


Petite-Terre tourist information center

by [Matthieu Cozon](#) / ⌚ 2022-05-19 00:00:00 / France / 👁 1500 / 🇫🇷 FR

New Construction



Primary energy need :
25 kWhep/m².an
(Calculation method : RTAA DOM 2016)

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 : Library, documentation center

Construction Year : 2021

Delivery year : 2022

Address 1 - street : Rue du Four à Chaux 97615 DZAOUDZI LABATTOIR, France

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

Net Floor Area : 77 m²

Construction/refurbishment cost : 431 169 €

Cost/m2 : 5599.6 €/m²

Proposed by :



General information

" A tourism office ! That's another Mzougou* thing! »

This is precisely what we wanted to avoid by proposing a **building that extends over the public space**. An information center which shines and which makes it possible to arouse the curiosity of all Mahorais, even those who are not used to visiting this type of place. The Petite Terre Tourist Office is designed as an interior-exterior. The reception area opens completely so that the Tourist Office extends into the public space.

The building unfolds on the outside with the help of successive doors that become information panels.

Associated with a map on the ground, they offer a first playful way to document themselves to all passers-by who will only have to enter if they want to learn more...

Strategically positioned at the main crossroads of Petite-Terre, the Tourist Office had to carve out a small place in an already busy urban development.

To give it the place it deserves, we have notably chosen to erase the existing and unrewarding public toilets by including them in the project.

This generates an architecture of boxes linked by a wooden frame and topped with a stretched canvas over-roof. This layout **facilitates the cooling of interior spaces** and the South-South-West and North-North-East orientation **promotes natural ventilation** .

Tourism being totally dependent on the quality of the territory it promotes, we had to offer an **exemplary building, respectful of its environment and energy efficient**.

To go further in this goal, the project uses carefully chosen materials responding to an **ecological and anti-waste ethic** :

- The cladding is made up of **recycled plastic** scales, a symbol of the recycling of waste that is unfortunately found in droves on the beaches of Mayotte;
- A map of the island made of crushed stones makes it possible to revalorize the smallest fragments of stones.

We hope that the Petite-Terre Tourist Office will be able to promote the island and offer a positive and ambitious idea of what it can become.

**Mzoungou: Name given to whites in Mayotte*

Building users opinion

From January to April, the climate is hot and humid with very little wind. Offices designed to be naturally ventilated remain a little too hot and the ceiling fans are unfortunately not sufficient for thermal comfort. Air conditioning will therefore be added.

In the reception area, which is much more open, the temperature is decent.

If you had to do it again?

We could possibly add ventilation transoms in the offices, but unfortunately it is very difficult to escape the air conditioning in the offices in Mayotte.

Photo credit

The photos and diagrams were produced by Tand'M Architectes which authorizes Construction21 France to use them.

Stakeholders

Contractor

Name : Communauté de Commune de Petite Terre

Contact : denis.chopin[a]cc-petiteterre.fr

Construction Manager

Name : Tand'M Architectes

Contact : agence[a]tand-m-architectes.com

<https://tand-m-architectes.com/>

Stakeholders

Function : Company

SMR BTP ALU

Structural work + interior fittings

Function : Company

Bioclimatik

Framework-Covering-Cladding

Function : Company

Batimetal

Locksmith-Carpentry

Function : Company

Colas Bois

Interior furniture

Function : Company

MT2C

Plumbing

Function : Company

EMI

electricity

Energy

Energy consumption

Primary energy need : 25,00 kWh_{ep}/m².an

Primary energy need for standard building : 165,00 kWh_{ep}/m².an

Calculation method : RTAA DOM 2016

CEEB : 0.0003

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

Renewable systems :

- No renewable energy systems

Environment

Risks

Hazards to which the building is exposed :

- Flooding/Sea Surge
- Earthquake
- Wind / Cyclone

Risks measures put in place :

Between two waters, those of the lagoon and those of the mudflat, the building benefits from remarkable views and spaces but cannot escape the **marine submersions** which appear during exceptional tides and which will be more and more frequent with the rise in water. To adapt, the **low floor was raised by 50 cm**. But, if the level of the oceans continues to rise, in a few years, certain tides will be brought into the building. The floor was therefore made of **smooth concrete to accept being submerged for a short time**. It will dry out quickly once the tide recedes.

Being so close to the lagoon, the building is also exposed to **strong winds**. Without obstacles, these can reach more than 100km/h. The Tourist Office has therefore been designed to meet these constraints. The over-roof is in **microperforated canvas**. It **stops the solar radiation to limit the overheating of the building but lets the air pass**, thus avoiding any tearing in cyclonic period. The recycled plastic tile cladding, used for the first time in Mayotte, had to undergo special tests to check its resistance to the wind under a force of 30 meters per second.

The birth of an underwater volcano 50km from the project site also made the project more complex. Mayotte is classified in **seismic zone 3** and, although on one level, the Tourist Office had to be **sized to withstand earthquakes**. The wooden frame, highlighted in this project, reveals the bracing constraints in an explicit way.

Urban environment

Land plot area : 251,00 m²

Built-up area : 41,00 %

Green space : 40,00

Strategically positioned at the **main crossroads of Petite-Terre**, the Tourist Office had to carve out a small place in an already busy urban development.

To give it the importance it deserves, we have notably chosen to erase the existing and unrewarding public toilets by wrapping them in the project.

Today the building is located between a playground for children, the lagoon, a car park, a snack bar and the lagoon.

Very **open to the outside**, the Tourist Office extends over the public space by staging a map of Mayotte on the ground. The remarkable points of Petite-Terre are identified there and are reported on large information panels which detail everything that can be discovered there. It is a playful proposal to quickly learn the secrets of the territory.

Products

Product

Ferrari shade

Serge Ferrari

<https://www.sergeferrari.com/fr-fr>

Product category : Structural work /
Carpentry, cover, tightness

We had to cover several volumes (one existing and one created) with a large over-roof to unify the project and protect it from the sun. The cyclonic constraints led us to this light and microperforated material.



This solution was very quickly accepted by the Project Owner.

Today, in addition to the technical expectations, the product offers us beautiful plays of light on the building.

Recycled plastic tiles

Pretty Plastic

<https://www.prettyplastic.nl/>

Product category : Structural work /
Structure - Masonry - Facade

We chose to use this recycled plastic material to show what we could manage to do with all the plastic waste that is in our bins and on our beaches.

We discovered the material after the contracts were awarded. This forced us to convince the company to lay the Pretty Plastic scales rather than Reynobon type plates as originally planned.

Not knowing the product, the company was particularly reluctant to accept this idea.

The problem was not so much a question of money since Reynobon is a more expensive product. The company did not want to commit to installing a product on which it had no feedback. This negotiation was ultimately the most complicated test in the project.

The contracting authority, for its part, placed its full trust in us. They appreciated the symbol of the Tourist Office which enhances its territory by cleaning it, but they are above all proud to build the first recycled plastic building in Mayotte.



Costs

Construction and exploitation costs

Cost of studies : 21 513 €

Total cost of the building : 431 169 €

Circular Economy

Reuse : same function or different function

Batches concerned by reuse :

- Facades

For each batch : Reused Materials / Products / Equipments :

The cladding of the building is exclusively made of Pretty Plastic tile. They come from the recycling of building waste. More specifically, joinery and downspouts.

This represents an area of 130m² of cladding, i.e. 3172 kg of recycled plastic.

Field of use and material origin :

The plastic is collected and recycled in Amsterdam.

Environmental assessment

Impacts avoided : water, waste, CO2 :

The reuse operation saved the equivalent of 536,408 kilometers traveled by a small car, i.e. 610 Paris-Nice journeys, 2447 rectangular bathtubs filled with water and 31 years of household waste from a Frenchperson.

In reality, the elements used to make the scales of recycled plastic that make up the cladding of the Petite Terre Tourist Office are PVC joinery, gutters and downspouts from demolished buildings.

These elements not appearing in the table provided we took what seemed the closest, namely; plastic planters. We have thus filled in the table for an equivalent of 3,172 kg of recycled and reused plastic.

Economic assessment

Total cost of reuse : 11 570 €

Cost of reuse in percentage of the operation : 3 %

Health and comfort

Indoor Air quality

The building being considered as an interior/exterior, the air is constantly renewed.

The location of the building between the sea and the lagoon lets you imagine that the air is of excellent quality.

Carbon

Life Cycle Analysis

Eco-design material :

The tiles used in cladding are produced and sold by an Amsterdam-based company called Pretty-Plastic.

They come from the recycling of building waste. More specifically, joinery and downspouts.

They are naturally gray and are available in 9 shades but can also be ordered in color if the addition of dyes is accepted during manufacture.

On the Tourist Office, the lightest shade was chosen.

Each scale is fixed with a single screw on wooden cleats spaced at 15 centimeters occurrences.

It is the overlapping of the scales on top of each other that makes the whole structure rigid.

A scale can be cut like wood. Ideally, the offcuts are remelted and will form new scales for the following sites.

Contest

Reasons for participating in the competition(s)

Le bâtiment de l'Office de Tourisme répond à plusieurs problématiques fortes.

Il s'implante sur un territoire magnifiquement contraignant qui impose une conception particulière et qui lui permet aujourd'hui de prendre sa place dans la compétition pour les trophées Bâtiments Résilients 2022 et Bâtiments Circulaires 2022.

Contraintes climatiques :

Entre deux eaux, celles du lagon et celles de la vasière, le bâtiment bénéficie de vues et d'espaces remarquables mais ne peut échapper aux **submersions marines** qui apparaissent lors des marées exceptionnelles et qui seront de plus en plus fréquentes avec la montée des eaux. Pour s'adapter, le **plancher bas a été surélevé de 50 cm**. Mais, si le niveau des

océans continue de monter, dans quelques années, certaines marrées seront amenées à entrer dans le bâtiment. Le sol a donc été réalisé en **béton lissé pour accepter d'être immergé pendant un temps court**. Il sèchera rapidement une fois que la marée sera redescendue.

En étant si proche du lagon, le bâtiment s'expose également aux **vents les plus forts**. Sans obstacles, ceux-ci peuvent atteindre plus de 100km/h. L'Office de Tourisme a donc été dimensionné pour répondre à ces contraintes. La sur-toiture est en **toile microperforée**. Elle **stoppe le rayonnement solaire pour limiter la surchauffe du bâtiment** mais laisse passer l'air, évitant ainsi tout arrachement en période cyclonique. Le **bardage en tuile de plastique recyclé**, utilisé pour la première fois à Mayotte, a dû subir des tests spéciaux pour vérifier sa **tenue au vent sous une force de 30 mètres par seconde**.

La naissance d'un volcan sous-marin à 50km du site du projet a également rendu la réalisation plus complexe. Mayotte est classée en **zone sismique 3** et, bien que de plain-pied, l'Office de Tourisme a dû être dimensionné pour **résister aux tremblements de terre**. La charpente bois, mise en valeur dans ce projet, dévoile les contraintes de contreventements de manière explicite.

Contraintes territoriales :

Mayotte est un territoire petit et précieux. Il y a très peu de ressources de matière pour construire un bâtiment mais beaucoup d'enjeux pour préserver la nature.

L'Office de Tourisme de Petite Terre a été conçu dans un esprit de « prototype » pour l'île. L'idée est de proposer le plastique recyclé comme nouveau matériau local.

Avant de créer une filière de recyclage il fallait tester et convaincre. Ici, le plastique recyclé est mis en scène par un bardage de tuiles de plastique grises créées à Amsterdam à partir des plastiques des descentes d'eau pluviales et des menuiseries de bâtiments démolis.

Aujourd'hui les usagers sont séduits par ce matériaux tant sur les côtés esthétiques que pratiques. Les preuves sont faites, la filière de recyclage peut donc se lancer. Les démarches sont en cours et les premiers matériaux en plastique recyclé de Mayotte seront réalisés d'ici fin 2022.

Cette innovation qui prend du sens sur toute la planète est particulièrement intéressante sur un territoire de 375km² puisqu'il n'y a pas assez de ressources pour produire des matériaux de construction et trop peu de place pour stocker des déchets plastiques. La revalorisation de ces plastiques en matériaux de construction sur place permettra de limiter les exports de déchets vers l'Europe et les imports de nouveau matériaux sur l'île, réduisant ainsi réellement l'énergie grise de nos bâtiments.

L'Office de Tourisme de Petite Terre est le premier pas vers cette avancée.

Building candidate in the category





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Date Export : 20230328172301