



BRE Innovation Park @ Ravenscraig

improving living in scotland



Progress and information event
Report

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College, Motherwell, Lanarkshire



BRE INNOVATION PARK @RAVENS CRAIG

Part of the
BRE Innovation Parks
Network



BRE Innovation Park: Progress and Information Event

Introduction

The BRE Innovation Park at Ravenscraig, North Lanarkshire, is a chance for Scottish industry to demonstrate and showcase pioneering sustainable housing ideas. Information collected during the development of the Park and the demonstration buildings will be disseminated to the industry through a variety of media. This will create a vibrant and important hub of knowledge for the industry who are dealing with the low carbon challenge.

The progress and information event on the 21st September, held at nearby Motherwell College, outlined steps taken so far in the development of the Innovation Park and illustrated the opportunities that are still available for industry partners to get involved. Chaired by Jonathan Fair (Chief Executive, Homes for Scotland), there were four insightful presentations from BRE Scotland, Edinburgh Napier University's Institute for Sustainable Construction and CCG (Scotland) Ltd; followed by a visit to the site.

Presentations

Project update (David Kelly, BRE)

David Kelly began the morning's presentations by thanking co-hosts, Homes for Scotland, for their support and then gave a brief detail of the reasons for creating the Innovation Park and a run through the latest developments onsite.

The Innovation Park site has been created to allow new ideas and products to be demonstrated that will help towards meeting the 'low carbon challenge'. The Park will allow Scottish companies to show the construction methods, technologies and materials they can offer to help the population towards long-term carbon emission reduction targets. The location, in Scotland, also gives a chance for Scottish companies to demonstrate how these innovations could support the development of affordable, low carbon buildings.

As well as a showcase opportunity for companies to display their new products; the Park will also support businesses by creating a hub of information on emerging technologies and promote the chance to broker new working relationships and supply chain partners.

Situated in the new town development of Ravenscraig, an ex-steelworks site which has been fully remediated; the Innovation Park has four main themes which will be integral to its continuous development. *Sustainability* and *Energy Efficiency* are both common to the aim of meeting CO₂ reduction targets and reducing fuel poverty. The theme of *Community* will encourage engagement with schools, further education and social groups to expose them to new technologies and new ideas. *Affordability* relates to the 'real' cost of this new phase of housing as it would be on the market. Sustainable homes such as those demonstrated at BRE's Innovation Park at Garston can carry a hefty price tag, often upwards of £1 million. The challenge for developers at Ravenscraig is to produce energy efficient, sustainable homes but at a price that makes it viable for housing associations and house builders to consider.

Sustainability of the site has been considered from the off, with groundwork, landscaping, lighting, street furniture and surface water management all created with consideration for the products and methods utilised. Over 100 organisations have given their products to the Innovation Park in return for the free advertising of being onsite. All plots on the site are now ready for development with utility and service connections in place.

BRE Innovation Park @ Ravenscraig visitor centre (Stephen Good, CCG (Scotland) Ltd)

Stephen Good (CCG (Scotland) Ltd) is the chief architect of the visitors centre for the Innovation Park. CCG (Scotland) Ltd, a Glasgow based construction company, have been involved with the project for four years. The company mainly undertake projects in the social housing sector however a special projects division allow the staff to diversify. This department were invited in July 2011 to design the visitors centre.

The current, pre-planning design is a simple, closed panel, timber-framed modular building which allows maximum flexibility with the interior space. Services and office space occupy one side of the building and the other side can be separated or opened out as required for seminars and other events. A roof parapet will offer outside space, a viewing gallery for the site as it develops. The timber frame is designed such that the cladding can be removed and replaced to exhibit new products as they are developed.

CCG (Scotland) Ltd plan to make use of their offsite manufacturing methods to deliver the design more quickly, achieving better quality, at a lesser cost and meeting stringent health and safety regulations.

The centre is designed to meet BREEAM Outstanding level of performance, the first building in the UK to be designed to this level using the new 2011 guidelines. The centre, due to be launched in April 2012 will demonstrate how new sustainable technologies can be applied to a non-domestic building. The visitors centre in this respect will be very much a part of the research and exhibition of innovative ideas taking place on the rest of the site.

Opportunities to get involved (Laura Birrell, BRE)

The available opportunities for companies to become involved in the Innovation Park at Ravenscraig were next outlined by Laura Birrell from BRE. Prospects for involvement in other Innovation Park developments internationally, and business support networks to engage with were also discussed.

There are nine themed plots on site plus the Park's visitor centre. The themes are not absolute but many of the plots have already been selected and companies have expressed interest in others. Plot 1, the 'recycled house' is to be developed by Applegate Homes and Zero Waste Scotland have taken plot 5. Motherwell College will use plot 8, 'curriculum house' to allow their construction students practical experience and BRE in conjunction with Edinburgh Napier University and Historic Scotland are awaiting news (due in October) of funding to develop plot 9, 'refurbished house' with plans to demonstrate retrofit practices and technologies.

Interest has been expressed from David Wilson Homes and the Forestry Commission with Edinburgh Napier University's Centre for Timber Engineering for plots 2 ('traditional house') and 3 ('home-

grown timber house') respectively. Talks are underway with the Concrete Society for the development of 'the concrete house' (plot 4).

A competition is to be launched at BRE's INSITE 11 Conference at the beginning of October, for the tender of plot 6, 'passive house' and it is hoped to find a retail partner to develop plot 7, perhaps to create a mixed-use demonstration building.

The developments all have the backing of North Lanarkshire Council who are eager for the sustainability measures developed at Ravenscraig to incite sustainable developments across their whole region.

BRE will contract with a lead developer for each plot on the Innovation Park and the lead developer will then be responsible for organising and contracting their own supply chain. BRE will, however, provide a development brief for each lead partner, stipulating planning restrictions (such as height of buildings) and energy requirements and restrictions.

The Innovation Park links a network of other low carbon and sustainable schemes. On-site, BRE will manage all the technical data produced by the ten plots and disseminate this to all interested parties. On-site visitors will be given technical tours by competent full-time staff and exhibitions and events will encourage a high footfall, exposing products and construction methods to a larger audience. The on-site staff will also liaise with other research and knowledge transfer organisations such as Colleges and Universities.

BRE's first Innovation Park is situated at the company's headquarters in Garston, Watford. It has had 50,000 visitors since its launch in 2005 and has generated over £5 million AVE (Advertising Value Equivalent) as a result of press and media coverage across the globe. In contrast to the Innovation Park at Garston; the Park at Ravenscraig is a purpose built facility, believed to be the world's first planned development of this type. However, there are now others in development in Beijing, China; Brasilia, Brazil and Portland, Oregon in the USA as well as a further potential project near Toronto in Canada. BRE is involved in the progression of each of these parks which all aim to showcase new products and encourage sustainable development across their nations.

Ongoing research and support programmes (Sean Smith, Edinburgh Napier University)

Professor Sean Smith, Director of the Institute for Sustainable Construction (ISC) at Edinburgh Napier University concluded the morning's presentations by describing the support networks and innovation gateways currently on offer to assist the Scottish construction industry. The ISC provide design and technical services and research for national and international companies. The benefits of researching building technologies here in Scotland include the export potential of products and skills to Europe and beyond; a growth in the manufacturing industry creating more jobs and working towards carbon reduction targets set by Scottish Government.

The first initiative mentioned was the Low Carbon Buildings Technology Gateway (LCBTG). It aims to support innovation in SME's in the construction sector to improve the provision of future low carbon housing. The LCBTG is a three year project where six experts aim to support 300 new products by helping secure funding and offering technical assistance. The project which began in June 2010 has so far secured £500,000 in research and development support for companies and has already reviewed 135 systems and products. Phase 1 of the project is being carried out with BPAC (Building

Performance Assessment Centre) at 'Hangar 17' in Fife and Phase 2 will be carried out in conjunction with BRE's Innovation Park @ Ravenscraig.

A considerable proportion of Scottish homes are timber framed and the Wood Products Innovation Gateway (WPIG) aims to support companies who are innovative with products or processes using home grown timber. Currently much timber for construction is imported to the UK but this gateway project intends to reduce this deficit. Around 40,000 jobs are linked to timber and forestry in Scotland and they will benefit from this research, technical support and a programme of Continuing Professional Development events.

The Low Carbon Built Environment (LCBE) Innovation Den has been called the 'Green Dragon's Den'. Similar to the BBC series, candidates can pitch their idea to a panel with up to eight days of free technical support available should the idea be found to be suitably innovative. The project is managed by BRE with support from Edinburgh Napier University and the University of Strathclyde, and can also offer guidance on grant availability and other funding opportunities.

Finally, a mention was given to Scottish companies who have already demonstrated innovation. Ewgeco have developed a real-time display for all utilities (including water use) to encourage a change in occupant behaviour in domestic and non-domestic buildings using a simple traffic light display. *Balconie* by the Blake Group is a new balcony system with 18 unique selling points compared to others on the market. CCG were also mentioned for their investment in innovative off-site manufacturing and construction methods.

Discussion session

After the presentations the floor was opened up for delegates to question the presenters. The first question concerned the production of data from the test buildings on the site. University of Strathclyde are to simulate a variety of different living situations in these homes to provide data on energy consumption and product performance. Scottish Power, a partner of the project, are planning to use this data for their forward planning as well as providing the suppliers who will use the information to understand better their technology.

Another delegate asked for opinions on the statement that 'a lack of demand for sustainable technology results from a lack of understanding'. BRE are dealing with this problem by encouraging developers to make installed technology accessible and visible so that visitors to the site can be educated about how it may suit them or their business. Information will also be available on funding opportunities for the different technologies. BRE are keen to promote the idea of technology being very usable and do not want the test houses to 'be show-homes' where everything is hidden away. The visitors centre will potentially also offer the opportunity to view technology in use.

A representative from Link Group asked about the cost to developers of taking a plot at Ravenscraig. There will be a facility charge, per plot per year which covers landscape maintenance, security, marketing and insurance. The plots are offered on a three year lease in the first instance. Companies can stay after three years but there are conditions in place to ensure that the park evolves. Companies staying after the initial period must change their development to demonstrate new

technologies ensuring the Park is still fresh for return visitors. All construction costs are the responsibility of the developer.

The next question was about the operation of the visitors centre. Laura Birrell from BRE recapped that the centre would be a working office, home to full-time staff from BRE. This would include a technical staff member who would be able to answer questions from visitors on the different products and services on show in the Innovation Park. There may also be the possibility of a 'hot desk' situation in the visitors centre should any company demonstrating on site require the use of this service.

One delegate brought up the expense of training students to install and work with renewable technologies due to the high cost of this type of equipment (PV panels were cited). It was suggested by presenters and backed up by other delegates that acquiring business support or sponsorship would be a way to combat this. One member of the audience related that he knew of two training facilities where manufacturers had donated equipment in order to produce quality installers and renewable technology engineers. There was also the suggestion from the panel that capital infrastructure grants are available from the EU and these may be suitable for this application. David Kelly, of BRE, suggested that engaging with some local partners in industry may be a suitable first step. Professor Sean Smith also offered the contact details of a colleague at Edinburgh Napier University who may be able to offer more information.

A further point that was raised was about the themes integral to the development of the Innovation Park at Ravenscraig. It was suggested that innovation and affordability were surely conflicting ideals. David Kelly agreed that there was a degree of conflict but that was the challenge to be undertaken at Ravenscraig. The BRE Innovation Park at Garston showcases high specification technology and renewables are often used to meet targets resulting in an extreme cost per dwelling. This so-called 'eco-bling' often results in homes that are neither affordable nor liveable. Developers at Ravenscraig will be required to strike a balance but it was agreed that this strive for affordability was not going to stop new products being showcased as long as there are clear guidelines on the products purpose and the associated costs and benefits. Jonathan Fair, Homes for Scotland, added that the Park should also include innovative working methods and partnerships, not just technology such that innovation need not always be costly and does not always have to be purely environmental.

The next question that was asked, by a representative from the Scottish Government, was whether different housing types (detached, terraced, flats) would be demonstrated on site. Planning restrictions limit the height of buildings that can be constructed (two or three storeys for the different plots) which will steer the size of the buildings. David Kelly said that it would however be possible for developers to demonstrate, for example, a section of flatted property in line with these planning restraints. It was also mentioned that the retrofit project on plot 9, would most likely be '4 in a block' flatted housing so that different refurbishment solutions could be demonstrated and compared.

Following from this, Irina Birnie, from Aberdeen Council asked about the extent to which the Innovation Park would depict a notion of sustainable community, perhaps by demonstrating some mixed use developments as well as different housing types. It was noted how useful it would be for planning departments to have an example of this to follow. David Kelly recalled that there was a plot

(plot 7) available to demonstrate a mixed use building and that BRE were also open to other ideas from developers on how to best represent this.

Innovation Park site visit

Once all questions had been satisfied there was then the opportunity to visit the site of the Innovation Park to examine the landscaping work that had already been completed. Despite wild weather conditions most people took a walk around the permeable pavements, stepped out onto the *Timber Tech* recycled decking and considered the sustainable drainage swales. Uncommonly for the UK they are not fenced off but form a feature in the centre of the development. In time, the plots will be developed showcasing a wide range of sustainable housing solutions to help Scotland meet the low carbon challenge.

Katy Hunter, BRE.