

K-Mogent

A 215 m² single-family home in Llinars del Vallès, designed to Passivhaus criteria as a nearly zero energy building, with excellent energy performance.

Technical precision and energy performance

K-Mogent is a 215 m² single-family home in Llinars del Vallès, designed to Passivhaus criteria as a nearly zero energy building. Its strength lies in the precision of its detailing: every architectural decision improves comfort, energy performance, durability and buildability all at once.

The result is a well-balanced contemporary home, built to give you the highest comfort on the lowest energy use, right through the year.

Technical data

- **Location:** Llinars del Vallès
- **Year:** 2020
- **Built area:** 215 m²
- **Type:** detached single-family, new build
- **Construction system:** Eskimohaus, light timber frame
- **Insulation:** blown cellulose
- **Façade:** SATE and ventilated timber façade
- **Climate control:** aerothermal
- **Ventilation:** Zehnder with heat recovery
- **Standard:** designed to Passivhaus criteria, nearly zero energy building (nZEB)

Energy performance

- **Blower Door test:** 0.42 h⁻¹
- **Heating demand:** 10.27 kWh/m²|yr
- **Cooling demand:** 10.22 kWh/m²|yr

— Primary energy: 76 kWh/m²|yr

These figures place the home within the targets of the Passivhaus standard. The airtightness result of 0.42 h⁻¹ comfortably beats the 0.60 h⁻¹ maximum the standard allows.

Site and bioclimatic strategy

The home sits at the foot of the Montseny massif, a demanding climate with cold winters and summers that bring strong solar gains. The project answers that double challenge by combining orientation, a compact form and passive shading.

The main façade opens to the south to catch the winter sun, while in summer the shape of the building and its shading elements keep it cool. This cuts the need for active heating and cooling considerably.

Architectural concept

The architecture follows one clear principle: the simpler the form, the better it performs. The building takes an almost rectangular, compact shape that shrinks the surface of the envelope, keeps thermal bridges to a minimum and makes the build easier, with nothing superfluous.

Spatial layout

The ground floor is where daily life happens, with the living room, dining room, an integrated kitchen, a study, a bedroom and a bathroom, all opening directly onto the garden through large glazed surfaces.

Upstairs there are two bedrooms, a bathroom and a south-facing terrace. The layout puts flexibility and daylight first.

Construction system

K-Mogent is built with an industrialised light timber frame, high-density blown cellulose insulation and a façade that combines the SATE system with a ventilated timber-clad finish.

Airtightness comes from Finsa Superpan Tech P5 panels, which also stiffen the whole structure. Together, the structural timber and cellulose insulation keep the home thermally steady and hold the carbon footprint down.

Systems and comfort

A single high-efficiency heat pump handles heating, cooling and hot water, while the Zehnder ventilation with heat recovery keeps the air constantly fresh, filters out particles and maintains excellent indoor air quality.

The result is steady comfort year-round and one of the best energy performances in the portfolio, with a heating demand of just 10.27 kWh/m²|yr.

The simpler the form, the better it performs: in K-Mogent, the architecture grows straight out of how it is built.