

Flores Malacca

by François Garde / ⌚ 2016-06-21 08:59:24 / France / 🌐 10306 / 🇪🇺 EN

New Construction



Primary energy need :
100 kWh_{ep}/m².an
(Calculation method : Other)

ENERGY CONSUMPTION

<i>Economical building</i>	<i>Building</i>
< 50 A	
51 à 90 B	
91 à 150 C	
151 à 230 D	
231 à 330 E	
331 à 450 F	
> 450 G	
<i>Energy-intensive building</i>	

Building Type : Collective housing < 50m

Construction Year : 2011

Delivery year : 2011

Address 1 - street : Le Port 97420 SAINT PAUL, LA RéUNION, France

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

Net Floor Area : 8 950 m² SHON

Construction/refurbishment cost : 20 300 000 €

Cost/m2 : 2268.16 €/m²

General information

Delivered in late 2011 in Port city in the Reunion Island, the housing projects Malacca and Flores are designed as an urban complex and forms the entrance of the development zone Mail de l'Ocean, which aims to open the city to the port. This is a 9-storey block of functional mixity with 138 social housing units divided into 53 student apartments, 24 social rented housings and 61 intermediate rental housings. On the ground floor services and businesses: tax office, post office and a restaurant. In addition to the concepts of diversity and energy savings, the project is finely adapted to the climatic constraints.

Sustainable development approach of the project owner

Malacca Flores housing operations are designed as an urban complex forming the entrance of the mall Ocean, which originally should have been hosting the tram-train. "The whole design was guided by the question of sustainable development", says Philippe Jouanen. This is true for energy with the installation of a photovoltaic plant with a capacity of 690 kWh, and solar collectors with an individualized storage per apartment, "to empower people." But also for the treatment of bioclimatic buildings: buildings implantation party, through its faults, its hollow effects, these green squares, favors venturi effects and breakdown of the two islands. The accommodations meet the recommendations of PERENE repository. These workers thus receive a through natural ventilation (high porosity, thin building, orientation depending on prevailing winds), the heat gains are limited by effective sunscreens (walkways, roof overhangs, caps, on-roof) the greening of buildings around is dense and based on a plant palette rich in endemic dry area.

Architectural description

Located in a BIA in the city center, on a rectangular plot split in half diagonally, Flores Malacca hosts 138 social housing units divided into 53 student apartments, 24 social rented housing and 61 intermediate rental housing. On the ground floor services and businesses: tax office, post office and a restaurant. In the North, 3 buildings make up the Malacca residence; South, Flores consists of two buildings, all crossed by vegetation. The whole operation in R 7 is strictly drawn, with sharp base, dressed basalt stones, currents floors with varied treatments and a crowning of attics, types of houses in duplex overlooking. Fractionation of high volumes partially mitigates the perception of height. Both plots pluriorientées raise the issue of the management of the sunshine on the directions east and west. The answers vary depending on the orientation and berries to protect: louvered verandas, corridors deported, caps, vertical blades. Parking is under the building for convenience of access and comfort

reasons and for bioclimatic reasons, since the building is so surrounded by green spaces, not paved areas, increasing the heat island effect urban.

Perennial materials were chosen for their intrinsic qualities in a setting simple and consistent work. The choice was also focused on safe building products for health, benefiting labels. It may well include wood (pine class IV), which is a renewable material with a carbon footprint advantageous to ONDULIT sheet panels Fibre cement siding, etc.

Freshness is provided by a good natural ventilation: all units are through, offices and shops are equipped with ceiling fans. No air conditioning has been installed since using materials that do not store heat and broken down adequately parts, occupant comfort can be assured.

The roofs have the dual function of hosting the equipment of photovoltaic electricity and solar hot water, but also to protect the tiles and terraces from direct sunlight. This structural arrangement is the real architectural integration of photovoltaic and thermal panels tropical climate and not dictate the metropolis regulations, inclusive to the roof. Such a settlement limit, in fact, the ventilation possibilities of the panels and therefore increases their overheating with a consequent decrease in yields.

If you had to do it again?

- The mix managed strata and not body building between such students and families, has led to tensions within the residences. This solution requires a prior tenant awareness and a learning among people for living together.
- The common areas and corridors designed as real meeting places have attracted the presence of external persons not necessarily desired. The multiplication operations offering qualities similar spaces should overcome this inconvenience.
- Concrete caps, serving as sun protection, store and release their heat.

See more details about this project

<http://leureunion.fr/malacca-flor%C3%A8s>

http://www.envirobat-reunion.com/IMG/pdf_Fiche_FloresMalacca.pdf

Stakeholders

Stakeholders

Function : Contractor

SIDR

<http://www.sidr.fr/>

Function : Designer

AP architectures, 2APMR

<http://iletducentre.fr/lagence/>

Function : Structures calculist

GCEP

Function : Other consultancy agency

SOCETEM

<http://www.socetem.fr/>

Fluids Consultancy

Function : Other consultancy agency

TOP BIS

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

Photovoltaic Consultancy

Function : Other consultancy agency

LEU Réunion

<http://www.leureunion.fr/>

Environmental Consultancy

Energy

Energy consumption

Primary energy need : 100,00 kWh_{ep}/m².an

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

Calculation method : Other

Envelope performance

Envelope U-Value : 0,40 W.m⁻².K⁻¹

Systems

Heating system :

- No heating system

Hot water system :

- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Single flow

Renewable systems :

- Solar photovoltaic
- Solar Thermal

Renewable energy production : 80,00 %

Integrated photovoltaic plant in overlaid roofs consists of 420 m² of PV panels Sharp, a 88 kWp power fed back into the network. Note that the plant produces exactly the power for which it was designed.

Individual solar hot water for each unit is produced with 219 m² of solar thermal collectors with electrical backup.

Environment

Urban environment

Land plot area : 2 706,00 m²

Built-up area : 76,00 %

Green space : 650,00

Flores Malacca is intimately linked to the will of the municipality to set a strong urban project reviving the sea the "Mail de l'Ocean" So with its origins. This is a pilot project that prefigures the amenities of the development zone "Mail de l'Ocean" and embodies the sustainable city proper guidance by the municipality and by the SIDR. It reconciles sustainability, urban marking (height), identity and social housing sentiment while creating a link between the

district and the heart of town. The compact program induces a high density of 509 dwellings per hectare in a framework of qualitative life from bioclimatic concerns, environmental, social and comfort of users of housing and the city.

On the ground floor of buildings, include services and shops, such as the tax office, a post office and a restaurant. Permeable areas in the center of the operation and around 24% of total land easement that are planted and raised. Some vegetated walls and facades feet are vegetated with species adapted to the environment that requires little watering and maintenance. The project is a harmonious relationship with its immediate environment by promoting particular:

- Choosing an architectural approach "progressive épannelage" and height restricted to ground floor +5 visually by using duplex penthouse withdrawal, respecting the neighborhood level and overall future velum.
- Altimeter Implantation of buildings entering the best of the existing topography, optimizing earth movements?
- Taking into account in the design of low winds, accentuating them with "venturi" effect of tightening or "urban window" by refreshing the passing of green areas and using them to ventilate through buildings.
- Positioning by forest to naturally site cooling through evapotranspiration.

Products

Product

Ondulit

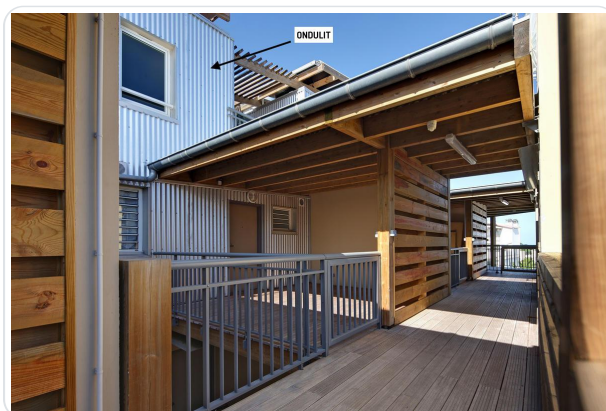
Société ONDULIT ITALIANA SpA

france@ondulit.com

<http://www.ondulit.com/fr/ondulit.html>

Product category : Gros œuvre /
Charpente, couverture, étanchéité

The ONDULIT plates consist of a core made of galvanized steel, thickness 0.60 mm (or from 0.50 to 0.80 mm) protected at the top by a modified oil by a complex natural aluminum sheet (or 'pre-painted aluminum or natural copper), at the bottom by an oil primary and by a natural or pre-painted aluminum sheet.



According to the manufacturer, the strengths of Ondulit system are:

- Much corrosion resistance
- A strong soundproofing power under the atmospheric precipitations
- The ability to reflect solar heat rays with low emission within
- High mechanical strength,
- Aesthetics.

The ONDULIT metal siding was used to strengthen the Attic houses effect on rooftops. This product demonstrates good acoustic property but the thermal properties are yet to be proven in the long term.

Costs

Construction and exploitation costs

Total cost of the building : 20 300 000 €

Health and comfort

Water management

- Recovery of rainwater delay infiltration and overflow on the network.
- Despite the initial reluctance of the Regional Health Agency was set up recovery of gray water from the communal laundry and a portion of the housing for watering public gardens adjoining through a pit and an application.

Comfort

Health & comfort : In sustainable architecture, the condition presiding thermal comfort in tropical housing is that the internal temperature of the premises does not exceed the outside temperature. To be sure, dynamic thermal simulations (STD) were conducted for each dwelling and specific studies for each sunscreen. All apartments are naturally ventilated with porosities of about 20% for accommodation and 46% for stays. Wet rooms are naturally ventilated. For local offices or shops, comfort conditions (set 28 ° C max) are obtained by the establishment of a refreshment combining natural ventilation of premises in double orientation and ceiling fans. Natural lighting is favored in all areas (housing and external traffic).

Reasons for participating in the competition(s)

The peculiarity of this operation lies in the center of the implementation of the density while providing a framework of quality of life and comfort by:

- An effective ventilation throughout the island
- The creation of green spaces permeable
- Preservation of intimacies (not vis-à-vis)
- A high porosity of the walls while protecting noise nuisance
- Common conviviality and cohesion media spaces
- A softening of pitch perception (Attic) and the linear structure (fragmentation)
- A social and functional diversity
- Work on energy saving
- A bioclimatic design

Building candidate in the category



Energie & Climats Chauds



Coup de Coeur des Internautes



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