The Mahots

by Nicolas Peyrebonne / 2019-06-11 13:37:27 / Francia / 7053 / FR

Primary energy need :

92 **kWhep/m².an**

(Calculation method :)

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 : Collective housing < 50m
Construction Year : 2017
Delivery year : 2018
Address 1 - street : 6 rue Joseph Richard 97420 LE PORT, France
Climate zone : [Aw] Tropical Wet & Dry with dry winter.

Net Floor Area : 3 737 m²
Construction/refurbishment cost : 4 750 000 €
Number of Dwelling : 45 Dwelling

Cost/m2 : 1271.07 €/m^2

General information

The project relies on urban studies, revealing its objectives of limiting the built front and porosity towards the main road. It must therefore treat **an orientation of the facades unfavorable to a solar track , by proposing light wood facades, by setting up corridors supporting vegetation protecting low and hot summer rays** . The landscape defines the common spaces, the footprint in the ground is found at the level of the floors, allowing all to have external surfaces. He tackles a difficulty, that of **managing acoustics in traversing buildings by setting up a system of non-linear anti-noise walls** .

Sustainable development approach of the project owner

The project is not part of a certification process but integrates bioclimatic constraints to offer a project respectful of its environment. The reasoned implementation on the plot makes it possible to manage the acoustics as well as a powerful natural ventilation of each of the dwellings. Investment, both financial and temporal, in the landscaping project including participatory vegetable gardens, provides a living environment as pleasant as possible for the inhabitants of this social operation.

Architectural description

In order to respect the orientation recommended by the developer and to minimize the impact of RN1E on housing, the buildings of the operation are oriented East / West. The operation is served internally by the internal route of the ZAC (activity zone) to the north. The differentiated accesses and vehicles are made by this street. To the south, a pedestrian access connects the C4 Island to the future TCSP. The project includes 45 housing units spread over 3 blockssen R + 3. Each block composed of two frame bodies is articulated around a central vertical circulation connected to a remote hallway on each floor. The building bodies in the North are on stilts, thus placing part of the parking lots under construction. Those located in the south host in the DRC large typologies of housing and their private gardens. The 33 air and covered parking spaces for some are spread over the northern half of the plot. The project is organized around stacked housing typologies and all through. The service rooms are positioned to the west while the rooms and veranda face east and mountain views. Isolated light facades in the west and east complete the concrete structure's roofs. The offset wooden gangways provide additional solar protection on the western façades. An alternation of single-slope roofs in sheet metal and green roof terrace energize the project and are also used to harvest the rainwater that is then infiltrated into the ground at

the level of the landscaped valleys and the retention basin to the north near the entrances on site .

See more details about this project

https://www.construction21.org/france/articles/fr/a-publier-le-24-01-ajouter-podcast-green-solutions-les-mahots-construire-durable-en-reunion.html

Photo credit

Nicolas Peyrebonne

Stakeholders

Contractor

Name : Semader
Contact : Julien Martin - julien.martin@semader.fr
http://www.semader.fr

Construction Manager

Name : Co-Architectes
Contact : Nicolas Peyrebonne (peyrebonne@co-architectes.com) / Philippe Bayard (bayard@co-architectes.com)
http://www.co-architectes.com

Stakeholders

Function : Other consultancy agency

Intégrale ingénierie

Function : Thermal consultancy agency

Intégrale Ingénierie

Maxime Boulinguez

Contracting method

Separate batches

Type of market

Table 'c21_spain.rex_market_type' doesn't exist

Energy

Energy consumption

Primary energy need : 92,00 kWhep/m^2.an

Primary energy need for standard building : 145,00 kWhep/m^2.an

Calculation method :

Real final energy consumption

Final Energy : 28,00 kWhef/m^2.an

More information

Final consumption is given as an indication according to Perene 2009, no regulatory calculation is made at the meeting. The only source of energy is electricity, primary energy depends on the energy ratio of Reunion for its electricity production (3.3 against 2.58 in metropolitan France).

Renewables & systems

Systems

Heating system :

- No heating system

Hot water system :

- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation
- Nocturnal ventilation
- Free-cooling

Renewable systems :

- Solar Thermal

Environment

Urban environment

Land plot area : 3 660,00 m^2

Built-up area : 60,00 %

Green space : 420,00

The project is part of a ZAC with quite specific urban orientations. We chose to respect these guidelines in order to participate in the coherence of the whole and to create a visual and pedestrian porosity in the North / South direction. Involvement is a main orientation of building facades in the East / West direction, which is apparently unfavorable from a solar point of view. The addition of vegetated passageways on the West facades allowed to put in place a solar filter on the most exposed facade. The direction of the winds, on the other hand, was compatible with the urban orientation, the project being able to capture thermal breezes perpendicular to the coast.

Products

Product

Product category : Table 'c21_spain.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 = '8'

Implementation of a system of wood corridors to serve all the housing, porosity of facades superior to the regulation in order to optimize the natural ventilation of all the houses without any air conditioning system and landscape project in order to create an island of freshness on the plot while offering many vegetable gardens

Very positive feedback from both the client and tenants seduced by this sober and efficient realization

Costs

Construction and exploitation costs

Global cost : 6 959 000,00 €

Renewable energy systems cost : 250 000,00 €

Global cost/Dwelling : 154644.44

Cost of studies : 390 000 €

Total cost of the building : 5 495 000 €

Subsidies : 3 161 621 €

Additional information on costs :

The total cost includes the cost of the land for 745 000 € and the cost of construction for 4 750 000 €

Health and comfort

Indoor Air quality

Bioclimatic design in a tropical environment requires open design. This initial parameter ensures a constant natural renewal of the air, improving the quality of indoor air. The use of NF Environnement labeled paints complements this device.

Comfort

Health & comfort :

Bioclimatic design in a tropical environment requires open design. This initial parameter ensures a constant natural air renewal, improving the indoor air quality. The use of NF Environnement labeled paints complements this device.

Acoustic comfort :

The project respects the RTAA DOM, in particular the acoustic aspect of the regulation. This makes it possible to manage an incompatibility often encountered between natural ventilation and acoustic comfort. The presence of an automobile traffic lane in the South involved E / O

ventilation, favoring opaque façades, thus protected from noise on exposed façades.

Contest

Reasons for participating in the competition(s)

- Acoustics and natural ventilation
- Wood construction and social housing
- Landscape

Building candidate in the category

Energie & Climats Chauds

Prix du public

Prix des Etudiants

Date Export : 20230428135803