

ELSWORTH SHOW HOME

UK's first show home built to the passivhaus standard

Project: Elsworth Potton Show Home

Company: Kingspan Timber Solutions

Sector: Self-Build

Technology: Kingspan TEK Systems

The Project:

Kingspan Timber Solutions delivered this contemporary new show home to our client Potton. The new show home is constructed using the [Kingspan TEK®](#) Building System and is the UK's first show home built to the Passivhaus Standard.

Part of the motivation for constructing the home was to dispel the myths often associated with Passivhaus builds – for example, not being able to open the windows, the air inside being unhealthy and the ventilation system being noisy and expensive to run.

The Design:

The Elsworth was designed to challenge all of those Passivhaus expectations. With innovative features which are visually exciting and technically challenging, the sustainable show home, which was designed by HTA Design LLP, demonstrates what can be achieved without the need to compromise on style or design.

The new show home has nearly double the amount of insulation and is approximately ten times more airtight than a property which just complies with current UK Building Regulations. This is due to its building system, [Kingspan TEK®](#), which is a structural insulated panel system. It incorporates a unique jointing system which minimises thermal bridging and maximises airtightness, allowing the property to remain at the low level of air changes necessitated by the Passivhaus Standard. The offsite nature of structural insulated panel construction also benefitted the build itself, allowing for a fast build time, accurate build schedule, and minimal disruption to the surrounding properties.

"Achieving the requirements of the Passivhaus standard can be a challenge. It often leads to the architectural design of the building to be compromised in order to offer the most energy efficient form, typically resulting in a design that sacrifices interest for simplicity. Potton and HTA Design wanted to demonstrate that it is not necessary when a high performance construction system is used. We purposely selected the design which would be the most complex to build from an energy efficient perspective as it offered the most flexible family home. The result is a testament to the high levels of building performance and architectural design that can be achieved with careful planning, expert workmanship and the right products." – Rory Bergin, Architect and Head of Sustainable Future, HTA Design

"We have used the Kingspan TEK® Building System on hundreds of low-energy buildings and trust and understand its performance characteristics. From experience, we knew that by carefully sealing and taping the external wall junctions that we could achieve the airtightness required for a Passivhaus level construction. After carrying out two tests, including a smoke test to reveal leaks, we attained a final result of 0.43 ach (air changes per hour) @ 50 Pa, exceeding the standard's minimum of 0.60 ach @ 50 Pa." – Dr Paul Newman, Self Build Director, Potton



