Case Study

Norfolk Holiday Home

"Beattie Passive combined new ways of working with traditional values of good workmanship"

The 130m² single storey 4 bedroom home is based in a secluded seaside location off a private track in the idyllic Norfolk countryside.

1. What led you to Passivhaus as a construction method?

For us the question became not why would we build to the Passivhaus method but more **'why wouldn't we?'** As we looked at the costs, there wasn't really much difference between a more traditional method of construction and Beattie Passive's. At the start of the project we imagined a fairly well insulated house, coupled with something like a heat pump, but then it occurred to us that systems like heat pumps, while interesting, are aimed at fixing an issue i.e. heating the house, that doesn't really need to exist in the first place. We concluded that the **investment should be in the super-insulated fabric and not questionable eco-gadgets**, such as heat pumps, or long term costs like fuel. The other important aspect was keeping the architect's original design and the Beattie Passive system doesn't dictate the design - it fits in with your's.

"The air tightness result was really impressive although not unexpected given the rigorous approach applied by Beattie Passive"

2. How and why did you approach Beattie Passive

Beattie Passive was recommended by Mole Architects as they had worked with them on a project previously. Although a first hand recommendation is valuable we still wanted to know more about the company. We found the company to be really open. In the first instance we visited the offices in Hethel and met the team. While the house was being fabricated, I went to the production facility and met the team there. While this isn't a 'hands-on' build I was keen to see the process in action and to meet the people involved. I **appreciated the open approach** and it was re-assuring to meet the team.

The family outside the completed structural thermal envelope, ready to be finished.

3. What has been the most interesting aspect of having both a Passivhaus and the system from Beattie Passive?

We think the most interesting element is to see the gulf between a traditional build and what is a more modern approach. **Now it almost seems quaint that you would want to built a 'traditional' house** with bricks and mortar, especially knowing that the end result is going to be way behind a Passivhaus in terms of running costs but more importantly in terms of comfort. The Beattie Passive approach, with the emphasis on air tightness, super insulation and the elimination of thermal bridges, is really the way forward. It is also better to have as much done in the factory as possible because the time on site is kept to a minimum and the level of quality can be far better controlled.

4. What has been the best/most surprising aspect to the build?

Perhaps the most surprising aspect was to **see how quickly the structure went up**. It was very quick once the groundworks were done. The other surprising thing is, **if it is so easy and cost effective to build houses that essentially don't require heating** why isn't it mandatory? Given the emphasis on complex and expensive solutions to climate change, why are obvious ones like this not given more prominence?

5. Have there been any downsides to the project

The only downsides are quite minor. Because the fabric has to be kept airtight there are elements like a stove where you have to put in pipes very early and this has involved a fair bit of coordination. Of course you don't actually need a stove to heat the house but we wanted one to give the house a cosy feel.

Technical Specification:

Wall U value:	0.11 W/m^{2}k
Roof U value:	0.11 W/m^{2}k
Ground Floor:	0.11 W/m^{2}k
Air Tightness:	0.309 m^3/h/m^2@50pa
	0.52 ach, n_{50}

6. How has the process been on site?

The process on site has been very smooth. Beattie Passive provide a single point of contact, in our case Benedict, the Project Manager. This made the **process very straightforward because** we could go to Benedict with any questions or concerns. On site there was a site foreman, Steve, who led a small team. On site visits Steve was always available to talk us through what had been happening. We **felt that Beattie Passive combined new ways of working with traditional values of good workmanship** and actually caring about what they were doing.

7. Which aspects are you looking forward to most once the build is completed, due to it being a Passivhaus?

We are looking forward to the low running costs. We **anticipate that it will be an extremely comfortable house to live in.**

8. Air Tightness Results

The **air tightness result was really impressive** although not unexpected given the rigorous approach applied by Beattie Passive. If the house was built to current Building Regulations standards then the house would be leaking around 20 times more air. That says a lot about this type of construction method but also the current Building Regulations!