

## **Low energy homes in Herefordshire first to be certified to AECB Silver Standard**

A small development of detached houses in Herefordshire has become the first buildings to be certified by the AECB to their Silver Standard.

St Katherine's Field was built by IE Developments Limited, a Herefordshire company with 30 years experience in innovative building, and is designed to offer its occupants a 75-80% reduction in heating bills compared to standard homes.

Stuart Speight Director at IE Developments said: "We are very proud to have been awarded the Silver Certification from the AECB, the first development in the UK to receive this.

The goal of the development was to offer truly low energy and sustainable homes, and the certification was a key part of the strategy, said Mr Speight: "It was very important to us to have a recognised standard to achieve from a respected organization. The fit with AECB was ideal, as their aims are very similar to our own."

A recognised standard was important to IE Developments because achieving it would guarantee their new homes would genuinely perform. "So many buildings are sold as "Eco" when all they have is a few PV panels or an air source heat pump, and they leak like sieves! But we wanted beautiful homes that weren't burdened with a plethora of Heath Robinson style bolt-ons, but simply worked, through good design and a well thought out approach.

"The AECB standard was certainly challenging to achieve, but the result is amazing. In the winter when there was ice outside, the buildings were at 20 degrees indoors before the heating even installed. These building really work."

IE Developments wanted to find architects with a proven track record in the field. "We were lucky enough to find Architype, who are virtually on our doorstep, and whose many award-winning buildings demonstrate their commitment to energy efficient and sustainable architecture."

"We've always specialised in high quality developments and for some time we have been importing the knowledge and practices of some of our European partners to give us the quality we were looking for.

"We have been very impressed by the high energy performance being achieved on the continent, and the fact that this performance is done 'passively' – without the need for bolt-ons, and we wanted to see if we could do the same. So we decided to explore this approach on a small site, and see if we could actually make it work technically, yet still offer the kind of kerb appeal we wanted."

Architype introduced IE Developments to Nick Grant of Elemental Solutions, who advised on the technicalities and carried out the energy performance analysis, and the Nick in turn suggested that IE Developments should become a member of the AECB.

The key principles of AECB Silver Standard are high levels of insulation and airtightness and avoidance of cold bridges through the structure. The principles are based on sound building physics, and the modelling uses PHPP, the same energy modelling software as used for Passivhaus.

Conventional construction tends to allow too much infiltration by cold drafts in winter, and even with timber the structure can form cold bridges, conducting heat from inside to outside, and risking cold spots on the interior.

The design team brought in local timber frame manufacturer Taylor Lane to work with them to develop a system of construction that would achieve the targets required under the AECB scheme.

“We worked with our timber frame supplier to develop a system that overcomes the cold bridging issue by basically building a house within a house. The structure is on the inside with a system of Larsen trusses making an envelope, filled with insulation, around the entire building. The trusses are only supporting the outer skin so they can be extremely light, with minimal heat conductivity.

“This wall and roof system is coupled with a German foundation system that sits on a raft of insulation. This joins the insulation above ground, so the entire building is wrapped in insulation. As a result, the houses only need the smallest boilers the manufacturer supplies; our 4-bed houses use the size that is usually installed in a flat.”

The homes have achieved airtightness of under 1 air change per hour to eliminate cold drafts (this is 10 times better than required by the Building Regulations). “With the airtightness goes heat recovery ventilation – this is not just energy efficient, but is also a comfort system. Occupants are breathing filtered fresh air all the time, however cold the weather, which is a great plus.

“To cut energy used still further, there is LED lighting throughout, and discreet solar thermal panels for hot water, but these are tucked away out of sight. We were particularly proud of our Cedar roofing shingles, which are absolutely beautiful, and we did not want to spoil the look of the houses.”

The EPC for the first completed house on the site is 101, making it A rated, one of the very few in the UK to achieve this rating.

“The team we brought together has collaborated brilliantly to achieve a target which is several years ahead of current Building Regulations. We have all learned so much throughout this process, and we will be taking that learning forward into future developments.

“The standard was by no means an easy target to hit, but we would rather make the effort and be proud of what we have built, and we certainly are. We believe we are able to offer our customers a highly specified, luxurious and comfortable home that is highly energy efficient and environmentally considerate. This has to be the way forward in our minds.”

For more information on the AECB Silver Standard Certification and how to become a member visit [www.aecb.net](http://www.aecb.net).