



Site Visit: Gentoo Racecourse Passivhaus Development

Houghton-le-Spring, Durham

Thursday June 16th 2011, 1.30 - 4.30pm



Background

People and property business Gentoo is currently building what is believed to be the first certified Passivhaus scheme of its scale in the UK. The 28 unit bungalow scheme, due for completion this Summer, is marking a step change for the UK building industry and it is hoped that the scale and nature of this development will set a precedent for the design and construction of sustainable, low carbon homes throughout the UK.

Together with their Passivhaus design consultant, Devereux Architects, Gentoo created a stringent site induction process and Quality Assurance system to respond to the specific demands of this development. As such Gentoo Construction have achieved a level of construction quality far in excess of the UK norm.

This site visit provides a unique opportunity to view the properties at an exciting stage in construction, and to hear from the experts about the benefits and challenges of design and construction of a development to Passivhaus standard. At this stage, three detached plots, and one terrace are near completion, and the remaining plots in construction.

Who should attend?

GHA members, developers and housebuilders, who are interested in seeing how the planning, procurement and design of sustainable homes affects aspects of building systems and construction on site. The event will also be of interest to those in the region with an interest in seeing examples of sustainable housing delivered in practice.

The information will be shared through presentations, informal discussion and tours of the development site. This will include the developers and their teams explaining how sustainable homes have become the core focus for their business.

Numbers are strictly limited- booking is essential. As this is a tour of a construction site, attendees will need to bring their own PPE (hard hats, boots and high vis), and be prepared for all weathers.

Free to GHA members, £25 + VAT for Passivhaus Trust members, £50 + VAT to non-members: please email info@goodhomes.org.uk to book a place.

Programme

- 13.30 [Arrival and Light Refreshments](#)
- 14.00 [Welcome and introduction from Gentoo](#)
Gentoo
The drivers and benefits of a Passivhaus project, lessons learned and an insight into the process from the client's perspective.
- 14.10 [Design of a Passivhaus development](#)
Mark Siddall (Devereux Architects)
A description of the design process, and challenges addressed in this development. Achieving Passivhaus targets and lessons learned.
- 14.30 [Construction](#)
Allan Thompson (Gentoo)
The construction process and specific construction challenges associated with delivery of a development to Passivhaus standard, including skills.
- 14.50 [Timber Frame Passivhaus](#)
Alastair Rennie (RTC Timber Systems)
Challenges specific to construction of the Passivewall timber frame system used in this development. A display demonstrating this system will also be available to view.
- 15.10 [Walk to site](#)
(5 minutes)
- 15.15 [Tour of the development](#)
Gentoo
A tour of some of the detached and terraced bungalows in the development, which are presently at different stages of construction, revealing various aspects of the design, construction and services.
- 16.30 [Close](#)

[Next events:](#)

Passivhaus Trust: 1st Year Anniversary event July 5th

Good Homes Alliance: Framework event July 6th

Gentoo PassivHaus

The term "Passivhaus" refers to a specific construction standard for buildings with excellent comfort conditions during summer and winter, without the need for a traditional heating system. The homes rely on passive solar gain, air tightness and super high standards of insulation. The building fabric greatly reduces energy consumption (by 75% compared to Building Regulations) and gives a reduction in carbon emissions of 80%.

Passive heat is gained from sunshine through windows and from people and appliances in the home and recovered and re-circulated using Mechanical Ventilation and Heat Recovery (MVHR) units.

Through high levels of air tightness (air leakage less than 0.6 times house volume per hour) and insulation (external envelope U-value of not more than 0.15W/m²K) together with low energy demand (less than 15kWh/m²/year for space heating) these homes are estimated to have an annual energy bill for heating and hot water of only £68.

Along with the financial savings, Gentoo customers living in these homes will feel a myriad of benefits including an excellent environment in terms of air quality, noise and thermal comfort.

Gentoo has produced a bespoke Home User Guide to give their customers information about how their innovative new homes are designed to work and how best to enjoy them. With a detailed communication strategy spanning pre and post occupation of the homes, Gentoo is working with it's customers to ensure they are well informed as to how cultural and behavioural change can maximise the environmental, well being and financial benefits of their Passivhaus.

Passivhaus Planning Package (PHPP) software modelling has been cross referenced with the Code for Sustainable Homes (CSH) to determine that this scheme will comfortably achieve CSH Level 4 as a base line without the use of renewable technologies. Ratings well in excess of Code Level 4's energy requirements are being achieved on eighteen of the homes with the use of solar thermal panels. Furthermore, five of the homes are being taken to Code Level 5 with the use of photovoltaic (PV) panels in addition to solar thermal. Modelled on less than 2kWp of PV, these Passivhaus homes require 30% less PV to achieve Code Level 5 than our traditionally built homes.

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