for cow dung which is used instead of coatings and flooring.

Carbon

GHG emissions

Building lifetime : 50,00 year(s)

Contest

Reasons for participating in the competition(s)

Energy & Hot Climates

During the construction of the Tata somba, the exclusive use of natural materials respectful of the environment improves the comfort and the quality of the internal air of this dwelling. These eco-materials also have a strong capacity of bio-climatization, providing additional comfort to the construction Otammari. By their capacity of inversion of temperature, thanks to their multiple thermal and insulating properties, these bio-based materials assure comfort when it is hot as well as when it is cold. Thermal insulation is intended to be as efficient as possible (natural insulation, choice of innovative windows on walls, etc.).

Health & Comfort

Many materials used in the construction of a building can have an impact on the health of the inhabitants and workers. The risks are mainly carcinogenic, toxic or allergenic. To limit their impacts, the materials are well chosen by the Otammari architecture according to several criteria: mix, depletion of resources, low energy consumption, local materials. Natural paints are less harmful than finishing materials such as usual paints. Cow dung is used instead of plaster and flooring.

Low carbon

The construction industry has a very negative effect on the environment. The materials used in modern construction projects have a major role to play in reducing this impact on our eco-system. And in the era of sustainable development and a desire to respect the environment, using bio-based seems to be a real solution. Respect for the environment, but also health and overall comfort in the home, are exactly what Otammari construction brings to this new ecological era. In addition, most of these natural materials also contribute to the development of the local and sustainable economy, as the products are often available locally without the need to import materials. This further reduces the impact of this construction on the environment.

Using bio-based materials in the construction of the Takienta contributes significantly to the storage of atmospheric carbon and the preservation of natural resources. The main impact of these materials lies in their ability to reduce the carbon footprint which is very high in modern construction knowing that the manufacture of cement worldwide represents 5% of CO2 emissions. Takienta's building materials are made from inexhaustible and renewable natural resources; their manufacture does not generate any greenhouse gases or cause any damage to the environment. In addition to coming from the local environment, it does not consume conventional energy.

Building candidate in the category



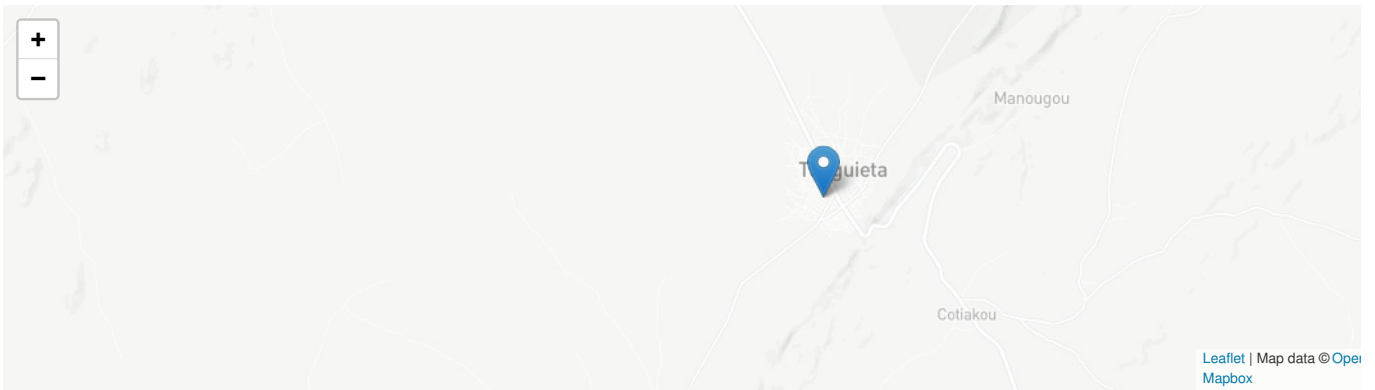
Energy & Hot Climates



Low Carbon



Health & Comfort



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