

# BRE INNOVATION PARK MEMBERSHIP SCHEME

The BRE Innovation Park is inviting individuals and organisations involved with sustainability and innovation to join their new membership scheme.

As a member of the BRE Innovation Park, you will be part of an exclusive club of individuals and companies working in the built environment who are committed to pushing the boundaries of current knowledge and practice.

#### Benefits:

- Opportunities to network with and learn from the UK's leading manufacturers, architects, designers and developers
- Bring up to 50 visitors to the Innovation Park per year, including use of the audio guide and Visitor Centre lounge
- Participation in a minimum of three events including workshops and networking events
- Access to meeting and conference facilities in a fantastic and unique location
- Exposure to the 1000s of visitors and VIPs from around the world
- Subscription to the Innovation Park e-newsletter

To find out more about the membership scheme or to discuss your requirements please contact the Innovation Park helpdesk.

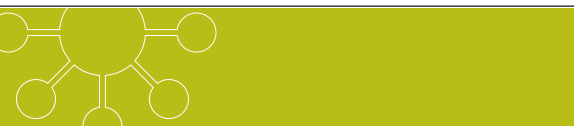
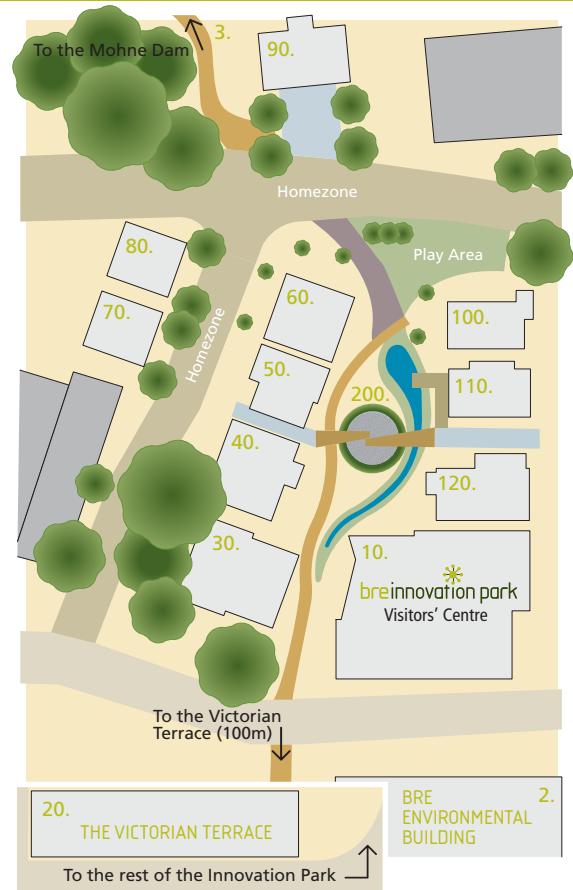


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THIS GUIDE HAS BEEN PRINTED ON  
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# INTRODUCTION TO THE PARK



# breinnovation park

## A GUIDE FOR VISITORS



The BRE Innovation Park is designed to provide an educational resource for industry professionals who want to see and learn about new and innovative approaches to creating sustainable buildings and communities.

The buildings you will see have been designed by some of the UK's leading manufacturers, architects and engineers. They showcase the latest modern methods of construction and over 400 innovative products and emerging technologies.

This booklet and accompanying audio tour will guide you around the buildings and landscaping on the BRE Innovation Park.

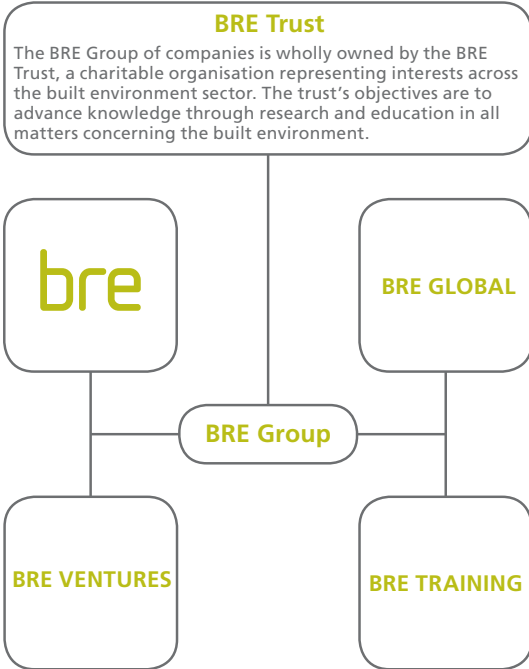
Full instructions on how to use the handset are available by pressing button 0. Volume and pause options are available and commentaries can be de-selected at any time.

The buildings and landscaping are numbered as follows:

1. Introduction to BRE
2. BRE Environmental Building
3. BRE Mohne Dam
10. Visitors Centre
20. Victorian Terrace
30. Willmott Dixon Healthcare Campus
40. Hanson EcoHouse
50. Barratt Green House
60. Stewart Milne Sigma Home
70. Cub House
80. Renewable House
90. Natural House
100. Osborne House
110. Kingspan Lighthouse
120. ecoTECH Organics House
200. Landscaping

By selecting one of these numbers you can hear an overview commentary; further detailed information can be heard by selecting one of the coloured buttons:

- Yellow for Design
- Green for Sustainability
- Red for Construction



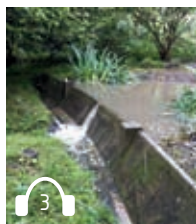
The Visitors' Centre showcases a range of innovative products as well as being a functioning centre for the park.

- The BRE Trust works to advance knowledge, innovation and communication, through research and education, in all matters concerning the built environment.
- The BRE Group of companies includes BRE, BRE Global and BRE Ventures.
- The combined expertise of the BRE Group is drawn on to offer a portfolio of training courses and accreditation schemes.
- BRE Environmental Building (Audio Guide No. 2): a landmark in low energy and environmentally advanced construction, the BRE Environmental Building incorporates many innovations in energy efficient design.
- BRE Mohne Dam (Audio Guide No. 3): Sited in the woodland beyond the Natural House, a tiny brook was dammed with a scale model of the Mohne Dam and used for testing prior to one of the most famous operations of the Second World War.

BRE, BRE Global and BRE Ventures work together to provide those operating in the built environment with one of the most comprehensive sources of independent advice, research, testing, certification and training to be found anywhere in the world.



BRE Environmental Building



BRE Mohne Dam

- The building itself is an innovative re-working and extension to an early Innovation Park house built by Hanson in 2003.
- It comprises prefabricated, thin-joint blockwork and a composite panel system and structural insulated panel-based system – 'SIPs' – roof panels.
- The original garage to the house holds a Digital Community Centre created by Open Hub. This provides a range of innovative community services to the buildings on the park, via a network of fibre-optic connections.

The Visitors' Centre embraces all notions of sustainability. Alongside the structures themselves, there is low energy lighting, heating and a rainwater recycling system, all of which can be viewed in the Centre.




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## VICTORIAN TERRACE



BRE has transformed a Victorian building into a row of highly energy-efficient terraced houses whilst retaining the original character of the building.

- Prior to refurbishment the building exhibited several features associated with pre-1919 housing including solid brick walls, sash windows, a clay-tile roof in poor condition and poor thermal performance.
- The project aims to transform the building from an Energy Performance Certificate rating of F to a B or A rating.
- The team set high design and performance targets whilst requiring the original character of the building to be retained.
- All construction materials meet BRE's Green Guide standards and are responsibly sourced.
- The building was subject to a rigorous scientific testing regime before and during the renovation.
- The Victorian Terrace project links to more than 450 exemplar refurbishment homes around the country.



The Victorian Terrace retrofit project aims to generate best practice knowledge of the most effective ways of upgrading existing solid wall dwellings.

THE VICTORIAN TERRACE

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## WILLMOTT DIXON HEALTHCARE CAMPUS



The Campus points to a new age of healthcare that supports individuals in managing their conditions more independently by utilising both health clinics and their home.

- Reception area incorporating a smart card system.
- A telecare monitoring area that links to the home.
- A pharmacy of the future.
- Passively ventilated consulting rooms.
- A carbon neutral non-invasive suite.
- 72% recycled content by volume, 96% timber EPCA rated.
- 82 tonnes of CO<sub>2</sub> embodied in 92m<sup>3</sup> of timber contained within the building.
- High quality offsite manufactured elements.
- Fast eight-week construction.
- Solid wood structural solution provides easy to adapt flexible space and opportunity to relocate.



The Campus is a unique building showing Willmott Dixon's futuristic vision of how community-based primary care will look in twenty years when an older population puts an emphasis on technology that encourages assistance in the home.



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# HANSON ECOHOUSE



The Hanson EcoHouse brings together many of the latest developments in sustainable construction using masonry and concrete materials.

- Code for Sustainable Homes level 4, masonry house design.
- Innovative construction techniques.
- High thermal mass.
- Maximises natural ventilation.
- Highly flexible design.
- Incorporates renewable energy technologies.
- Off-site wall construction.
- Walls, including façade, erected in two days.



The house, designed by TP Bennett Architects, uses Hanson Building Products' traditional building materials, precisely assembled to conform to the best principles of modern methods of construction, sustainability and affordability.




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# BARRATT GREEN HOUSE



Winner of the 2007 Home for the Future Design Awards, the Barratt Green House combines innovative design with the potential for volume production.

- Designed to meet Code for Sustainable Homes level 6.
- The subject of two years of rigorous design, construction and materials testing.
- Construction materials meet BRE Green Guide standards.
- 180mm of insulation to keep in heat.
- Triple-glazed windows, equivalent to 25% of the total floor area.
- Barratt will apply the most successful design aspects in future housing projects.
- Exemplary project at forefront of volume house builders addressing the zero carbon challenges.



The Barratt Green House has been designed by architects Gaunt Francis to meet level 6 of the Code for Sustainable Homes. It has been the subject of rigorous scientific testing over a two year period to assess every aspect of its design, construction and materials.




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The Sigma Homes allow for flexible living to suit modern lifestyles, and are ideal for high density urban spaces.

- Designed to meet Code for Sustainable Homes level 5.
- They provide 100% reduction in CO<sub>2</sub> emissions.
- They offer low water consumption with a variety of devices to reduce usage to 80 litres per person per day.
- The homes were built using advanced 'closed panel' timber frame system.
- Ten weeks to build.
- Their contemporary design and small building footprint is suitable for urban high density locations.
- The build process helps to reduce safety related hazards.
- The vertical family friendly living offers both good communication throughout the house and good personal space.



While the design of these timber framed houses is partly based on Victorian terraced principles, their construction and sustainability embrace the latest technologies.




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The ultra-modern, highly sustainable and factory-manufactured Cub House joined the BRE Innovation Park community in May 2010, after being launched to great acclaim at the Ideal Home Show.

- Modular home designed to Level 5 of the Code for Sustainable Homes.
- The house has NHBC Building Control Type Approval, and the necessary accreditation for mortgage lenders and insurers.
- The house can be clad in timber, brick or an innovative fibreglass cladding, and comes complete with fitted kitchen and bathroom in 51m<sup>2</sup> modules.
- 65% of the primary material - steel - is recycled.
- The walls are super-insulated to minimise heat loss.
- PV panels come with each home as standard.
- Each Cub home is fitted with an exhaust air heat pump.
- Rainwater harvesting and water saving devices are standard features.



The Cub House's modular system is an outstanding example of off-site construction, and has achieved Code for Sustainable Homes Certificate Level 5.




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## RENEWABLE HOUSE



The Renewable House sponsored by the National Non-Food Crop Centre showcases renewable materials like timber, hemp and wool and is designed to achieve high levels of sustainability.

- Timber frame structure with Hempcrete walls provides high levels of thermal efficiency with low embodied energy. The material can be recycled.
- A low skill base requirement for ease of construction.
- Use of lime render externally.
- Under-floor heating.



Built for the National Non-Food Crop Centre, the Renewable House makes little use of complicated technologies to achieve its impressive sustainability, relying instead on the ingenious use of materials to create a thermally efficient and low carbon building.



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## NATURAL HOUSE



The Prince's Foundation for the Built Environment is constructing a low energy home built from natural materials.

- Single skin walls of aerated clay blocks, rendered in lime and hemp with internal wood fibre board.
- Floors and windows made from ethically and locally sourced timber, certified by the Forestry Stewardship Council.
- Materials sourced with a view to maximising end of life recyclability.
- The simple construction minimises the need for specialist training and maximises the speed of construction.



The Natural House demonstrates a simple, low-tech and easy to build alternative for volume housebuilders seeking to meet increasingly stringent low carbon targets for new homes.



The Prince's Foundation  
FOR THE BUILT ENVIRONMENT

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## THE OSBORNE AFFORDABLE HOME



The Osborne Affordable Home demonstrates that high quality, sustainable housing can be delivered cost-effectively and in volume.

- Requires one-third of the energy for heating and cooling than a house constructed to the 2006 Building Regulations.
- It's airtight to one-tenth of the new Building Regulations, and has a whole house heat recovery system.
- Achieves 45% reduction on target carbon emissions required by Building Regulations .
- Built using structural insulated panel-based system.
- Erected and weather tight in 1.5 days.
- Product being developed on several live Housing Association sited across SE England.



The Osborne Affordable Home was designed and constructed before the launch of the Code for Sustainable Homes, but was awarded an EcoHomes 'excellent' rating with a score of 83 (70 being the 'excellent' threshold).



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## THE KINGSPAN LIGHTHOUSE



The Kingspan Lighthouse is a net-zero carbon home that has achieved Level 6 of the Code for Sustainable Homes

- Net-zero carbon (Code level 6 home).
- All building materials and components used optimise the house's overall sustainability credentials.
- Reduced glazing – ratio of glazing to wall is 18% as opposed to 25-30% in a conventional house.
- High level of thermal efficiency and airtightness.
- Smart metering monitors energy consumption and helps to identify waste.
- 50% reduced water costs compared to a conventional house.
- Mechanical ventilation with heat recovery (MVHR).
- Wind catcher providing secure night time ventilation.
- Energy required to heat the house has been estimated at £56 p/a.
- Minimal ground disturbance.
- Exempt from stamp duty.



The Kingspan Lighthouse is net-zero carbon – it has zero carbon energy supplies for space and water heating and all electrical power demand for the home, including electrical cooking and appliances.



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## ECOTECH ORGANICS HOUSE



The ecoTECH Organics home system has been designed to be affordable and low maintenance, and to make sustainable homes accessible to more people.

- Construction system – closed panel timber frame with mineral wool insulation; U value of 0.18 for a 240mm wall thickness.
- Central pod system with service riser forms the bathroom and kitchen units, and a roof construction using the Corus Hi-Point mono-pitch modular roof system.
- A compact service unit – combines 1.5kw air source heat pump, with a ventilation system and a 250 litre hot water tank as one system
- Efficient water use – includes grey water recycling system, low water usage appliances and flow control devices
- Wireless technology – combines home entertainment, home networking and wireless solutions
- LABC system type approval and latent defect insurance cover intention by Building Life Plan warranty.



The Organics House took just 14 days to build, from the very first panel arriving on site, to putting in the final fixtures and fittings.



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## LANDSCAPING



The landscape scheme designed by Macfarlane Wilder and PRP Landscape Architects creates a 'Sense of Place' and achieves the maximum credits under the Code for Sustainable Homes.

- A central open area provides imaginative play spaces for children, community garden and meeting point.
- Picnic and seating areas are provided along with innovative artwork.
- Wildlife-friendly gardens and diverse planting of native trees and fruit-bearing species enhance the local ecology and enrich biodiversity.
- Living walls make good use of available vertical surfaces
- Recycled paving has been used in the homezone. A variety of porous paving systems provide sustainable urban drainage systems (SUDs).

The Innovation Park's external areas demonstrate that there can be far more to good landscape design than just providing attractive settings for buildings.

## HEALTH & SAFETY



- When crossing the Innovation Park 'Homezone' please be aware that it is a road and neither pedestrians nor traffic have right of way.
- **Fire alarm** - If you hear an alarm on the park, please make your way to the visitor's car park, fire assembly point 'F' and wait for a member of BRE staff.
- In the event of an emergency please dial **3333** from a BRE phone or **01923 664333** from any other phone.
- Do not dial the emergency services direct as security will not know where to direct them.

### PLEASE:

- Keep to the pathways to protect the ecology.
- Do not use the toilets in the demonstration houses.
- Do not make adjustments to the controls in the houses.
- Do not take food & drink into the houses.

You are welcome to spend as much time as you like viewing the exciting features of the Innovation Park and if you need any advice or assistance please contact a member of staff in the Visitor Centre.

Thank you and enjoy your visit.

