

The energy mortgage: the hidden cost you pay every year to stay comfortable

Beyond the bank loan, every house carries a recurring cost to keep its thermal comfort. Quantifying it before building or buying completely changes the calculation of what a home really costs.

When someone buys a house, the first thing they calculate is the bank mortgage. Rarely do they stop to estimate how much it will cost, year after year, to guarantee daily comfort inside it. That second cost is what we call the energy mortgage: not a loan or a conventional financial obligation, but the investment made continuously to condition the home and keep a healthy indoor environment.

Being able to estimate precisely how many euros of energy are paid over the year, and placing that figure next to the total cost of building or buying the home, gives a far more honest picture of what living in a house involves. Below we explain the concept, the technical parameters that determine it, and the economic and social benefits of building without an energy mortgage.

The energy mortgage has nothing to do with a bank loan

The energy mortgage is the cost of maintaining a home's indoor comfort through heating and cooling. Put another way, it is what is paid each month so that the house stays thermally and energetically balanced. That cost is calculated by multiplying energy consumption, expressed in annual kWh, by the price of energy, taking into account the dwelling's conditioning demand.

The clearest way to understand it is to compare two cases:

- A traditional house, old and poorly insulated, with high conditioning demand, which can consume up to 150 kWh/m²a.
- A Passivhaus, designed to maximise efficiency, with far lower demand, usually below 15–20 kWh/m²a in Mediterranean climates, and below 15 kWh/m²a for an Eskimohaus certified under the Passivhaus standard.

As conditioning demand falls, so does consumption and therefore expenditure. The energy mortgage decreases in the same proportion. Whereas in a traditional house comfort forces a considerable sum to be spent on energy, in a very high-efficiency Eskimohaus that expense drops dramatically, leaving room to direct resources to other areas of life.

Conditioning demand

To get a precise sense of what the energy mortgage involves, it helps to understand the parameters that set conditioning demand. This magnitude is measured in kWh per square metre per year, and varies according to the type of building and the construction standard. A high value means low energy efficiency; a low value, less energy needed to condition the house.

Since the 2019 update, Spain's Technical Building Code no longer sets specific limits for heating and cooling demand, but instead regulates total energy consumption through the total primary energy consumption indicator (CEP_{total}), defined as the building's annual energy consumption per useful floor area, expressed in kWh/m²/year. That value depends on the climate zone, the building's use, and whether it is new construction or a retrofit.

Passivhaus homes in a Mediterranean climate

The Passivhaus standard, recognised worldwide, sets very strict limits to guarantee minimum energy consumption. In a Mediterranean climate, a Passivhaus must keep a maximum conditioning demand below 15 kWh/m²a. These figures ensure minimum energy consumption for heating and cooling.

The Technical Building Code (CTE)

By contrast, the Technical Building Code in force since 2019 allows considerably higher limits for conditioning demand, which can fall between 40 and 86 kWh/m²/year for new buildings. These limit values depend on three factors:

- The climate zone, classified from A to E according to winter climate conditions.
- The building's use, private residential or otherwise.
- Whether it is new construction, an extension, a renovation or a change of use.

For new residential buildings, the limit values are as follows:

- Climate zone A: 40 kWh/m²/year.
- Climate zone B: 50 kWh/m²/year.
- Climate zone C: 56 kWh/m²/year.
- Climate zone D: 64 kWh/m²/year.
- Climate zone E: 86 kWh/m²/year.

Buildings predating the 2019 CTE carry far higher demand. Until 2006, the Technical Building Code did not even mention energy efficiency. According to the study by the IDAE (Institute for the Diversification and Saving of Energy), these buildings can exceed 100–300 kWh/m²/year.

These differences translate into very disparate energy costs. A practical example illustrates it:

- Traditional house or old building: a 100 m² house with a demand of 150 kWh/m²a implies an annual consumption of 15,000 kWh.
- Eskimohaus: with a demand of 15 kWh/m²a for the same floor area, consumption falls to just 1,500 kWh a year.

At an average cost of 0.15 €/kWh, the traditional house would pay approximately 2,250 € a year in energy for conditioning, while a Passivhaus would cost around 225 € a year. The difference exceeds 90% in both consumption and energy expenditure.

Personal saving and social impact

Energy efficiency as an investment, not a cost

Building a high-efficiency home, such as the Passivhaus-certifiable Eskimohaus houses, not only optimises consumption: it represents considerable economic saving in the long term. A few figures make it concrete:

- Saving in consumption: a Passivhaus can cut energy consumption by up to 90% compared with a conventional building, translating into savings of up to 2,000-2,500 € a year on energy bills, depending on the size and use of the dwelling.
- Return on investment: although the initial investment to build a passive house may be slightly higher, which is not always the case, the additional cost is recovered over time thanks to energy saving. According to several studies, the return can reach 100% within 10-15 years, shortening if the price of energy rises. Against a service life measured in centuries, that period is insignificant.

Energy mortgage versus bank mortgage

It helps to think of the energy mortgage as a hidden mortgage that must be paid every year to keep the home comfortable. Even once the financial mortgage is settled, that cost continues. In a house with high demand, for example 150 kWh/m²a, the energy mortgage can represent a considerable expense that directly affects the family budget and holds back future saving capacity.

In a very high-efficiency house with much lower demand, below 15-20 kWh/m²a where certified as Passivhaus, that expense drops dramatically. Instead of committing 15-20% of the annual budget to energy, that money can go to other areas of life. The energy retrofit of an existing home follows the same logic: reduce demand to lighten the recurring cost.

Impact on the family budget and on society

A family saving approximately 2,000 € a year thanks to energy efficiency can direct that amount toward improving quality of life. It is worth putting into perspective:

- Leisure and culture: 2,000 € allows family outings, short trips or cultural activities that enrich social life, while reinforcing a mostly local, community-based industry.
- Quality food: less spending on energy opens the door to organic, local produce, a healthier diet and a sustainable business model.

- Health: consuming less energy reduces dependence on fossil fuels and improves indoor and outdoor air quality, with fewer health risks and lower future medical costs.
- Social impact: the sum of these factors redistributes resources, drawing them away from the energy industry and channelling them toward education, culture, security and innovation, creating a virtuous circle of collective wellbeing.

Efficient house versus traditional house

Percentage of saving

From the consumption data calculated, the comparison between a traditional house and a sustainable Eskimohaus can be set out precisely. Annual saving can exceed 90% in energy consumption. Investing in a very high-efficiency house, like the Eskimohaus homes we build at PAPIK Group, means committing only a small fraction of the budget a traditional house would need to maintain the same thermal comfort.

Energy efficiency and quality of life

Investing in a high-efficiency home is not only a smart decision economically, but also in terms of quality of life. When we speak of a healthy, comfortable dwelling, we mean spaces that provide:

- Constant thermal comfort, without abrupt temperature swings, thanks to first-rate insulation and controlled ventilation.
- Indoor air quality: our houses incorporate a system that purifies the indoor air and keeps an environment free of pollutants and damp, with positive effects on the wellbeing and health of all occupants.
- Noise reduction and better acoustics, an additional benefit of the thermal and acoustic insulation a Passivhaus offers.

These features are key to a healthy home and improve general wellbeing. To the economic saving is added the possibility of directing more resources to personal care, family time and cultural or social activities. This same principle guides our decision between retrofitting and building anew.

A commitment to the future: building homes without an energy mortgage

At PAPIK Group we build a solution that prioritises the wellbeing and health of those who live in it, without losing sight of the real cost of maintaining comfort. Our commitment to exclusive Eskimohaus construction, sustainable, with a timber structure and Passivhaus design, reduces this energy mortgage dramatically.

Choosing an Eskimohaus construction is not only investing in a house, but in a more sustainable, economical and healthy future, with a direct impact on quality of life and on the ability to direct resources toward what really matters.

The first mortgage is agreed with the bank; the second is set by the way the house was built. Only one of the two can be cancelled on the day the home is designed.