

Sustainable construction against climate change: the ice cube lesson

This summer, as much of Europe broke temperature records, an experiment with two identical ice cubes made one uncomfortable idea clear: the way we build decides how we withstand the heat.

This summer, as much of Europe broke temperature records, I read a headline that stayed with me: the climate crisis is far worse than we are usually told. It came from an analysis piece by the Col·legi de Periodistes de Catalunya that asks why the media tends to play down the climate emergency. For years, at PAPIK Group, we have believed that sustainable construction against climate change is not just one more option within the sector: it is the most serious answer within our reach to face, from the craft of building, heatwaves that grow longer and harsher every year.

This article grows out of that thought. I want to explain why the story we hear about climate change tends to fall short, and why we, who have been building timber homes in Catalonia for more than twenty years, are certain that the way we build your home can be part of the solution rather than the problem.

When journalism falls short of the climate crisis

The report begins with an uncomfortable question: if extreme climate events multiply every year, why has media coverage of climate change lost ground for several years running? The answer has to do with something the science historian Naomi Oreskes described as the tendency to err on the side of least drama: the habit, within the scientific community too, of softening the most severe predictions so as not to seem alarmist.

The result is that many people see climate change as a distant, gradual and manageable problem. The reality is different: heatwaves above 40 degrees, warming seas and a crisis that many experts describe in blunt terms. If the story we receive is more moderate than the evidence, it is easy to see why acting with the urgency the situation demands is so hard.

We are not journalists or climatologists. We are a construction company. But for decades we have seen first-hand how a poorly built house suffers in the heat and how a well-designed one resists it effortlessly. And that, however small it may seem, is also a way of talking about climate change with data, without exaggerating or downplaying. The watt that pollutes least is still the one that is never produced.

An ice cube in the middle of the street that does not lie

In May, in Logroño, the ARIC cluster and the Passivhaus Building Platform built two huts that looked identical from the outside: one to the standard Spanish Building Code and the other following Passivhaus principles. Inside each they placed a block of about 989 kilos of ice. For thirteen days, both structures took direct sun with no air conditioning, with outdoor temperatures reaching 38 degrees.

The outcome was decisive. In the conventional hut, the ice melted completely before the challenge was over and the interior reached 26 degrees. In the Passivhaus hut, 279.8 kilos of ice were still intact, and the indoor temperature stayed between 6 and 15 degrees throughout the experiment. Same shape, same sun, same block of ice; the only difference was how they were built.

The test was part of the Icebox Challenge, an international initiative that shows, in a very visual way, that the way we build directly shapes our ability to adapt to heat.

Why passive houses are sustainable construction against climate change

At PAPIK Group we have been building to the Passivhaus standard for more than twenty years. Our Eskimohaus homes follow the same principles that let the Logroño hut keep its ice:

- Reinforced thermal insulation
- Absence of thermal bridges
- Very high quality building envelope
- Airtightness
- Mechanical ventilation with heat recovery

What happened with the ice is exactly what happens to a family inside a passive house during a heatwave: outdoor heat finds it far harder to get in and indoor coolness finds it far harder to get out. That means the air conditioning does not have to run constantly to keep a comfortable temperature, because the building envelope itself does most of the work.

Efficiency, comfort and wellbeing

Energy efficiency is not only a matter of bills. Living in a house with wide temperature swings has a direct impact on health and wellbeing, especially during heatwaves. Keeping a stable indoor temperature is not a luxury but a form of protection against climate episodes that are becoming more frequent.

Homes that absorb more CO₂ than they emit

Another key piece is the material. At PAPIK Group we build with timber from certified plantations that have spent decades absorbing CO₂. Wood acts as a carbon store: the CO₂ captured while the tree grows stays locked in the structure of the house for many years. That is why a timber house can end up fixing more CO₂ than is emitted during its construction.

Beyond the walls of your home

We work exclusively with FSC-certified timber and keep researching sustainable materials to reduce the impact of each project even further. Because sustainable construction is not only about lowering a home's energy use, but also about protecting forests, reducing the territorial footprint and cutting dependence on fossil fuels.

Conclusion

The Logroño ice cube showed, in a very simple way, that the way we build has direct consequences for our ability to face the climate emergency. For us, the answer is to build homes able to resist heat with minimal consumption, with materials that capture carbon and by applying Passivhaus principles to guarantee comfort, efficiency and long-term sustainability.

After more than twenty years building high-efficiency timber homes, we would rather prove the results with data than with promises.