PROJECT 22 November 2018 | 4 min read

The first certified Passivhaus home in Sant Cugat del Vallès

PAPIK Group is raising the first certified Passivhaus single-family home in Sant Cugat del Vallès, a project designed with Energiehaus and built with a light timber-frame structure.

PAPIK Group is building the first certified Passivhaus single-family home in Sant Cugat del Vallès. The project is a reference for the Vallès Occidental county and, at the same time, the third house certified to the Passivhaus standard that we have raised in Catalonia, a benchmark that sets the most demanding criteria for comfort and energy efficiency.

The project carries an added significance for the company: it is being built in the municipality where PAPIK Group grew up. Over three decades we have raised numerous high-efficiency homes, whether passive, biopassive or Passivhaus-certified, and this project consolidates that record close to home.

From the first meeting to the final project

The commission came from a couple who already owned the plot and were looking for someone to build their home. They came to the PAPIK Group offices on a direct recommendation. As with every commission, the process advanced gradually: first defining needs and priorities, then presenting our product and our way of working. When we explained what the Passivhaus standard involves, they decided their house should meet this certification.

From that point the work was developed with the architecture firm Energiehaus, a reference in Passivhaus design and certification. The architectural design adapted the clients' needs to the firm's proposal until the final project was defined.

The architectural approach

Energiehaus describes the siting as follows: «the building is placed on the plot leaving the maximum outdoor space on the south side, where the garden and pool will be located. The existing slope on the west side is used to position the ramp giving access to the garage. The main façade, oriented to the south, is designed with large openings to take advantage of thermal gains during winter, and these are protected by a pergola and wooden slats to avoid solar capture in summer».

This logic, generous south-facing openings with seasonal solar protection, is one of the foundations of passive design: capturing heat in winter and preventing overheating in summer without relying on active systems.

A delayed start on site

Like many projects, this one was not free of surprises. The usual setbacks are generally resolved easily, but in the pre-construction phase covering permits and foundations, the complications delayed the start of works considerably. Once resolved, work was able to begin.

At the end of October 2018 we started raising the home by placing the expansive-membrane insulation and carrying out the initial levelling.

Insulation and airtightness from the base

The first step ensures the structure is fully insulated and sealed from the concrete slab. Self-expanding protective membranes are installed to seal the exterior from the interior along the lowest part of the building. Once fitted around the whole perimeter, the entire base of the house is levelled, correcting the small irregularities of the foundation.

With this process complete, the site is ready for the light timber-frame structure with which we build the home. This system of industrialised timber construction allows precise control of thermal bridges and air-tightness, two decisive factors in achieving Passivhaus certification.

> Certifying the first Passivhaus in a municipality is not a symbolic milestone: it sets a verifiable technical benchmark for how a high-comfort, low-energy home can be built from now on.