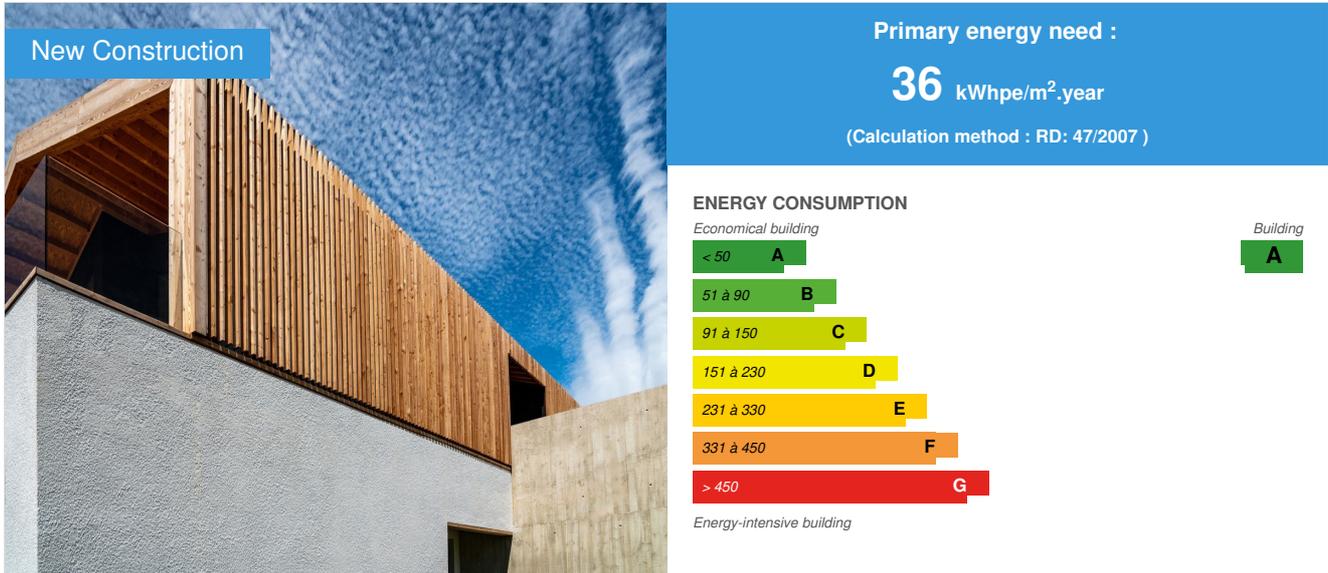


Passive housing YLEI

by Jesús Valencia Ardaiz / 2021-03-22 10:59:40 / España / 6814 / ES



Building Type : Isolated or semi-detached house
Construction Year : 2019
Delivery year : 2020
Address 1 - street : Calle Francisco de Jaso 12 31100 PUENTE LA REINA, España
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 230 m² Other
Construction/refurbishment cost : 244 829 €
Cost/m2 : 1064.47 €/m²

Certifications :



Proposed by :

rêver
arquitectura

General information

The construction is located on a plot with a drop of approximately 4 meters, accessing it from the highest part. This condition and the orientation have been essential to design the project, since being a passive house it was necessary to take into account at all times both the solar incidence and the environment. Thus, on the access floor, we place the day spaces, the most public area of the house.

While on the lower floor the rest area is located in a more private area. On this basis, an energy study was carried out to optimize natural resources as much as possible and thus achieve a building with almost zero consumption. That is why on the upper floor we find a characteristic system of larch wood slats, untreated wood and with controlled aging, which not only provides privacy from the outside without removing lighting, but also controls the energy impact on the building. In turn, the large window facing south west acts as a radiator in winter, avoiding overheating of the house in summer with the eaves that protects it.

On the other hand, on the lower floor, with much more privacy given the characteristics of the land, it has larger windows and no passive protections protected by automated blind systems. The result of all these solutions is that of a house that is very opaque from the outside, with a lot of privacy, but very bright on the inside,

with controlled views from each space and with a permanent dialogue between inside and outside.

See more details about this project

<https://www.reverarquitectura.com/viviendapasivaylei>

https://passivehouse-database.org/index.php?lang=en#d_6464

Data reliability

3rd part certified

Photo credit

Jesus Valencia Ardaiz

Stakeholders

Contractor

Name : Artupe S.L.

Construction Manager

Name : Artupe S.L.

Stakeholders

Function :

Agustí&Ozcoidi Estructuras

Function : Other consultancy agency

Zurwood

Function : Certification company

Energiehaus Arquitectos SL

Function : Designer

Rever Arquitectura

Jesús Valencia Ardaiz

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

Contracting method

General Contractor

Owner approach of sustainability

The motivation and origin of the project was clear from the beginning: it was essential that the projected house be designed under the passivhaus standard. An environmental perspective in the time in which we live was necessary to achieve both the objectives set and an adequate result.

From the first moment it was already decided to certify it, and finally the objective was satisfied by both parties, both promotion and technical team. It was the first passivhaus certified home of the Rever Arquitectura team.

Architectural description

All the environmental and bioclimatic philosophy, when projecting, had to have a coherence in the language of the construction system without renouncing a quality architecture. That is why a prefabricated wooden construction was chosen. A light framework of pine wood filled with insulation, lined to the outside with more insulation and an installation chamber also filled with insulation make the typical section of the building solve all its needs: insulation, airtightness, structural stability, steps of facilities and aesthetic finish.

Energy

Energy consumption

Primary energy need : 36,00 kWhpe/m².year

Primary energy need for standard building : 73,00 kWhpe/m².year

Calculation method : RD: 47/2007

CEEB : 0.0002

Envelope performance

Envelope U-Value : 0,16 W.m⁻².K⁻¹

Indicator : EN 13829 - n50 » (en 1/h-1)

Air Tightness Value : 0,42

Real final energy consumption

Real final energy consumption/m² : 36,00 kWhfe/m².year

Real final energy consumption/functional unit : 36,00 kWhfe/m².year

Year of the real energy consumption : 2 020

Renewables & systems

Systems

Heating system :

- Heat pump
- Radiant ceiling

Hot water system :

- Heat pump

Cooling system :

- Reversible heat pump
- Radiant ceiling

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic
- Heat pump

Costs

Construction and exploitation costs

Renewable energy systems cost : 9 178,65 €

Total cost of the building : 244 325 €

Urban environment

The house is located on a residential complex of similar single-family houses. It is on the outskirts of a small town, so the surroundings are full of farm fields and some small hills. In the vicinity, we find some sports services, soccer fields, swimming pools, social meeting areas... which make it a quiet area but at the same time with a lot of life at specific moments.

Land plot area

Contest

Reasons for participating in the competition(s)

La vivienda se sitúa en una parcela con una pendiente inclinada. Esto hace que la exposición de la construcción sea alta, por lo que se crea un sistema de lamas en los puntos débiles que no penalize la contribución solar pero de privacidad al interior, y en las fachadas menos expuestas se abren grandes ventanales protegidos con extensos aleros. Esto da sombra en verano y permite el paso solar en invierno.

El diseño del conjunto, tanto a nivel de proyecto como a nivel constructivo, ha hecho posible la obtención del certificado passivhaus. Después de casi un año de uso, los propietarios han comprobado que la vivienda se mantiene entre 21 y 24 grados (invierno y verano, respectivamente) habiendo usado la calefacción de manera muy ocasional. Además, las paneles fotovoltaicos han posibilitado que la escasa demanda energética requerida pueda compensarse con la producción de estos.

Toda la construcción se ha desarrollado con maderas locales, por lo que además de mejorar sustancialmente el comportamiento térmico, se reduce la huella de carbono y se posibilita la prefabricación casi total de la vivienda, hecho por el cual los tiempos en obra son mucho más reducidos y todo se lleva con un control más exhaustivo.

Building candidate in the category



Energy & Temperate Climates



Low Carbon



Health & Comfort

