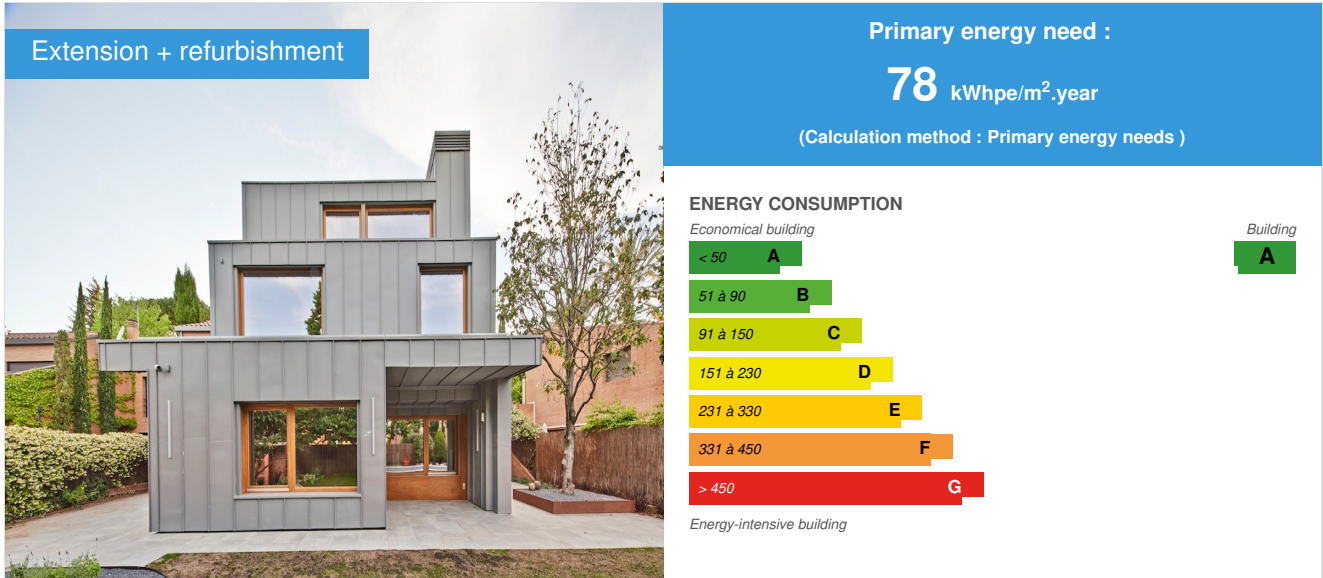


## House HQ1- Sant Cugat del Vâlles

by Oliver Style / 2023-02-06 00:00:00 / España / 360 / ES



**Building Type** : Isolated or semi-detached house  
**Construction Year** : 2019  
**Delivery year** : 2021  
**Address 1 - street** : Passeig de Valldoreix 08173 SANT CUGAT DEL VALLÈS , España  
**Climate zone** : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

**Net Floor Area** : 311 m<sup>2</sup> Superficie útil

**Certifications :**



### General information

Comprehensive rehabilitation of a single-family home, certified Passivhaus EnerPHit Component Method, and VERDE. Healthy bio-based materials have been used wherever possible, including a lime render for the airtight layer on existing masonry walls, sprayed cellulose as interior insulation, and clay slabs with clay paints.

The ground and 1st floors are of traditional construction, with perforated brick walls. An extension has been added on the 2nd floor, with a system of a light prefabricated wooden framework, with wood fiber insulation and a ventilated façade.

The final "Blower Door" tightness test achieved N50 = 0.99 ach. The construction details were analyzed in detail during the design phase to reduce and eliminate thermal bridges, together with dynamic hygrothermal simulation with WUFI to assess and eliminate the risk of moisture damage, since the existing brick walls were installed with internal thermal insulation.

Regarding the facilities, an air-water heat pump is used for heating, cooling and DHW production. Underfloor heating is used for both heating and cooling, supported by dehumidifiers installed in the mechanical ventilation system with heat recovery. Finally, the house has a 2.2 kWp photovoltaic generator.

## Data reliability

3rd part certified

## Photo credit

Jose Hevia

## Stakeholders

### Contractor

Name : Marcove Industrial, S.L.U.

Contact : marcove[at]marcove.com

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

### Construction Manager

Name : H.A.U.S. Healthy Buildings

Contact : +34 93 590 26 40

<https://www.haushealthybuildings.com>

### Stakeholders

Function : Designer

BAILORULL

bailorull[at]bailorull.net

<https://www.addarquitectura.net/>

Architecture

Function : Certification company

Energiehaus Arquitectos SLP

certificacion[at]energiehaus.es

<https://www.energiehaus.es>

Passivhaus certifier

Function : Contractor

Inmatec

jmalquezar[at]inmatec.net

<https://inmatec.net/>

construction contractor

Function : Developer

Marcove Industrial, S.L.U.

marcove[at]marcove.com

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

District Attorney

Function : Other consultancy agency

Oliver Style, Bega Clavero

praxis[a]praxis-rb.com

<http://www.praxis-rb.com>

Consulting & Passivhaus design

### Architectural description

The rehabilitation of the existing house HQ1 has been carried out with natural, healthy materials and low in VOC's (volatile organic content), such as lime plaster for the hermetic layer, cellulose spray for internal thermal insulation and clay panels with natural paints for the finish.

The openings have pine wood carpentry, Carinbisa V92, installed with multifunctional expansion tape ISO-BLOCO ONE from the company ISO-Chemie and triple glazing with low-emissive film and solar control. Both the carpentry and the expansion tape have a Passivhaus component certificate, a guarantee of hermeticity and insulation in the most critical points of the façade. The openings are protected with exterior blinds, stackable and adjustable, which are controlled by home automation.

## Energy

### Energy consumption

Primary energy need : 78,00 kWhpe/m<sup>2</sup>.year

Primary energy need for standard building : 250,00 kWhpe/m<sup>2</sup>.year

Calculation method : Primary energy needs

Final Energy : 56,23 kWhfe/m<sup>2</sup>.year

### Envelope performance

Envelope U-Value : 0,59 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Facade:

- Zinc finish + wooden board
- Ventilated chamber
- Rothoblaas Traspir 110 breathable-waterproof membrane
- OSB 3 board
- Pavatex Pavaflex wood fiber insulation [between structure]
- OSB 3 board
- Camera facilities
- Finish wood panel

U-Value: 0.186 W/(m<sup>2</sup>K)

Deck:

- Zinc finish + wooden board + ventilated chamber
- Rothoblaas Traspir 110 breathable-waterproof membrane
- Pavatex IsorooF wood fiber insulation
- OSB 3 board
- Pavaflex wood fiber insulation [between structure]
- Camera facilities
- Finish wood panel

U-Value: 0.149 W/(m<sup>2</sup>K)

Additional:

- Passivhaus certified carpentry, Carinbisa V92 pine
- EcoClay PLAC clay plates
- Cork insulation Aglocork Floors
- Kerakoll Biocalce lime plaster

Indicator : n50

Air Tightness Value : 0,99

## Renewables & systems

### Systems

Heating system :

- Heat pump
- Radiant ceiling

Hot water system :

- Heat pump

Cooling system :

- Reversible heat pump

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar photovoltaic

Renewable energy production : 11,40 %

## Environment

### GHG emissions

GHG in use : 13,44 KgCO<sub>2</sub>/m<sup>2</sup>/year

## Products

### Product

ComfoAir Q600

Zehnder Group

info[at]zehnder.es

<https://www.zehnder.es/>

Product category : Climatización / Ventilación, refrigeración

Sensitive heat recovery system, certified by Passivhaus.

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Altherma Heat Pump with double flow

Daikin

rabanal.j[at]daikin.es

[https://www.daikin.es/es\\_es/daikin-altherma.html](https://www.daikin.es/es_es/daikin-altherma.html)

Product category : Climatización / Calefacción, agua caliente

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Bekotec low profile underfloor heating

Schlüter

info[at]schluter.es

<https://www.schluter.es/schlueter-bekotec.aspx>

Product category : Climatización / Calefacción, agua caliente

## Costs

## Building Environmental Quality

### Building Environmental Quality

- indoor air quality and health
- acoustics
- comfort (visual, olfactive, thermal)
- water management
- energy efficiency
- renewable energies
- products and materials

## Contest

## Reasons for participating in the competition(s)

The rehabilitation of the existing house HQ1 has been carried out with natural, healthy materials and low in VOC's (volatile organic content), such as lime plaster for the hermetic layer, cellulose spray for internal thermal insulation and clay panels with natural paints for the finish. Both the carpentry and the expansion tape have a Passivhaus component certificate, a guarantee of hermeticity and insulation in the most critical points of the façade. The house has a 2.2 kWp photovoltaic generator, the thermal production equipment for heating, cooling and DHW is an air-water heat pump. Heating and cooling are carried out by low inertia underfloor cooling-refreshing with two Zehnder dehumidifiers.

## Building candidate in the category



Users' Choice



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