


# HuLoHAUS in Cerdanyola del Vallès

by [Diego Carrillo Messa](#) / 2016-07-06 15:58:40 / Espagne / 14303 / ES

**New Construction**



**Primary energy need :**  
**38.99 kWhpe/m<sup>2</sup>.year**  
(Calculation method : )

**ENERGY CONSUMPTION**

*Economical building*

< 50	<b>A</b>
51 à 90	<b>B</b>
91 à 150	<b>C</b>
151 à 230	<b>D</b>
231 à 330	<b>E</b>
331 à 450	<b>F</b>
> 450	<b>G</b>

*Energy-intensive building*

*Building* **A**

**Building Type** : Isolated or semi-detached house  
**Construction Year** : 2016  
**Delivery year** : 2016  
**Address 1 - street** : 08290 CERDANYOLA DEL VALLÈS, España  
**Climate zone** : [Csa] Interior Mediterranean - Mild with dry, hot summer.

**Net Floor Area** : 155 m<sup>2</sup>  
**Construction/refurbishment cost** : 211 000 €  
**Number of Dwelling** : 1 Dwelling  
**Cost/m<sup>2</sup>** : 1361.29 €/m<sup>2</sup>

Proposed by :

**celobert**  
ARQUITECTURA INGENIERIA URBANISMO

## General information

**Passive House Class A +** built for a family that is committed to **maximum energy efficiency** and **green building** on a plot acquired specifically to properly orient the building. It's a house with rectangular **wooden structure** and **thermal insulation of wood fiber and recycled cotton**, 150m<sup>2</sup> on two floors. The house backs onto the north (street) and opens to the south and east (private garden), having openings with triple glass using solar radiation in winter, and overhangs and adjustable blinds that control the radiation during summer. A **ventilation system as a single dual flow support** serves for cooling and heating the inside. The architectural proposal wants to be sober in simple shapes and finishes, but with high performance and environmental quality. It also has a **protection** system from **electromagnetic waves**, integrated in the coating of lime mortar, under the ceramic cover in the tops of windows and through special plaster boards in the bedrooms. We have been inspired by the lifestyle of the future occupants and the world who would want to leave their children ...

## Data reliability

3rd part certified

### Stakeholders

AR-MOL

Ramon Colell

<http://www.armol.cat/>

Outer shell structure in wood, wood fiber, recycled cotton. Includes sealing line and waterproofing. It includes exterior carpentry installation.

### Contracting method

General Contractor

### Owner approach of sustainability

Customers wanted a sober house in simple shapes and finishes, but beautiful and with high performance and environmental quality. They wanted a home with an energy consumption of zero or almost zero, with Passivhaus standard, and built with bioconstruction and local production materials as much as possible, and with a protection system of electromagnetic radiation. The lifestyle of the future occupants and the world they would want to leave their children have been the main source of inspiration for the project.

### Architectural description

It is a house of rectangular plant in a triangular site, with main facade to the south onto the garden and back to the north facade, connected to the access road. The plant is organized into four pillars and structural bays of wooden beams perpendicular to the main façade, giving the pace of housing space set. Parallel to the main facade, the housing is organized into two spaces: the south, which is wider and integrates the main areas of housing, and the north, which is narrower and organizes access and core housing services. On the ground floor one finds the main units of the housing and is planned so that every day life takes place only in that plant. All openings to south and east connect with the outside of the house, providing permeability between inside and outside. The large porch to the south acts as an intermediate space between them. The ground floor has a large central work space, a bathroom and two bedrooms at the ends. The 3 main spaces are connected by a large deck to south terrace. Volumetrically, housing is conceived as a single volume and a single inclined cover of a single plane. The first flat terrace is integrated in this volume and the ground floor is proposed as an independent structure to the south added to the volume. In short, a house that wants to be consistent with itself and with its inhabitants: sober in simple shapes and finishes, but built with maximum energy and environmental rigor.

## Energy

### Energy consumption

CEEB : 0.0005

Primary energy need : 38,99 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 153,60 kWhpe/m<sup>2</sup>.year

Calculation method :

CEEB : 0.0005

### Envelope performance

Envelope U-Value : 0,18 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Envelope formed by half-timbering of 15 cm recycled cotton filling between two sheets of OSB. Exterior finish wood fiber 6 to 10cm thick as facade or alternatively with ventilated air.

Interior is finish with air chamber and plasterboard for the facilities. Siding with lime mortar and maple wood slats.

Building Compactness Coefficient : 0,82

Indicator : n50

Air Tightness Value : 1,70

## Renewables & systems

### Systems

Heating system :

- Electric radiator

#### Hot water system :

- Solar Thermal

#### Cooling system :

- No cooling system

#### Ventilation system :

- Natural ventilation
- Nocturnal ventilation
- Free-cooling
- Double flow

#### Renewable systems :

- Solar Thermal

Renewable energy production : 61,27 %

## Products

### Product

GEOPANNEL THERMO PYL

GEOPANNEL

info@geopannel.com

<http://www.geopannel.com/>

#### Product category :

Regenerated agglomerated wood with heat-fusible fibers. Suitable for pannellings and high thermal insulation requirements. Bluish gray color. 80% Regenerated product and 100% regenerable. Moisture resistant, 0.031 lambda, low absorption of water vapor. It does not contribute to the formation of mildew or mold. 100% free of mineral fibers. No skin irritation or throat.

Very well accepted by actors, accustomed to working with it.



#### Heat recuperator

Zehnder

Zehnder Group Ibérica Indoor Climate, S.A. C/ Argenters, 7 Parque Tecnológico 08290 Cerdanyola del Vallés Barcelona Tlf. +34 902 106 140 Fax +34 902 090 163 - Email: info@zehnder.es

<http://www.zehnder.es>

#### Product category :

The Zehnder 350 ComfoAir ventilation units control the inlet and outlet air of the ventilation system. Thanks to a very easy to use control unit it is easy to adjust the amount of air as needed. It is equipped with removable anti-fouling filter Class EU 3 (G4)

- Comfort ventilation up to 350 m<sup>3</sup> / h
- Recovery of heat with a performance of more than 90%
- Minimum power consumption due to DC motors (21W to 105W)
- Summer drift 100% automatic switching; Integrated by-pass for free-cooling.
- Frost protection function: also effective at low temperatures
- Fast and safe assembly and maintenance
- Radiocontrol and indication of filter clogging

Very well accepted by actors.



#### Solar system with vacuum tube collectors CPC

Paradigma

Paradigma Energías Renovables Ibérica, S.L. Polígono Industrial Masia Frederic - c/ Camí Ral, 2 - Nau 9 08800 Vilanova i la Geltrú (Barcelona) Tel. +34 938 145 421 Fax +34 938 938 742 info@paradigma-iberica.es

<http://www.paradigma-iberica.es>

#### Product category :

CPC Inox vacuum tube sensors meet all energy needs. For example: a solar installation with CPC Inox collector covers about 70-80% of the annual demand of 3/4 people for the heating of sanitary water. CPC Inox pickups achieve higher performance than absorber pickups, especially during colder months and in intermediate stations. Each Paradigma manifold can be integrated with a heater, a solar station and a Paradigma regulation to make the most of the advantages of a complete system.



With the new Aqua solar system, Paradigma offers for the first time the possibility of using the existing hot water accumulator as a solar accumulator, without the

additional cost due to the replacement of the accumulator. The new solar system Aqua uses the water of the installation instead of antifreeze liquid, since the water is a better heat carrier: available at all times, easy to use and, in addition, this solar installation consumes less electrical energy than traditional solar installations.

Well accepted by actors.

## Costs

## Urban environment

Integrated in the northern area of Cerdanyola del Valles, close to one of the main commercial areas of the city (paseo Cordellas), and one of the most important urban parks in the city single family homes housing. The plot has all utilities (electricity grid, water, sanitation and fiberglass), and is well connected with the rest of the city and territory: the nearest city bus is about 200m and the main commuter train station that connects the city with the city of Barcelona, is at 1200m (15min walk)

## Land plot area

Land plot area : 601,00 m<sup>2</sup>

## Built-up area

Built-up area : 25,00 %

## Green space

Green space : 340,00

## Parking spaces

1 parking covered surface

## Building Environmental Quality

### Building Environmental Quality

- Building flexibility
- indoor air quality and health
- biodiversity
- works (including waste management)
- consultation - cooperation
- acoustics
- comfort (visual, olfactive, thermal)
- waste management (related to activity)
- water management
- energy efficiency
- renewable energies
- maintenance
- building end of life management
- integration in the land
- mobility
- building process
- products and materials

## Contest

### Building candidate in the category





Energía & Climas Temperados

Green Solutions

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Bajo Carbono



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Premio de los Usuarios

