



# The first large scale CSH code level 6 development has been selected

A 6.6 hectare site, on the outskirts of Bristol - and to be connected along the national cycle route - is to be the first of the government and English Partnership's Carbon Challenge sites. On a chilly morning in December journalists, including Jo Moulds on behalf of Green Building magazine, gathered at the Institution of Engineering and Technology (the IET) on the Embankment, London, to hear that Barratt Developments PLC had won the bid from a shortlist of seven bidders announced earlier in the year.

The Carbon Challenge plan was set up by the government in 2006. The aim is to create a series of 'eco developments' around the country. The first site is at Hanham Hall. This is one of 96 sites which have been purchased from the NHS by English Partnerships over the last four years to turn into residential areas as part of the government target to create 3 million new homes by 2020. Hanham Hall was originally built in 1655 with the house still standing (grade II listed) but much unloved and abused over a number of years. Its last use was as a psychiatric hospital run by the NHS.

The Carbon Challenge sets the most stringent sustainability measures with all the homes needing to comply with level 6 of the Code for Sustainable Homes. A summary of the minimum standards for level 6 of the code reads: "A 'zero carbon home' (heating, lighting, hot water and all other energy uses)". Yvette Cooper, then Housing Minister, has said about the Challenge: "We have set a world-beating target that all new homes must be zero carbon by 2016. People said this couldn't be done,



but, in fact, this first Carbon Challenge site shows that developers are already preparing to build the first major development of zero carbon homes. We want to build more homes but also to higher standards.”

So, how did the winning developer approach this, the first of what will be many bids to build high-profile Code 6 sustainable homes?

### **Hanham Hall - grade 2 to zero carbon**

Ben Cook, senior land manager at Barratt Bristol, is in charge of the Hanham Hall project. He said: “Obviously, we were delighted to win the bid as it is a very important project for us. It means we are bringing together the skills, techniques and technology – on to one site – that we have been testing and trialling on other sites around the country. At the moment we have 24 sites being built in and around Bristol, with varying degrees along the Code for Sustainable Homes. This is the first one that will reach code level 6 and is at the forefront of all the future possibilities. This is a massive step-change for us.”

Cook describes the Carbon Challenge brief as essentially English Partnerships’ ‘shopping list’; “We feel we were successful because we pulled all the strands together and took a holistic approach to the development.”

Around the country Barratt has 40 schemes which include some with renewable technology. The scheme at Hanham Hall, in association with HTA Architects, construction partners, Arup and Sovereign Housing Group, is a development of the work that HTA and Barratt put together for the Design for Manufacture (DfM) series of projects – Upton and Allerton Bywater, currently under construction. An influence was also the Home of the Future competition by HTA/Barratt and sponsored by the Mail on Sunday and BRE.

The winning bid from Barratt has also drawn heavily on the renewables test bed monitored by the University of Manchester at Chorley Eco Village. That site used wind, solar PV and ground source heat pumps (GSHP) and one of the possibly surprising elements of the winning Hanham Hall bid is that wind turbines, solar PV and ground source heat pumps have not been selected.

“We have chosen a CHP biomass central system as this, we feel, is going to be the most beneficial way of heating the 188 homes at Hanham Hall,” says Mark Clare, chief executive, Barratt Developments plc. “It is important that we use technology that is appropriate for the site and we believe the CHP biomass system is the most cost-effective and reliable technology available to date. Woodchip will come from up to 20 local suppliers that have already been identified and, by the time the site is ready for occupancy (2010), new local suppliers may well have been set up.”

Rory Bergin, head of sustainability and innovation at HTA Architects, agrees: “This was one of the best briefs I have ever read in my career, and a challenge.” If you look at the brief from English Partnerships, it does indeed read like an extremely well thought-through model of how to

### **What is the Carbon Challenge?**

Hanham Hall is the first of ‘The Carbon Challenge’ sites earmarked by English Partnerships for development. In fact, English Partnerships has purchased 96 sites from the NHS over the last four years with the aim of turning them all into residential areas as part of the government’s target to create 2 million new homes by 2016.

English Partnerships is the government’s national regeneration agency charged with “delivering high quality sustainable growth in England”. It is developing a portfolio of strategic projects and acting as the government’s advisor on brownfield land. An objective is that surplus public sector assets are used “to support wider government objectives, especially those contained in the Sustainable Communities Plan”. English Partnerships and the Housing Corporation are working with the Department for Communities and Local Government to establish the proposed new national housing and regeneration agency, Communities England.

Jayne Lomas of English Partnerships told us of this project: “Barratt has made a financial offer for the Hanham Hall site as part of its submission for the Carbon Challenge. During the next few months we will be working with Barratt towards a planning application and finalising the development agreement. This legal agreement will ensure that the subsequent development will be produced in accordance with both the Carbon Challenge generic brief and the local brief. On receipt of planning and a signed development agreement, the purchase of the land by Barratt will be completed.”

### **Who will live in the new homes at Hanham Hall?**

Lomas told us “As the overall Carbon Challenge initiative has an aspiration for 50% affordable housing, we are looking for solutions to bring forward a whole range of home ownership products which will ensure that a wide range of people have access to living at Hanham Hall. We will also be keen to encourage the social housing partner – Sovereign Housing – to look at ways in which local people can be helped and enabled to move into the new homes at Hanham, either through low cost home ownerships options or affordable rent.”

approach a large-scale, yet sustainable development. At the moment, it sounds like a most delightful place to live.

The developers in the shortlist all approached the brief with their own interpretation of fitting into code level 6, as would be imagined. However, the only developer to use Hanham Hall itself – the Grade II listed building – as a central community hub for the development, was Barratt.

HTA Architects and Barratt decided to focus on what they felt would be the most appropriate use of the listed building. “It comes back to the brief – what’s likely to work and what’s not,” says Rory Bergin; “There are the space standards and the site standards and you have to make it work on the site in hand. For us, it made sense to position the community and retail aspects of the brief in the listed building. It was a win-win situation for us. You wouldn’t have to make too many changes to the existing building, which fits with the conservation aspect of the bid, and it also restores a listed building to community use. Hanham Hall has never been in the public realm before. It was a private house many years ago and was run as a psychiatric hospital until 2000. The local people know the building but they have never been allowed inside it before. We will restore it, working in association with ARUP and South Gloucestershire council’s heritage team, and it will be a community hub for both the residents of the development and also for other local people.”



The specifics of the site are that there will be a proposed 188 homes, with a mix of up to 50% affordable and the remainder for sale. There will be a restaurant and café; office/work spaces; retail space; a crèche; a farm shop, parkland and ponds. Hanham Hall itself will be remodelled as a 'sustainable living centre'. There will be a new orangerie glasshouse for food production (reflecting a previous outbuilding that used to exist on the site), allotments; the existing orchard becomes a quiet, contemplative space for residents and visitors. Wildlife meadows will be introduced and there will be rainwater harvesting for each home, sustainable drainage systems, and hedgerows factored in for wildlife. The site also accesses the national cycle route for commuters to Bristol city centre (approx 30 minutes and a way of avoiding infamous Bristol traffic congestion around rush hour). There will also be a car club and bicycle storage for each home and a historic boundary wall remains part of the site. On the landscaping, HTA and Barratt have been working on plans to protect and enhance the ecology of the site. Cook describes the grounds as: "a wilderness in suburbia".

Rory Bergin, chief architect, points out that HTA/Barratt was careful to design homes with different orientations so that people have a choice: there are south-facing with the road to the north and south-facing with the road to the south. Bicycle storage is always on the road side, as are recycling bins. Bedrooms are always east-facing, with living spaces west-facing. There is a wide mix of homes: from one-bedroom apartments to family homes and a building for retirement homes with a communal space, in case families would like to move to the development and have older relatives close by.

The homes are also designed to new space standards

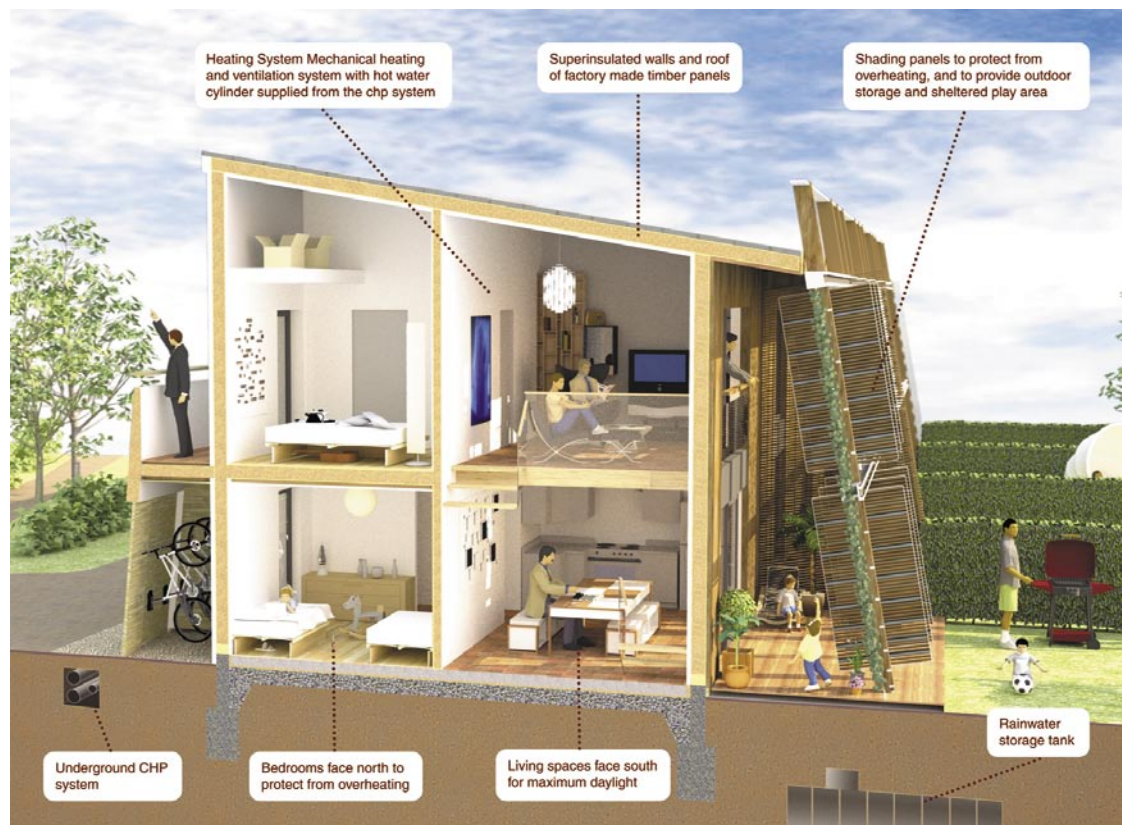
and therefore will feel spacious. There will be an ongoing assessment of what the homes are like to live in by a community trust which will be set up. One of the key points about the Carbon Challenge, we are told, is that all findings throughout the process need to be transparent so that other house builders and developers can learn from the technologies and experiences of this first code level 6 development. The English Partnerships' website will be constantly updating the progress of the development, which is due to go through planning spring 2008, with a view to being on-site by late 2008, with completion forecast for 2010.

One of the key points of the Barratt Hanham Hall bid is the use of the Kingspan TEK panel system. Cook feels this is a vital link for the scheme as Kingspan has been very forward-thinking in its research and development. HTA and Barratt have already worked with Kingspan TEK on the winning system of the Mail on Sunday/BRE competition house.

The emphasis for Barratt/HTA has now switched to the planning applications which will be lodged in Spring this year. "We are halfway through design team meetings for delivering the proposal," says Cook. "We are working closely with South Gloucestershire Council, who are also very pleased about Hanham Hall being redeveloped. The team will be focusing on local feedback and public consultation, with workshops and local stakeholders, councillors, the police and private briefings. Leaflets will go out to local homeowners within a reasonable area around the site."

Barratt's Clare says: "This is eco-living, not just eco-building" (see boxout) and he also points out that Barratt has already been talking to insurance companies and

Right: typical house design of the winning bid from Barratt, which will be used at the Hanham Hall project (Courtesy Barratt Homes)



mortgage companies ready to advise potential buyers. "The properties should not attract stamp duty because they are carbon-zero and we have the full backing of insurance companies." Cook has a final word: "The site is a challenge for us because not only are we going to be building code level 6 sustainable homes with carbon neutrality but we also need to meet the community aspects of the site. The greatest learning will be about what people think about living in these homes."

### What of other contenders?

Gleeson Homes and Stewart Milne Group teamed up and were on the shortlist for the Hanham Hall development (and are now on the shortlist for the second announced Carbon Challenge site, South Bank Phase I in Peterborough, along with five others). Steve Peters, managing director of Gleeson Regeneration & Homes Southern, says they were pleased to be on the shortlist of the first announced site. "It is very much part of our business plan and agenda to be part of the whole sustainability agenda. It is really being driven forward by government and we want to be part of the process, rather than trailing along behind it."

Peters cites the fact that Gleesons is a family business, started over 100 years ago. "We have always taken the view that the long-term stewardship of our developments is an important issue and the Carbon Challenge plays into that sensibility for us. We have a great working relationship with Stewart Milne acting as contractors and a development partner in their own right. Our bid suggested using the Sigma Home technology (highly insulated timber frame system) which is showcased at the Building Research Establishment (BRE). The Carbon Challenge is an extremely demanding brief and we had a number of very constructive and open meetings with architects and consultants in order to define and subsequently refine our approach. Reaching level 6 of the Code for Sustainable Homes is up a notch and we like the fact that a key issue for English Partnerships is replicability. It is obvious that English Partnerships want bidders to demonstrate that the learning can be carried on. For the next bid, we are now in the process of further information-gathering over the next few months."

### Environmentalists' perspective

I asked the local Friends of the Earth what they thought of the scheme and Mike Birkin said "It's difficult to get a clear picture at the moment about the environmental impact of the Hanham Hall development. Friends of the Earth will be keeping an eye on it and it will all come down to the delivery. The general policy of the government, encouraging large developers, such as Barratt, to build in a sustainable way is to be welcomed and we would say is a very exciting development. We don't want eco building principles to be isolated as 'special' developments. We want them to be mainstream but we must give each development scrutiny. The Hanham Hall scheme, for example, is very different from some of the huge 'eco-towns' which are causing controversy at the moment. This scheme has 188 homes, whereas some of the larger schemes are built on greenbelt land with 2000 or more proposed homes. These are very different propositions. There is a lot more to sustainable communities than just sustainable homes – for example, discussing transport links. Hanham Hall needs to be well integrated into the

## SUSTAINABILITY FEATURES AT A GLANCE

- The homes are over 100% better in energy performance than the current building regulations standards
- A family occupying these homes will reduce their carbon footprint by 44% without making any lifestyle changes
- Making lifestyle changes such as cycling to work and reducing air travel
- All houses have the living spaces facing south to take advantage of natural light and warmth
- All houses have shading devices, thermal mass and overnight ventilation, to reduce the risk of overheating in the event of warmer temperatures over time
- The homes are pioneering the new English Partnerships space standards, and all conform to the Lifetime Homes standard
- The homes are built from factory-made elements which minimise waste and which are energy-efficient to produce and build
- The timber cladding used will be from sustainable sources
- The heating and electricity are provided by a zero-carbon biomass combined heat and power plant (CHP) on site and the existing hospital chimney is to be retained and reused.
- The heat and electricity is delivered to the homes via a private heat and power network. This may be extended beyond the boundary of the project to other homes or businesses in the area
- Where the homes have garages, they are big enough to store bicycles and cars and recycling areas
- The homes use recycled rainwater, collected from the roofs, stored underground and pumped into the washing machine and wc's
- Where existing buildings are demolished, the materials will be crushed and reused on site, ie for road aggregate
- Existing ecology will be protected during construction and the new landscape is designed to enhance and improve the local wildlife
- The grade II listed building will be refurbished to high environmental standards for re-use as a community and employment facility
- There will be a crèche on site and homes for retired people
- The development trust will be responsible for the day-to-day management of the development. This will be paid for by charging a ground rent and income from other users on site eg. allotments, greenhouses, etc.
- There will be a sustainable living centre where residents and visitors have the opportunity to learn about the features of the homes and the development as a whole.

existing urban area and we will be monitoring how that proceeds."

Jo Moulds

### Useful links:

Home of the Future competition [WWW.BRITISHHOMESAWARDS.COM](http://WWW.BRITISHHOMESAWARDS.COM)

[WWW.ECOSMART.BARRATTHOMES.CO.UK](http://WWW.ECOSMART.BARRATTHOMES.CO.UK)

[WWW.PLANNINGPORTAL.GOV.UK/UPLOADS/CODE\\_FOR\\_SUST\\_HOMES.PDF](http://WWW.PLANNINGPORTAL.GOV.UK/UPLOADS/CODE_FOR_SUST_HOMES.PDF)

[WWW.ENGLISHPARTNERSHIPS.CO.UK/CARBONCHALLENGE.HTM](http://WWW.ENGLISHPARTNERSHIPS.CO.UK/CARBONCHALLENGE.HTM)

Hanham Hall development elsewhere in the news...

Hanham Hall: eco-town or eco-spin? [WWW.TELEGRAPH.CO.UK/EARTH/MAIN.JHTML?XML=/EARTH/2007/08/24/EAVILLAGE124.XML](http://WWW.TELEGRAPH.CO.UK/EARTH/MAIN.JHTML?XML=/EARTH/2007/08/24/EAVILLAGE124.XML)

Eco-Barratt blows cold on wind turbines [HTTP://BUSINESS.TIMESONLINE.CO.UK/TOL/BUSINESS/INDUSTRY\\_SECTORS/CONSTRUCTION\\_AND\\_PROPERTY/ARTICLE2991398.ECE](http://BUSINESS.TIMESONLINE.CO.UK/TOL/BUSINESS/INDUSTRY_SECTORS/CONSTRUCTION_AND_PROPERTY/ARTICLE2991398.ECE)