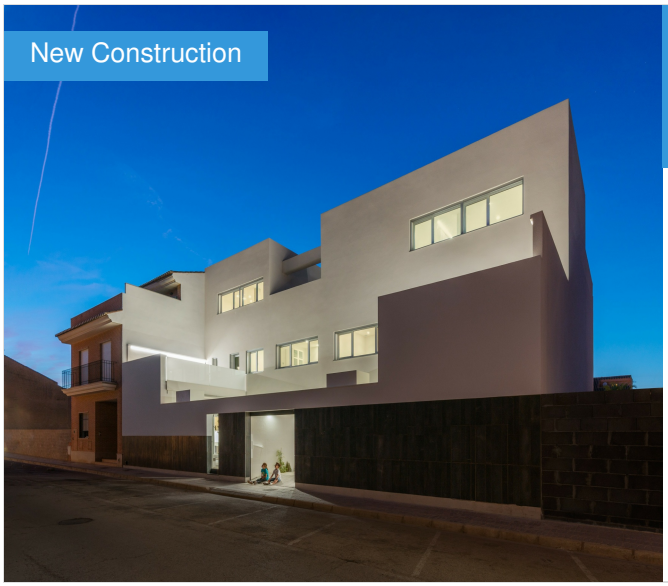
R&Roll Houses

by Rafael Ortega Escrig / 2021-03-30 16:04:35 / Espagne / 17156 / ES

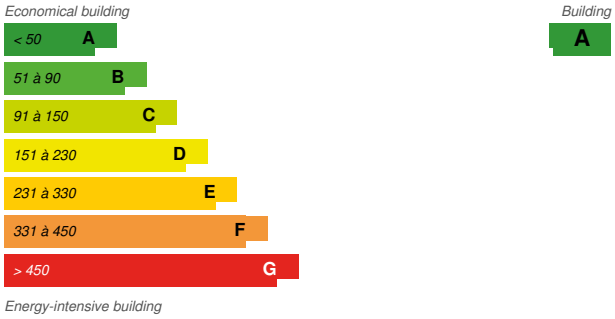


Primary energy need :

27 **kWhpe/m².year**

(Calculation method : Other)

ENERGY CONSUMPTION



Building Type : Terraced Individual housing
Construction Year : 2018
Delivery year : 2019
Address 1 - street : c/ Roll Menor, 48/50 46138 RAFELBUNYOL, España
Climate zone : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

Net Floor Area : 516 m²
Construction/refurbishment cost : 639 324 €
Number of Dwelling : 2 Dwelling
Cost/m2 : 1239 €/m²

Certifications :

General information

The **R&Roll Houses project**, the work of the architects **Rafael Ortega Escrig** and **Raquel Marcos López** belonging to the Spanish studio **ra[]el Arquitectura**, consists of two single-family houses between party walls, designed and built according to the principles of the **PASSIVHAUS INSTITUTE** using traditional concrete construction and brick, and insulated on the outside (SATE). Officially certified **PASSIVHAUS PLUS** in 2019, it is the first project of this type in the Valencian Community, promoted with the aim of being an energy-efficient building, technically and economically viable.

In order to also be a bio-healthy building, all construction processes have been developed to avoid toxic construction materials, electromagnetic fields and to reduce the carbon footprint through a responsible design with the environment.

It is important to note that the homes have a photovoltaic installation to produce the energy they need, as well as a gray water recovery system.

Based on the typical housing typology of the area and following contemporary aesthetic approaches, each house is organized facing an east-facing patio, which allows it to be used for almost the entire year. In this way, from the outside, two houses with a sober appearance are perceived, with a neutral upper body and the ground floor materialized as a round skin on which subtle indentations have been made that allow the entry of light while protecting privacy. of the users.

In the same way that special attention has been paid to the functional distribution of all spaces and the most profitable and efficient construction solution has been developed, the interior design responds to the careful study of every detail.

See more details about this project

https://passivehouse-database.org/index.php?lang=en#d_5978

Data reliability

3rd part certified

Photo credit

Adrián Mora Maroto

Stakeholders

Contractor

Name : SENTIM 1880
Contact : info[a]sentim1880.com
http://www.sentim1880.com/

Construction Manager

Name : ra[ ]el ARQUITECTURA | RAFAEL ORTEGA ESCRIG, RAQUEL MARCOS LÓPEZ
Contact : info[a]raelarquitectura.es
http://www.raelarquitectura.es/

Stakeholders

Function : Certification company

VAND Arquitectura

info[a]vandarquitectura.info

https://vandarquitectura.info/
PASSIVHAUS Certifier

Energy

Energy consumption

Primary energy need : 27,00 kWhpe/m^2.year

Calculation method : Other

More information :
Annual heating demand 10 kWh /(m2a) calculated according to PHPP
Heating load 10 W/m2
PE demand (non-renewable Primary Energy) 57 kWh /(m2a) on heating installation, domestic hot water, household electricity and auxiliary electricity calculated according to PHPP
PER demand (renewable Primary Energy) 27 kWh /(m2a) on heating installation, domestic hot water, household electricity and auxiliary electricity calculated according to PHPP
Cooling load 11 W/m2
Cooling and dehumidification demand 10 kWh /(m2a) calculated according to PHPP

Generation of renewable energy 59 kWh /(m2a) based on the projected area

Envelope performance

More information :

Exterior wall Plasterboard wall 26 mm
Structure of galvanised sheet steel profiles
Vapour control layer
Autoclaved aerated concrete (AAC) 200 mm
ETICS (rock wool panel 120 mm
Outer finish
U-value = 0.174 W/(m2K)

Basement floor / floor slab Pavement 5 mm,
Underfloor heating mortar 50 mm
Plate UP788-25 25 mm
Chovafoam 500 XPS 50 mm
Concrete slab thickness minimum 60 mm
Non-recoverable polypropylene formwork for ventilated screed
U-value = 0.393 W/(m2K)

Roof Gravel 100 mm
Mortar 30 mm
geotextile armed protection
waterproof layer of EPDM
Thermal insulation:double extruded polystyrene rigid boards (50+50)mm
"Latermix Cem Classic" lightweight insulating permeable concrete 150 mm
Floor of prefabricated concrete beams and extended polystyrene filler block 300 mm
Gypsum 20 mm
U-value = 0.18 W/(m2K)

Frame SCHÜCO, Ventana Schüco AWS 75 SI
Schüco AWS 75.SI+/ADS 75.SI
Schüco ASE 80.HI
U w-value = 1.19 W/(m2K)

Glazing ClimaGuard Premium 2 6/12Kr/4/12Kr/4+4
U g-value = 0.48 W/(m2K)
g -value = 52 %

Entrance door SCHÜCO
frame Schüco AWS 75.SI + / ADS 75.SI
Aluminum panel with 50 mm rock wool core.
U d-value = 0.61 W/(m2K)

Renewables & systems

Systems

Heating system :

- Heat pump
- Electric floor heating

Hot water system :

- Heat pump

Cooling system :

- Tape

Ventilation system :

- Double flow heat exchanger

Renewable systems :

- Solar Thermal
- Heat pump

Gray water recovery system

Costs

Building Environmental Quality

Building Environmental Quality

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

Contest

Building candidate in the category

Energy & Temperate Climates

Health & Comfort

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