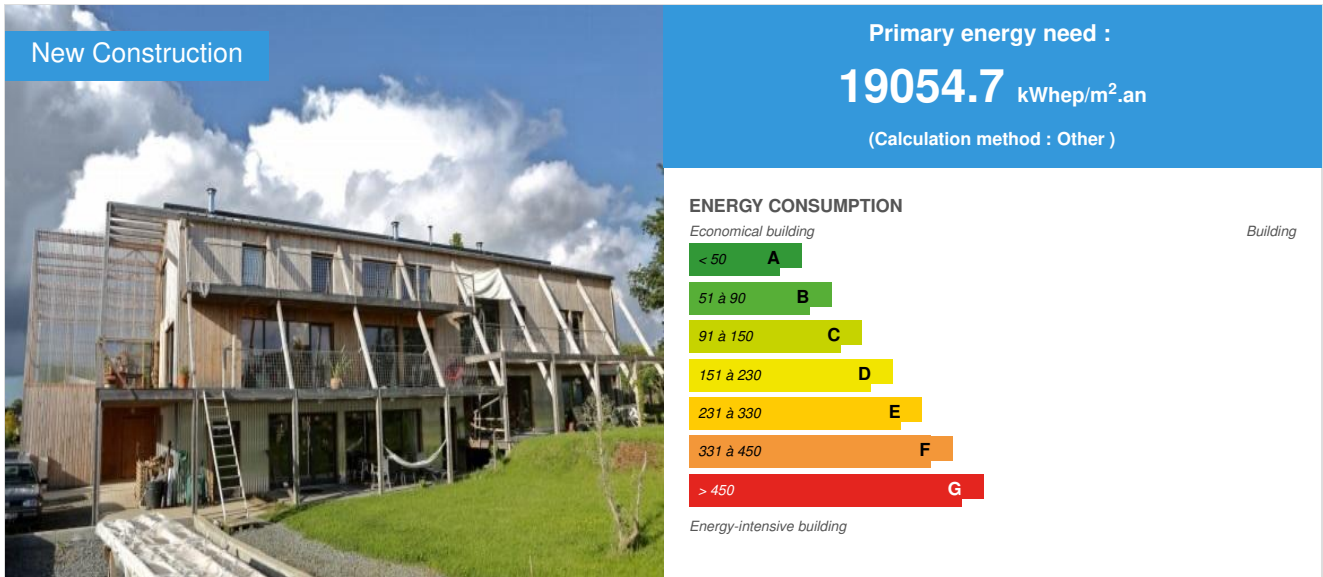


Cie Rit

by Rémi Boscher / © 2017-04-05 17:42:54 / France / © 1752 / FR



Building Type : Collective housing > 50m
Construction Year : 2014
Delivery year : 2014
Address 1 - street : 6 rue de la scierie 35250 SAINT-GERMAIN-SUR-ILLE, France
Climate zone : [Dfb] Humid Continental Mild Summer, Wet All Year

Net Floor Area : 450 m² Autre type de surface nette
Construction/refurbishment cost : 561 643 €
Cost/m2 : 1248.1 €/m²

Proposed by :

BATYLAB

General information

After a first attempt to buy a farmhouse to renovate that will not be completed, the group of 4 families (3 at the start) continues their research by giving themselves 3 months to find another place. They will finally decide to buy a plot of land and engage in a construction program. This shared housing project in self-construction will culminate in a particularly short time in a small collective with wooden frame in R + 1 plus attic, with A distributed insulation of cellulose wool and fiber / wood wool.

Sustainable development approach of the project owner

Build a shared and cooperative habitat by creating a collective that ensures both the missions of promoter, prime contractor and builder.

Architectural description

The desired terrain had to meet the constraint of being divisible. Research is not easy because land offers are often referred to promoters. By perseverance, a notary informs the group about a piece of land in a village north of Rennes, where the project could be received favorably. It is indeed this plot of 1,250 m² in Saint-Germain-sur-Ille that will be retained. Initially dedicated to a project of collective of 13 dwellings then to 4 separate individual lots, the plot does not find enough buyers. The town hall is sensitive to the project presented by the collective: 3 or 4 semi-collective housing units and common areas. The sale agreement

will be signed very quickly in December 2011 and the building permit 1 year later.

Building users opinion

"The construction work went well overall and in hindsight we were lucky because we went without net, only to assume the potential risks, But it was this risk-taking that allowed the project to happen. The group was made up of families who hardly knew each other and we became really friends at the end of this project.

After more than a year and a half of occupation, we confirm the very good thermal comfort of our houses, we are not far from the passive building. The shared spaces were very well invested, more than we imagined. If it had to be done again, it would be better to ventilate the roof for a better comfort on the hottest days of summer (see tab Comfort / health). The choice of partitions in wood panels rather than Placo would probably have saved time on the job site while lowering costs.

"Pierre GINIBRE, co-owner, builder, cohabitant.

If you had to do it again?

The insulation of the roof is somewhat undersized to ensure good comfort during summer heat. A double lathing would have allowed to increase the thickness of the air space, to improve the circulation of air and the cooling of the metal roof. An increase in the thickness of the insulation (35 cm instead of the installed 22 cm) would also have increased the phase shift by helping to limit overheating in the chambers under the crawlers. The greenhouse located in the north is made of polycarbonate and gives rise in winter to a strong condensation due to the temperature difference between the inside and the outside. An over-ventilation of this space will reduce this discomfort in winter and refresh the space in summer, thus bringing more comfort. In return, the greenhouse will play less of its role of buffer in summer as it will approach the outside temperature.

See more details about this project

http://www.reseau-breton-batiment-durable.fr/retour_experience/la-cie-rit

Stakeholders

Stakeholders

Function : Company

Art du toit

02 99 45 25 37

<http://art-du-toit-35.com/>

frame

Function : Company

Huet

02 23 30 44 08

<http://www.societe.com/societe/monsieur-christian-huet-433947082.html>

Heating - Plumbing

Function : Company

Gen.Y.Elec'

02 99 37 25 48

<https://www.horaires-commerces.fr/35,ille-et-vilaine/nouvoitou/198873-gen.y-elec>

electricity

Function : Contractor

La Cie.Rit

<https://cie-rit.fr/>

Auto manufacturer

Function : Construction Manager

Cécile Gaudoin

09 50 52 13 57

<http://cecilegaudoin.com/>

Architect

Function : Thermal consultancy agency

Hinoki

Energy

Energy consumption

Primary energy need : 19 054,70 kWh/m².an

Primary energy need for standard building : 19 054,70 kWh/m².an

Calculation method : Other

Breakdown for energy consumption : Housing 1: - heating (29.7 kWh/m² / year, 3853 kWh / year, 2.5 wooden stones) - ventilation (87.6 kWh / m² / year, 10 € / year) - ECS (1860 kWh / year, 223 € / year) Total housing 1: 5801 kWh / year, 223 € + 2,5 stères / year Accommodation 2: - heating (16.8 kWh / m² / year, 2054 kWh / year, 102 € / year) - ventilation (122 kWh / m² / year, 14 € / year) - ECS (1296 kWh / year, 155 € / year) Total housing 2: 3 472 kWh / year, 272 € / year Accommodation 3: - heating (18.5 kWh / m² / year, 3388 kWh / year, 2 wooden stones) - ventilation (105 kWh / m² / year, 12 € / year) - ECS (2223 kWh / year, 266 € / year) Total housing 3: 5 716 kWh / year, 279 € + 2 beds / year Housing 4: - heating (23.8 kWh / m² / year, 2662 kWh / year, 1.5 wooden stones) - ventilation (70 kWh / m² / year, 8 € / year) - DHW(545 kWh / year, 65 € / year) Total housing 4: 3 395 kWh / year, 73 € + 1.5 stères / year

Real final energy consumption

Final Energy : 18 384,00 kWh/m².an

Real final energy consumption/m² : 18 384,00 kWh/m².an

Real final energy consumption/functional unit : 4 596,00 kWh/m².an

Year of the real energy consumption : 2 014

Envelope performance

More information :

- Walls (ventilated / rain / wood fiber / wood wool / OSB taped (vapor barrier) / wood wool between cleats), thickness 22cm / 14,5cm / 6cm, U = 0.182 W / m².K
- Low floor (OSB / cellulose wadding between beams / OSB / dry screed Fermalol / coating), thickness 30cm, U = 0.133 W / m².K
- Roof (steel tank / air blade / wood fiber / cellulose wadding blown between purlins and cleats / OSB), thickness 22cm / 30cm, U = 0.144 W / m².K
- Joinery (wood / aluminum double glazing Minco), thickness 4cm / 16cm / 4cm + argon, U = 1.4 W / m².K

Building Compactness Coefficient : 2,05

Indicator : n50

Air Tightness Value : 0,60

More information

The values presented above are estimates based on standard use of dwellings and average meteorological data. These estimates are made under the assumption of an airtightness of 0.6 n50. In use, it appears that the wood consumption is of the same order of magnitude as these estimates.

Renewables & systems

Systems

Heating system :

- Wood boiler

Hot water system :

- Individual electric boiler
- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Single flow
- Double flow heat exchanger

Renewable systems :

- Wood boiler
- Energy recovery from waste

Carpentry A rainwater collector has been installed; it is used for watering the garden.

Thanks to the good orientation of the building and to the buffer space located along the northern façade, all of the dwellings have openings on 2 or 3 different orientations ensuring a very good level of illumination without compromise on thermal losses. The glass surfaces were generously sized to optimize visual comfort and passive solar contributions.

Environment

Urban environment

Land plot area : 1 250,00 m²

Built-up area : 36,00 %

The choice of the ground was motivated by the desire to live in rural areas, to be able to take the children to school on foot and if possible by being able to reach Rennes by train. Saint-Germain-sur-Ille is located on the Rennes / Montreuil-sur-Ille railway line, which is well-connected for commuting. In terms of urban planning, the project envisages approximately 300 m² of land per family since the plot measures 1250 m², it is a practice consistent with the desire for densification.

Products

Product

Construction of collective dwellings

auto-construction

<https://cie-rit.fr/>

Product category : Gros œuvre / Système passif

"In the beginning, there is this refrain in our four homes: our habitat does not respond to our desires, our way of life, our tastes or our respective universes ... Everyone is looking for his side the 5-legged sheep that will fill him, often too expensive, too far, too ugly! A question we are taunted: if we were to go to several, could we see things differently?"

After a first attempt to buy a farmhouse to renovate that will not be completed, the group of 4 families (3 at the start) continues their research by giving themselves 3 months to find another place. They will eventually decide to buy land and engage in a construction program. This shared housing project will be completed within a very short timeframe.

The group consisted of four families of different ages and origins who did not necessarily know each other before the start of the project: it is the sharing of common values and the ability to become strongly involved in self-helping that allowed the project to be completed so quickly. The definition of these common values preceded the search for the site and led the group to structure itself into Civil Society Cooperative Construction (CCS). It should be noted that the members of the group have varied and complementary competences:

- accompaniment for several years of housing projects grouped within the association L'Epok,
- professional retraining and follow-up of a carpenter's training which could be used on the site,
- management of economic aspects (project management, budget monitoring, trade negotiations, etc.).

Generally speaking, everyone has been involved in the purchase of materials and tools, the choice of companies, site monitoring, management of schedules and daily logistics (construction site, management of children, etc.). After completion of the foundation work, earthwork and timber frame, 4 people, one per family, ensure a permanent presence on the site. At the commune level, the elected representatives understood and joined the project, which was a facilitating factor.

"The group was organized, I never felt the weight of the collective. I came with proposals, they met and validated them with my confidence." Cécile GAUDOIN, architect



Costs

Construction and exploitation costs

Global cost : 777 759,00 €

Global cost/Dwelling : 194439.75

Cost of studies : 49 950 €

Total cost of the building : 777 759 €

Subsidies : 50 000 €

Health and comfort

Water management

Consumption from water network : 216,00 m³

Water Consumption/m² : 0.48

Water Consumption/Dwelling : 54

A rainwater recuperator was installed; It is used for watering the garden.

Each dwelling is equipped with dry toilets and conventional toilets. The dry toilets are equipped with a urine separator so that only fecal matter is mixed with sawdust or chips to be composted in the garden. This choice was made to decrease the storage volume of the compost on the plot. Urines are now rejected in the network but a project is under study to collect them and allow their valorization on a dedicated platform. The separation of the urine and the solid excreta makes it possible to overcome the discomfort associated with the odor if the quantity of added dry matter is insufficient and above all makes it possible to considerably reduce the volume of compost by facilitating the treatment.

Comfort

Health & comfort : ELECTROMAGNETISM : In one of the 4 dwellings, the electrical ducts are shielded in order to limit occupant exposure to the electromagnetic fields emitted by the electrical network. THERMAL COMFORT : HYGROTHERMAL BALANCE: The greenhouse located in the north is made of polycarbonate and gives rise in winter to a strong condensation due to the temperature difference between the inside and the outside. An over-ventilation of this space will reduce this discomfort in winter and Refresh the space in summer, thus bringing more comfort. In return, the greenhouse will play less of its role of buffer in summer as it will approach the outside temperature.

Measured thermal comfort : - Hiver : dans un des logements situé à l'extrémité du bâtiment, la famille utilise un poêle à bois qui ne fonctionne pas en journée. En hiver, lorsque les températures ne sont pas excessivement froides, la température descend rarement en dessous de 16° e

Acoustic comfort : The dividing walls were doubled (twice 10 cm of insulation separated by a vacuum) and separated. Only OSB floor tiles are common for dwellings 1 and 2 as well as dwellings 3 and 4. Airborne sound insulation is very good, with no nuisance noted. Only the noise generated by stairs can sometimes be perceived from one dwelling to another. The common room which was built in a second time is equipped with triple glazing to limit the noise nuisances coming from the nearby road and to prevent any inconvenience caused to the neighbors. The single flow VMC blocks located in the housings generate a little noise that can be perceived within the housing or even in the adjoining housing.

Carbon

GHG emissions

Regarding transport, the greenhouse gas emissions of Cie.Rit residents have probably changed little since their previous situation. If 3 people work at home and many use the train to get to Rennes,

Life Cycle Analysis

Eco-design material : Biosourced materials (wood fiber, wood wool, OSB, cellulose wadding)

