



ENERGY EFFICIENCY, PASSIVE HOUSE, SAVING IN OPERATIONAL COST. WHAT WE LEARNED FROM THE LA FIRES?

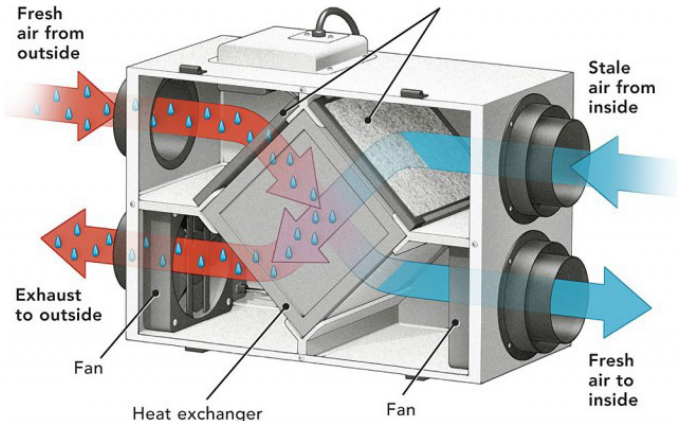
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Introduction: **LA House that stood the fire, what is its secret?**

As wildfires continue in LA, our thoughts and prayers are with those affected. One remarkable story has emerged—a single home remained standing while others around it were destroyed. The reason? It was a Passive House-certified home. Let's explore what Passive House is and why building to this standard offers significant benefits.

What is a Passive House?

Passive House is a rigorous energy efficiency certification
Heat recovery ventilation system



that ensures buildings meet strict standards for airtightness and energy consumption, reducing energy use significantly compared to conventional code complaint buildings.

Is Passive House Certificate for homes only?

No—Passive House Certificate and standards applies to both residential and commercial buildings, each with its set of specific performance targets.

Key Passive House Principles:

Thermal Insulation – High-performance insulation minimizes heat transfer.

Airtight Construction – The building envelope is airtight to keep the interior at a comfortable temperature. No outdoor air seeps in, and no indoor air escapes.

Heat Recovery Ventilation – A heat exchanger transfers heat from exhaust air to fresh air to improve indoor air quality and save energy.

Continuous Insulation – Insulation is applied without gaps between foundations, walls, floors, doors, windows, and roofs.

Thermal-Bridge-Free Design – Materials and building elements that extend from the interior to the exterior are avoided.

High-Performance Glazing – Windows and other Glazing optimize energy efficiency and comfort.

In simpler terms, a Passive House is like a super-insulated and airtight thermos for your building. It's designed to keep the indoor temperature stable and comfortable without relying heavily on traditional heating or cooling systems. This not only reduces the environmental impact but also leads to significant energy cost savings for the occupants.

So, imagine a building that stays warm in the winter and cool in the summer without constantly needing the heater or air conditioner running. That's the essence of a Passive House – a smart and eco-friendly approach to building design.

Why Do Passive House Buildings Perform Better in Fires?

While no building is entirely fireproof, Passive House principles contribute to fire resilience. Airtight construction limits oxygen flow, reducing the likelihood of embers infiltrating. Additionally, high-performance aluminum-framed windows are more resistant to heat compared to vinyl alternatives, enhancing durability.

To Note the Architect have included few more details that helped in fire protection, in addition to what is listed above:

The house does not have eaves, overhangs, or attic vents “to allow sparks to get inside the roof, which is metal, with a fire-resistant underlayment.”

“Simpler forms (fewer zigs and zags, bump-outs, etc.) mean fewer nooks and crannies for embers to take hold, plus less overall surface area exposed to fire risk.”

A protected area outside of the house free from vegetation and fenced -off by cast-in place concrete.

“While there is nothing entirely fireproof, some of the passive house principles help combat fires, the airtightness construction is one of the reasons buildings withstand blaze.”



Investment & ROI

Passive House buildings require an upfront investment of 1.5%–5% more than conventional buildings, but the long-term savings for operational costs are substantial.

For example, Parkview at Terwilliger Plaza, the largest Passive House-certified senior living building, have an operational cost half a regular code complaint building and its upfront investment is just an additional 1.8%, with a payback period of 13 years—after which, energy generated through its array of Solar Panels are essentially free.

Benefits of Passive House Buildings:

Safe – Strict quality control ensures high safety standards.

Healthy – Superior air quality promotes well-being.

Comfortable – Enhanced insulation and efficient systems create a quiet, comfortable space.

Resilient – Withstands extreme weather events, including wildfires.

Durable – Designed for longevity with meticulous construction.

Energy-Efficient & Cost-Effective – Drastically reduces energy use, leading to major savings over time in the operational cost.

Building to Passive House standards doesn't only achieve energy efficiency, but also resiliency, comfort, a smarter future and efficient operational cost.

Would you consider a Passive House for your next project?

Reach out to Impact Architects, to help you out in your next project. Share with us your aspirations.

Terwilliger Plaza, the largest Passive House-certified senior living building

