


Osmoz / 44-certified housing Passivhaus

by Hervé Potin / 2016-07-01 15:20:28 / France / 12283 / FR



New Construction

Primary energy need :

45 kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION

Consumption Range (kWhep/m ² .an)	Grade
< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Building **A**

Building Type : Collective housing < 50m
Construction Year : 2015
Delivery year : 2015
Address 1 - street : rue du Gargot 44000 ORVAULT, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 3 106 m²
Construction/refurbishment cost : 4 340 000 €
Number of Dwelling : 44 Dwelling
Cost/m2 : 1397.3 €/m²

Certifications :



General information

The willingness of the developer and the planner for this island, from the competition phase is to position the project of high environmental quality and to include it in a PassivHaus certification. A passive residence is a virtually independent housing for its heating needs: it can indeed be content with solar gains, the energy released by the occupants and household appliances and good insulation. Requirements "induced" by the lens 'passivhaus' are numerous: controlled cost, design details, collaborative work upstream with all project stakeholders, etc ... These objectives can sometimes get in 'conflict' with urban requirements.

Nevertheless, facing south towards the Garettes Vallon in Orvault, in the Nantes area, the island site is positioned as a "balcony" opening on an open and green view, which is a North gazebo / South almost perfect 'proposal for a' passiv'haus'. The architectural layout is divided into three separate buildings, and supplemented by three semi-underground houses built specifically in the Park. This fragmentation of the buildings can offer views sequenced from the street to the north, and soothes density 'supposed' of the project. The project focuses therefore a bioclimatic approach:

- Mixed concrete and timber frame structure is favored giving the building inertia necessary for any building to store heat and redistribute it, as well as to favor the acoustics between apartments,
- Double insulation from the outside and inside is provided with treatment of thermal bridges
- Looking for a compact and a cross of the volume of housing (for natural ventilation via opening on opposing fronts)
- Comfort ventilation recovering internal heat,
- Corridors and balconies in wood and metal structure detached from the primary structure of frames (to avoid thermal bridge)

The project emphasizes the concepts of ownership and residence by the will to get closer to individualized access for maximum housing, and by private extensions for each dwelling. Also, our project proposes to re-introduce concepts such as the fact to survey an alley, to borrow a gently sloping path to walk along a valley, crossing a bridge, to overhang another place, to go home.

For each building, the main access is by the north facade. The external walkways detached from the main structure, offer multiple views and promote life skills together. They generalize apartments crossing, double and triple orientation, without vis-à-vis and preserving the privacy of each.

On the ground floor, housing is accessible from the outside by a footpath off the ground, "pontoons" introducing a gradual distancing between the public and the private.

The buildings, corridors and terraces, are wrapped in a skin natural douglas blades purged sapwood, with alternating rhythm. South, Vallon side railings also describe an alternating rhythm: light metal floors and attic openwork chevrons. In the North, Railing corridors are lighter, perforated metal, to pass a more homogeneous light. This allows to reduce the linearity and break the monotony of plain facades and cutting the frame in rhythmic sequence. This epidermis and provides a vibration chromatic facades and suggested thickness.

Sustainable development approach of the project owner

The project owner is committed to a dual approach: certification Passivhaus and NF HQE housing.

Architectural description

The project is in a green environment and exploits the advantages of the site respecting the architectural identity of the future district.

The project emphasizes therefore the environmental approach and adopt the principles of bioclimatic architecture, a site "nearly ideal" for this:

- A mixed concrete and timber frame structure is favoured giving the building inertia necessary for any building to store heat and redistribute it, as well as to favour the acoustics between apartments,
- A double insulation from the outside and inside with high airtightness.
- Research of compactness and a cross of the volume of housing.
- Several Local public bicycles will be provided inside buildings
- The corridors and balconies in wood and metal structure detached from the primary structure of the frames (to avoid thermal bridging)

Therefore, the project meets the thermal performance in a PassivHaus certification.

See more details about this project



Stakeholders

Stakeholders

Function : Designer

Guinée*Potin architectes

Hervé Potin architecte dplg

<http://www.guineepotin.fr>

Function : Contractor

BOUYGUES IMMOBILIER

Carole Nouvel / agence de nantes

Function : Thermal consultancy agency

POUGET CONSULTANTS

Vincent Braire

<http://www.pouget-consultants.eu/>

Function : Others

NANTES METROPOLE AMENAGEMENT

Florent Turck

<http://www.nantes-amenagement.fr/>

Function : Environmental consultancy

AUP urbaniste

Bruno Berthomé

<http://www.aup-urba.fr/>

Function : Environmental consultancy

Zéphyr paysage

Sandrine Chiron

<http://www.zephyr-paysages.fr/>

Contracting method

Separate batches

Type of market

Table 'c21_algeria.rex_market_type' doesn't exist

Energy

Energy consumption

Primary energy need : 45,00 kWh_{ep}/m².an

Primary energy need for standard building : 57,50 kWh_{ep}/m².an

Calculation method :

Real final energy consumption

Final Energy : 46,00 kWh_{ef}/m².an

Envelope performance

Envelope U-Value : 0,40 W.m⁻².K⁻¹

Building Compactness Coefficient : 0,53

Indicator :

Air Tightness Value : 0,11

Renewables & systems

Systems

Heating system :

- Electric radiator

Hot water system :

- Heat pump
- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar Thermal
- Heat pump

Renewable energy production : 25,00 %

Solutions enhancing nature free gains :

double à haut rendement de récupération d'énergie sur air extrait

Environment

Urban environment

Land plot area : 6 181,00 m²

This is the eco-neighborhood of the Vallon des Garettes, north of Nantes, Orvault, in full urban densification.

Products

Product

aluminum joinery

Kline

Menuiseries Kline - 85000 Les Herbiers

<http://www.k-line.fr>

Product category : Second œuvre / Menuiseries extérieures

Joinery aluminum triple glazing

This is joinery very high thermal performance, adapted for Passivhaus. These joineries also allow perfect sealing of facades.



Framing, carpentry and wood siding

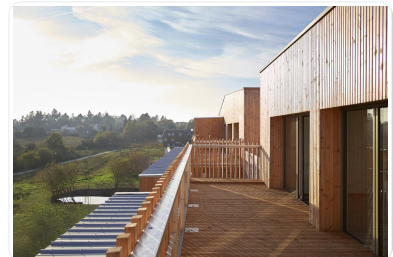
CMBS

Z.a. du Creler, 56190 Le Guerno

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

Product category : Gros œuvre / Charpente, couverture, étanchéité

The project structure is mixed concrete shear walls for sails, and wood for devices coats walls. The frame is wood. This ensures optimal environmental performance, concrete ensuring the thermal inertia of the project, wood, bio-based materials with the interposition of an efficient thermal insulation between framing members. Wood siding is of several types: natural douglas purged sapwood (3 natural class) to the attic and exterior sheds, and Douglas Treaty "brown" for common parts.



Wood describes the project in its integration with the eco-neighborhood, and identifies the building in the near landscape, open to the Vallon and inhabitant 'territory.

Costs

Construction and exploitation costs

Global cost : 4 340 000,00 €

Global cost/Dwelling : 98636.36

Cost of studies : 318 825 €



Contest

Reasons for participating in the competition(s)

All accommodations (44) have been certified 'passiv'haus' by 'The Passive House'. The project is part of the Vallon des Ecoquartier Garettes at Orvault. Tous housing are through, with have a double or triple orientation, and all have an outer surface (balconies, terraces or gardens). The aesthetics of the project without

compromise, involves an environmental architecture is synonymous with architectural and landscape quality.



Building candidate in the category



Energie & Climats Tempérés



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Coup de Coeur des Internautes



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