Eco'N'Home participative housing wood/straw

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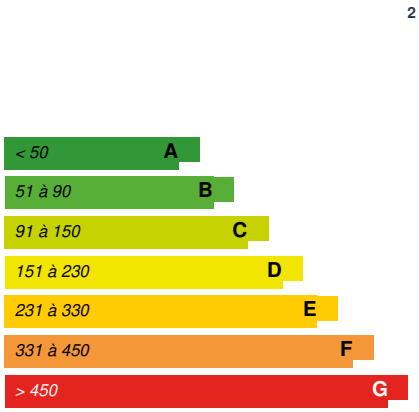

Building Type : Terraced Individual housing
Construction Year : 2012
Delivery year : 2016
Address 1 - street : ZAC Monconseil 37000 TOURS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 699 m^2
Construction/refurbishment cost : 1 385 000 €
Number of Dwelling : 6 Dwelling
Cost/m2 : 1981.4 €/m^2

General information

The project concerns the self-promotion creation of 6 strip dwellings on the Monconseil eco-neighborhood of the concerted development zone in Tours.
This housing construction program was based on the participative housing approach and meets the wishes of the project leaders to limit the environmental impact of this structure through the use of biobased materials and the Passive Buildings objective.

The key words that guided the project are: "high performance, ecological habitat, sharing and sharing". These objectives, which brought together and federated from the beginning the project leaders, are always present at the finish and are translated on the architectural level, functional and on the constructive mode. Achieving such a project is a question of will. Each member of the collective has contributed to the building. Built as much consensus as consents, it is the culmination of a long-term work that is emerging here.

Sustainable development approach of the project owner

- a compact habitat, efficient passive, healthy, ecological and perennial
- a habitat with reasoned living spaces: build only the essentials and share certain spaces by giving them the capacity to fulfill multiple functions.
- a reasonable final cost and à la carte housing to promote social and inter-generational diversity

The choice was made to realize the entire construction wood frame and insulation straw (walls) or wood wool (roof box), according to bioclimatic principles. The thickness of a straw boot allows, in itself, to achieve considerable thermal performance. A wood wool interior lining completes the acoustics of the project.

Architectural description

The choice was made to realize the entire construction wood frame and insulation straw (walls) or wood wool (roof box), according to bioclimatic principles. The thickness of a straw boot allows, in itself, to achieve considerable thermal performance. A wood wool interior lining completes the acoustics of the project. The exterior cladding is still under discussion with the City of Tours for a perfect integration of the project into its immediate environment. A so-called "shell" pose is envisaged to animate the facade and give the appearance of a single housing unit.

See more details about this project

https://www.basededonnees-habitatparticipatif-oasis.fr/wakka.php?wiki=EcoNHome#menu1

Photo credit

If not specified: Envirobat Center

Stakeholders

Contractor

Name : Eco'N'Home Collective represented by Sarah BOULLAND, current union president
https://www.basededonnees-habitatparticipatif-oasis.fr/wakka.php?wiki=EcoNHome#menu1

Construction Manager

Name : R-Architecture Caroline SCULFORT
Contact : 06 41 95 08 07

Stakeholders

Function : Contractor
Collectif Eco'N'Home représenté par Sarah BOULLAND, actuelle président-syndic

https://www.basededonnees-habitatparticipatif-oasis.fr/wakka.php?wiki=EcoNHome#menu4

https://www.basededonnees-habitatparticipatif-oasis.fr/wakka.php?wiki=EcoNHome#menu1
Project management

Function : Construction Manager
R-Architecture Caroline SCULFORT

06 41 95 08 07

Construction manager and architecture

Function : Construction Manager
Studio Lucie FREVAL

contact@studio-luciefreval-architecte.fr

http://studio-luciefreval-architecte.fr/accueil.php?page=contact
Construction manager and architecture

Function : Thermal consultancy agency
SCOP Fiabtitat

contact@fiabitat.com

http://www.fiabitat.com/
Thermal study

Function : Thermal consultancy agency
Baticonsult

0218.0617.83

http://baticonsult.com/
Thermal study and infiltrometry test

Function : Company
ISOPAILLE

bienvenue@isopaille.fr

http://www.isopaille.fr/
Laying bio-sourced materials

MVAménagement

info@mva-amenagement.fr

http://www.mva-amenagement.fr/
Thermal and acoustic insulation

Energy

Energy consumption

Primary energy need : 93,66 kWhep/m^2.an
Calculation method :

Envelope performance

More information :
- Peripheral walls: (Rain cover Agepan DWD, I beam construction system and compressed straw boot, Fermacell + insulated technical vacuum in wood wool), thickness 4.6cm / 35cm / 1.8cm + 4cm, U = 0.17 W / m²K
- Low floor: (PES slab on sanitary void, extruded polystyrene insulation under-screed), thickness 30cm / 12cm, U = 0.15 W / m²K
- Roof terrace R + 1: (complementary external insulation + roof waterproofing, wood wool in roof box, bracing), thickness 8cm / 30cm / 18cm, U = 0.09 W / m²K
- R + 2 creeping roof: (uncoiled wood wool), thickness 30cm, U = 0.13 W / m²K
- Penthouses in R + 2: (OSB board, soft wood wool, insulated inner lining in wood wool), thickness 1.2cm / 15cm / 10cm
- Double glazed joinery: (wood / aluminum), average Uf of 1.05 W / m²K
- Triple glazed joinery: (wood / aluminum), average Uf of 1.6 W / m²K

Indicator : n50
Air Tightness Value : 0,50

More information

heating: 14.6 kWhep / m².year. Average over the entire structure. Depends on dwellings, compactness, orientation, glazed area, etc.

Renewables & systems

Systems

Heating system :
- Electric radiator
- Wood boiler

Hot water system :
- Solar Thermal

Cooling system :
- No cooling system

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Solar Thermal
- Wood boiler

Other information on HVAC :
Heating and Emitters: Bioclimatic design favoring the solar gains with diffusion of the heat by the VMC double-fluxAppoints electric towel-drying in the parts of water (1 housing envisages a wood stove with weak power)

Sanitary Hot Water: 3 homes have a thermodynamic balloon, 3 have solar thermal panels connected to an individual solar water heater

Environment

Urban environment

Land plot area : 699,40 m^2
The accommodation Eco'n'home is located in the Monconseil district of Tours. The area is very well served by public transport and has many historic pavilions. Local shops and a chapel and a garden are under construction.

Products

Product

Bale of straw compressed

Isopaille

bienvenue@isopaille.fr

http://www.isopaille.fr/
Product category : Second œuvre / Cloisons, isolation
Laying compressed straw boots for thermal insulation

Wood wool

MVAménagement

info@mva-amenagement.fr

http://www.mva-amenagement.fr/
Product category : Second œuvre / Cloisons, isolation
Sound insulation of the building by an inner lining

Costs

Construction and exploitation costs

Total cost of the building :1 385 000 €

Health and comfort

Water management

3 homes have solar thermal panels connected to an individual solar water heater.

Comfort

Health & comfort :
The thickness of a straw boot allows, in itself, to achieve considerable thermal performance. A wood wool interior lining completes the acoustics of the project.

Acoustic comfort :
The thickness of a straw boot allows, in itself, to achieve considerable thermal performance. A wood wool interior lining completes the acoustics of the project.

Carbon

Life Cycle Analysis

Eco-design material :
Wood, wood wool, straw, earth rendering. Eco-materials account for about 42% of the cost of construction**Materials used** Structure: Wood, Insulation: Straw, wood wool Interior design: False ceilings in wood wool and plaster on 2 dwellings **Analysis** Bio-based materials Project floor area: 699.4m² Total weight of MBS implemented: 74 Kg / m² Non-wood mass work and layout: 46 Kg / m² *Does not take into account the earth coatings implemented in 2 dwellings*

Contest

Reasons for participating in the competition(s)

In order to minimize the consumption of primary energy and non-renewable resources, attention was paid to the use of biobased materials and the absence of conventional central heating. The carbon footprint of the final construction is close to zero. These ambitions were translated from the design phase of the project and the study on overall performance conducted by the design office helps to highlight their impact on the project and its environment.

Building candidate in the category

Bas Carbone

Prix du public

Prix des Etudiants

Date Export : 20230927224411