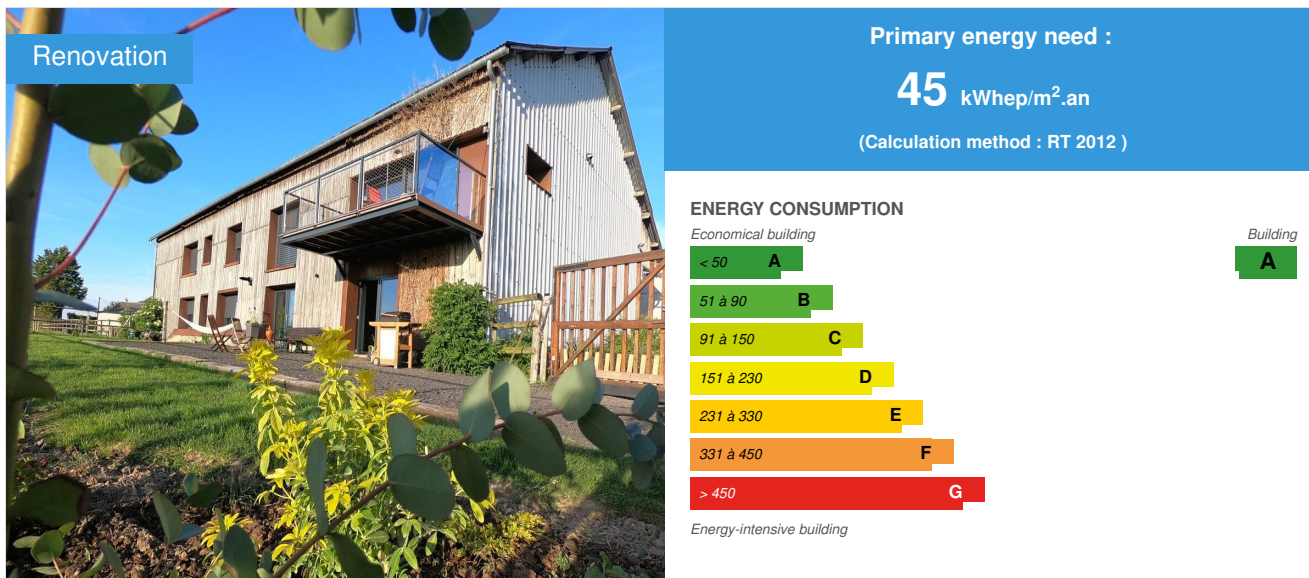


Straw'House

by Emmanuel d'Envirobot Centre / 2020-06-08 12:35:32 / France / 6375 / FR



Building Type : Isolated or semi-detached house
Construction Year : 2019
Delivery year : 2019
Address 1 - street : Abondant 28410 ABONDANT, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 179 m² SHON RT
Construction/refurbishment cost : 115 700 €
Cost/m2 : 646.37 €/m²

General information

The objective of this project is to reuse existing built spaces, conserve the local rural landscape, reuse certain privileged places in the heart of the village and to mix private and professional uses.

The aim is also to give the preserved local buildings a new lease of life, helping to guarantee their conservation and maintenance. This approach also limits rural sprawl and finds an interest in the densification of village hearts.

The house is part of an agricultural building, in the heart of the village. Adapting to current urban requirements, the house finds its place under an existing equine fodder storage shed, still in operation.

Sustainable development approach of the project owner

Designed to be bioclimatic despite the context in which it is built, the house is constructed of a timber frame and straw insulation, and is inserted under an existing and preserved agricultural shed.

This double envelope makes it possible to preserve the existing rural landscape, to limit heat loss due to the prevailing winds and direct sunlight, and also to reduce the construction costs of the exterior cladding. The climatic protection of the existing shed allowed the construction site to be established in summer and winter, without months of interruption.

Architectural description

The building is passive and the spaces are compact.

On two levels this compact house was assembled in 12 months with two people mainly, by juxtaposing 15 similar modules in a repetitive way.

The materials used are biobased and respect the good health of users. The straw was harvested 3 kilometers from the site, by a local farmer using traditional methods.

The living rooms are arranged upstairs allowing hot air to be used in an optimum way. Conversely on the ground floor we find the sleeping and service areas.

If you had to do it again?

This achievement is a visual demonstration of the materials used, sustainable construction techniques and constitutes the source of essential knowledge for the architect, conductor of bioclimatic construction.

See more details about this project

<https://www.envirobatcentre.com/centre-de-ressources/les-projets/fiche-projet/paille-house>

Photo credit

P. Loisy

Stakeholders

Contractor

Name : Pauline Loisy Architecture

Contact : Pauline LOISY

Construction Manager

Name : Pauline Loisy Architecture

Contact : info[a]loisypauline.com

<https://www.loisypauline.com>

Stakeholders

Function : Others

Envirobot Centre

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

Energy

Energy consumption

Primary energy need : 45,00 kWh/m².an

Primary energy need for standard building : 67,00 kWh/m².an

Calculation method : RT 2012

CEEB : 0.0002

Renewables & systems

Systems

Heating system :

- Wood boiler

Hot water system :

- Heat pump

Cooling system :

- No cooling system

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Wood boiler

Solutions enhancing nature free gains :

Les apports solaires gratuits sont favorisés par l'orientation, des menuiseries mixtes triple vitrages et des brises soleil orientables.

Environment

Urban environment

The house is located in the village of Abondant a few steps from the center. Abondant is a rural town of nearly 2,300 souls, located near Dreux (10 km) but also 75 km west of Paris and 45 km north of Chartres.

Products

Product

Product category :

Costs

Construction and exploitation costs

Total cost of the building : 115 700 €

Health and comfort

Water management

All the rainwater from the shed is collected in a 15m³ above-ground tank which supplies all the water points in the house. The overflow is directed towards a pond which encourages local biodiversity.

Comfort

Health & comfort :

The house has a wood stove as the only heating system, located in front of a wall with high inertia, helping to diffuse a gentle and homogeneous heat.

Free solar gain is favored by orientation, triple glazed mixed joinery and adjustable sun shades. All these elements contribute to summer comfort.

Acoustic comfort :

The installation of cork panels on the intermediate floor joists contributes to acoustic comfort.

Contest

Reasons for participating in the competition(s)

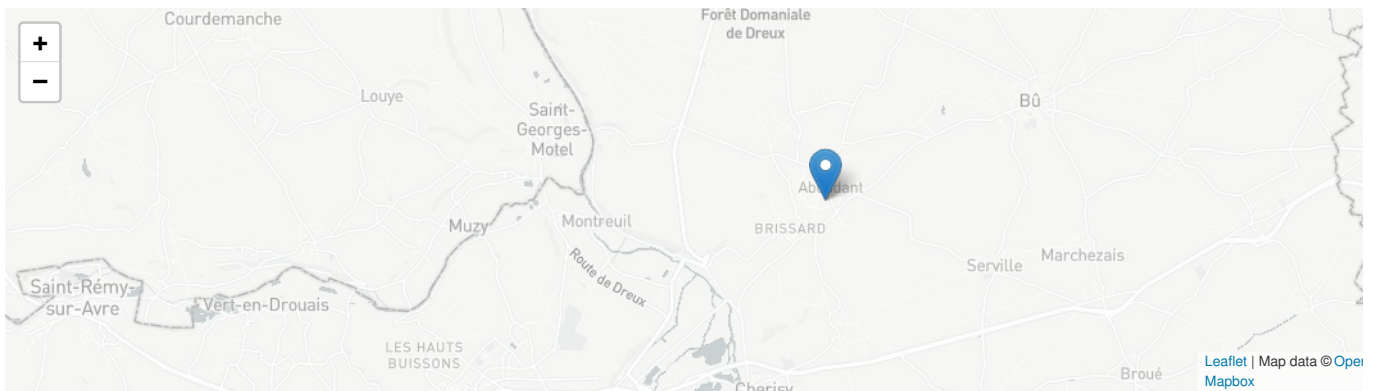
This project is decidedly low-carbon :

- In the choice to reuse an existing building
- By the materials with the wood frame and the straw from responsible crops located 3 km from the construction site
- With the " lightness " of the construction site made from 15 prefabricated modules assembled mainly with two people
- On the energy plan, thanks to the compactness of the plan that facilitates heating.
- The choice to put the rooms requiring less heating on the first floor to optimize the propensity of heat to " rise " in the living rooms

Building candidate in the category



Bas Carbone



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