

13 straw wood housing

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Building Type : Terraced Individual housing
Construction Year : 2018
Delivery year : 2019
Address 1 - street : Rue Paul Langevin 28400 NOGENT LE ROTROU, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 1 330 m² Autre type de surface nette
Construction/refurbishment cost : 1 620 000 €
Number of Dwelling : 13 Dwelling
Cost/m2 : 1218.05 €/m²

General information

The construction of these houses follows the destruction of a buildings bar of 65 homes demolished in 2014 and takes part in the rehabilitation of an entire district (construction of the Pôle childhood youth, rehabilitation of the Gauchetières shopping center, etc.). For the lessor, Nogent Perche Habitat, the target thermal performance aims to reduce the weight of the heating costs for the tenants who will live there.

Sustainable development approach of the project owner

For the landlord, the target thermal performance aims to reduce the weight of the heating costs for the tenants who will live there.

Architectural description

The challenge of the project was not to recreate a built front but to create different rhythms and to remain open on the site. By creating these "openings" from the street, the houses are grouped together by module, called "plots" of 4 to 5 houses (3 plots: A, B and C). Plots A and C are identical, mirrored. Plot B, central, is positioned slightly back from A and C, in order to allow a requalification of the pedestrian strip which is located between the school car parks and the future houses. This setback also allows breakthroughs not only to the south but also diagonally and protects the houses from proximity to the street. The houses are staggered in order to avoid the repetition undergone by too harsh alignments. The decline of one in two houses creates private green spaces and limits the creation of fences. Alternating ridge heights also vary the silhouette and energize it.

See more details about this project

<https://www.envirobatcentre.com/media/309>

Photo credit

Juan Sepulveda Grazioli (except nzi-6.jpg = NZI Architects)

Stakeholders

Contractor

Name : Nogent Perche Habitat

Construction Manager

Name : NZI Architectes

Energy

Energy consumption

Primary energy need : 54,00 kWh/m².an

Primary energy need for standard building : 80,00 kWh/m².an

Calculation method : RT 2012

Renewables & systems

Systems

Heating system :

- Electric radiator

Hot water system :

- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B

Renewable systems :

- No renewable energy systems

Environment

Urban environment

The plot, a real park in the Gauchetières district, is surrounded by Jean Moulin Avenue to the west, Val street to the east and Paul Langevin street to the north. The landscape importance of the site (large free park) has allowed an establishment that is both free and structured.

Products

Product

<https://cruard-charpente.com/realisation/>

Product category : Gros œuvre / Structure, maçonnerie, façade

70% of the envelope for this project was built in the workshop. Site nuisances have been considerably reduced.

The site is clean, dry, and not very noisy. The construction was carried out between local crafts and industrialization, thus favoring local dry sectors.

The advantage of wood-straw construction over traditional framework and timber frame walls lies in the possibility of complete prefabrication of the wall and of producing large wall surfaces in the factory. The assembly line does not need a very powerful overhead crane and the panels can be easily handled on site with light lifting gear.



Good acceptance.

Costs

Construction and exploitation costs

Total cost of the building : 1 620 000 €

Carbon

Life Cycle Analysis

Eco-design material : Use of wood and straw.

Contest

Reasons for participating in the competition(s)

The operation consists in the realization of 13 grouped individual dwellings in Nogent-le-Rotrou in wood frame insulated with straw. The use of biosourced materials manufactured by solar energy and made up essentially of carbon from the atmosphere leads to a Favorable Balance.

The orientation of the units and the size of the bays maximize the solar gain from the south while protecting them from loss to the north, thereby reducing the energy needs of the units.

The construction time has also been considerably reduced by prefabrication in the factory and the use of straw and wood from the Perche territory, in a logic of short circuit, has further limited energy consumption.

Building candidate in the category



Bas Carbone

