

PassivPalau

The second certified Passivhaus home in Catalonia. A 130 m² single-family home, built in four months, with outstanding airtightness and no conventional heating.

The second certified passive house in Catalonia

PassivPalau is a 130 m² single-family home in Palau-solità i Plegamans, the second certified Passivhaus home in Catalonia and one of the first in Spain. Behind its traditional, Mediterranean looks sits an envelope built entirely to Passivhaus principles.

The project shows that a passive house needn't look high-tech at all. It can be the house any family would picture as home, using very little energy and holding steady comfort all year.

Technical data

- **Location:** Palau-solità i Plegamans
- **Year:** 2014
- **Built area:** 130 m²
- **Build time:** 4 months
- **Type:** detached single-family, new build
- **Certification:** Passivhaus Classic
- **Architect:** Eva Jordan (ARQUITIR)
- **Passivhaus consultant:** Micheel Wassouf (Energiehaus)
- **Construction system:** light timber frame, prefabricated panels
- **Insulation:** blown cellulose
- **Ventilation:** Zehnder with heat recovery

A design shaped around the client

The owners already knew the Passivhaus standard and wanted a house that looked traditional: single storey, timber structure, very low energy use and at home in its surroundings. We developed the design together with them through options, drawings and 3D models until we arrived at the final solution.

Architectural concept

From the outside, the house keeps a Mediterranean look: pitched roofs, a domestic scale and familiar materials. Behind that everyday appearance, the whole envelope follows Passivhaus principles.

The home faces mainly south and south-west to catch the winter sun, while the way the openings are shaded and shielded keeps summer overheating in check. The garden and the small vegetable plot are part of the bioclimatic thinking too.

Construction system

The building went up from prefabricated panels made in PAPIK Group's workshop, which brought speed, precision, tight quality control and far less waste.

Insulation is blown cellulose, paired with an exterior SATE system and timber cladding, with particular care taken to cut down thermal bridges.

Performance and comfort

PassivPalau has no conventional heating. The Zehnder ventilation with heat recovery holds a steady indoor temperature almost all year, with an airtight wood stove as the only backup for the rare cold snap.

The airtightness test came in at 0.24 air changes per hour, well below the 0.60 h⁻¹ Passivhaus limit. An excellent result that keeps energy use to a minimum and indoor air quality high.

Health and water management

The mechanical ventilation keeps the air constantly fresh, filters out particles, removes excess humidity and keeps CO₂ levels low. On top of that, the project reuses household water to irrigate the vegetable plot, taking sustainability beyond energy alone.

A house that looks traditional, with the comfort and tiny energy use of a certified passive home.