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**Building a Better World**

**An Introduction to the BRE Group**

**Laura Birrell, Associate Director, BRE Scotland**

Part of the BRE Trust

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### Content of Presentation

- Introduction to BRE
- Evolution of the Innovation Park
- Innovation Parks enabling Best Practice in Construction
- BRE Scotland Innovation Park Business Model
- International Innovation Parks
- Training and Skills Development

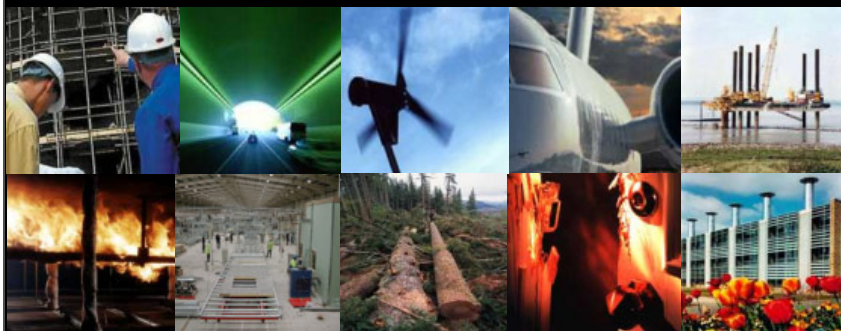
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INTRODUCTION TO BRE

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Building a Better World...

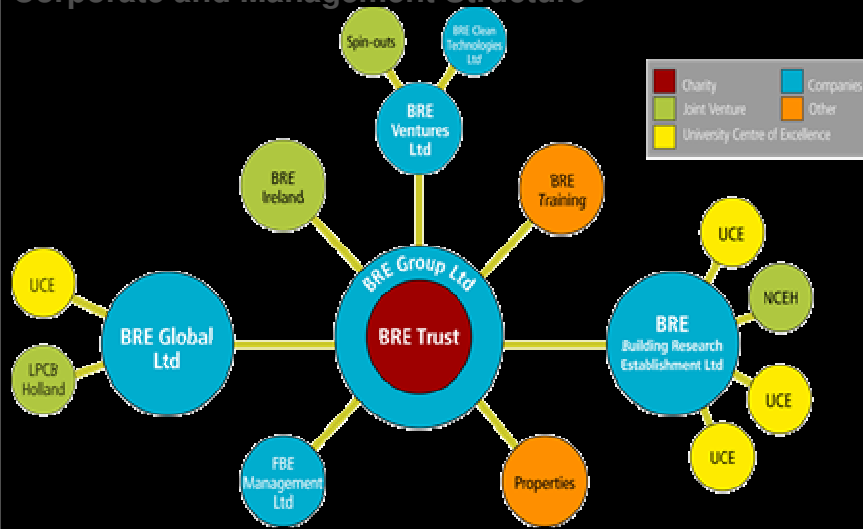
Research, consultancy, testing, certification, training



Working in the built environment, but also  
transport, manufacturing, electronics, agriculture...

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### Corporate and Management Structure



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Sustainability...

### Masterplans to corporate plans



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Low impact buildings and technologies...

**Carbon reduction to resource utilisation**



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BRE Ventures...

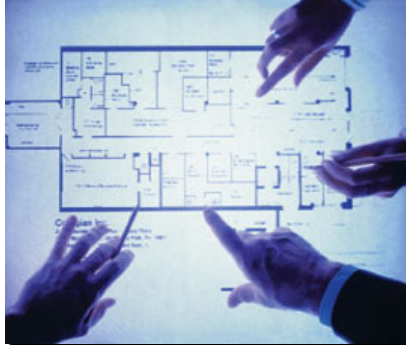
**The successful exploitation of good ideas**



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Risk management...

Design review to mock up testing



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BRE Training...

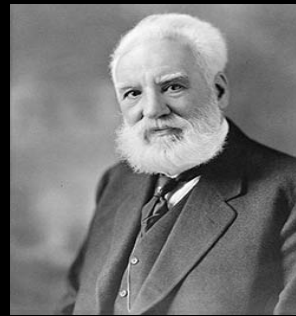
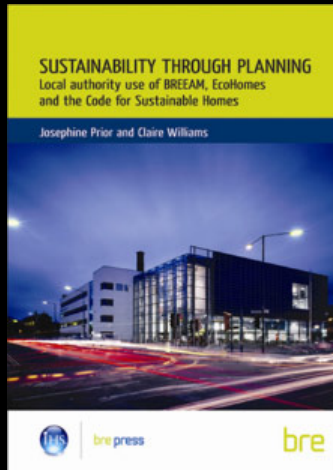
Positively changing peoples lives



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Knowledge and information...

### Publications to knowledge transfer



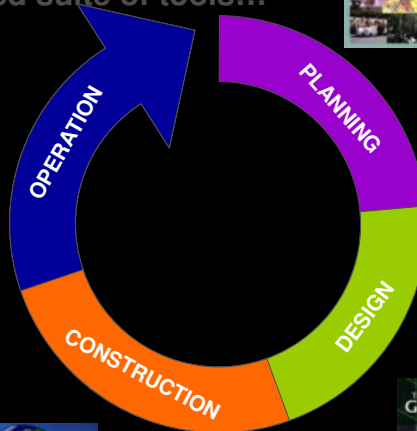
*'Great discoveries and improvements invariably involve the co-operation of many minds'*  
Alexander Graham Bell

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An integrated suite of tools...



CLIP



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## EVOLUTION OF THE INNOVATION PARK

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Lessons from construction process...



... and the completed buildings

# BRE Innovation Park



# OFFSITE2005





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## Stewart Milne's Sigma Home

- **Code Level 5**
- Three bedroom house
- Split floor design
- Closed panel timber frame system
- Wall U value: 0.15
- Bathroom pods
- Windturbines, solar water heating and PV panels
- Dupont's Energain system



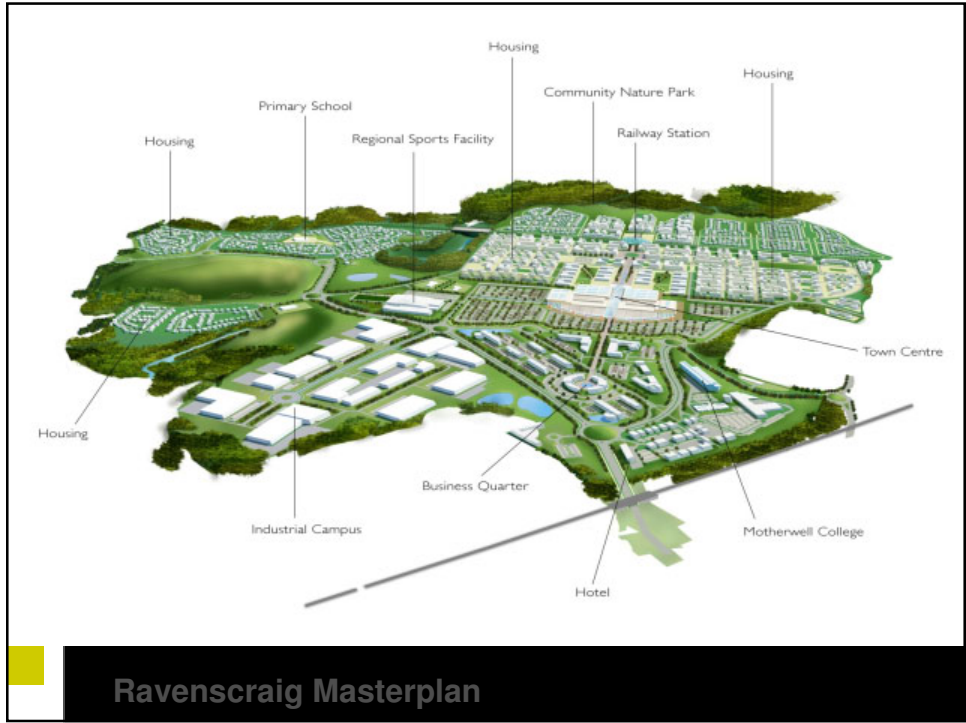


## Kingspan Offsite's Lighthouse

- **Code Level 6**
- Two bedrooms
- SIP (Kingspan TEK system)
- Wall U value: 0.11
- Mechanical Heat Recovery Ventilation
- PV panels and solar water heating
- Rainwater harvesting and greywater recycling

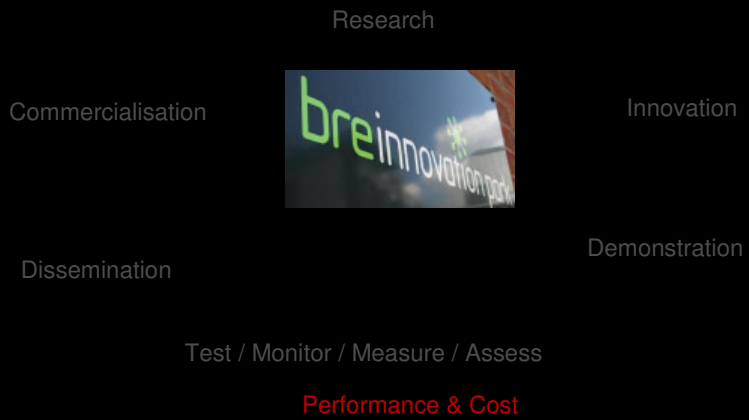


BRE SCOTLAND INNOVATION PARK BUSINESS MODEL



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Why are we doing this?



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## World's first purpose-built Innovation Park









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### Partnerships and positioning

Construction Scotland

Scottish Enterprise

Scottish Government

Forestry Commission Scotland

Scottish Green Roof Forum

SEPA

Scottish Water

Homes for Scotland

Scottish Power

University of Strathclyde



North Lanarkshire Council

Edinburgh Napier University

Construction Skills

Glasgow and Clyde Valley Green Network

Scottish Natural Heritage

European Regional Development Fund

Historic Scotland

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100+ organisations providing innovative products for demonstration. Everything from street lighting, to a natural play facility, to latest surface water management strategies..... + demonstration buildings and the visitor centre

### Conceptual image of the Innovation Park

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#### Retrofit demonstration(s)

- High % of building stock for 2050 already constructed
- Huge variation on building type, function, condition, location,...
- One size doesn't fit all...
- Demonstration and case study material
- Development of strategic approach – Link to other BRE activities
- Including skills / training / education issues
- EU funding proposal October 2011

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### Activities on the site

- Demonstration buildings looking at new build solutions
- Retrofit demonstrations looking at the integration of new products and technologies towards LZC
- Monitoring of demonstration building performance
- Dissemination of information
- Links to other initiatives nationally and internationally
- Conferences, events, tours
- Industry support mechanisms
- Community engagement



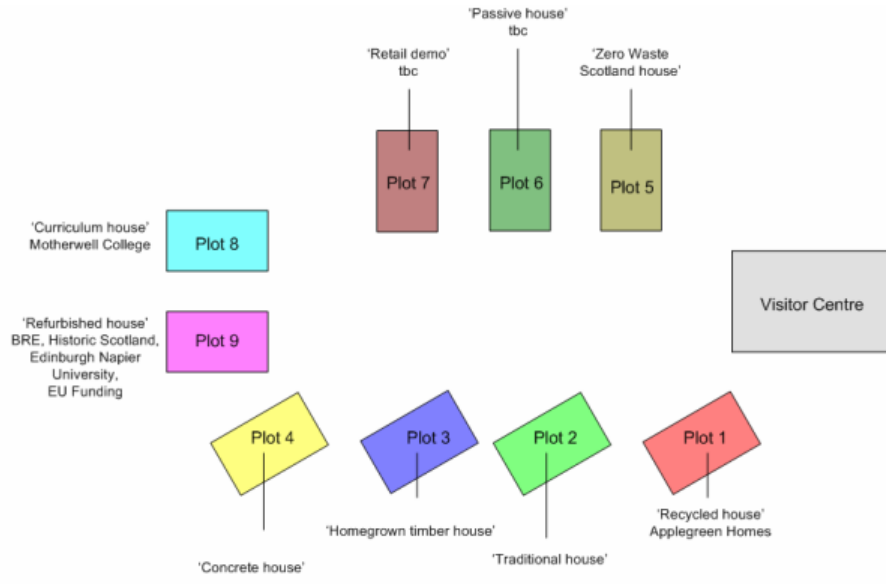
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### Goals

- Creating a vision of sustainable development
- Integration of technologies
- Development of supply chains
- Industry support
- Creating a hub of innovation / information / learning / skills development
- Wide stakeholder engagement – nationally and internationally
- Community engagement

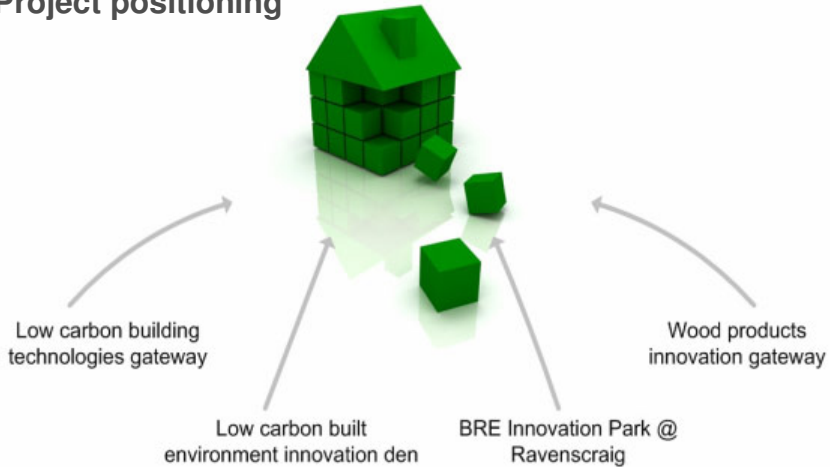
....Many more opportunities

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### Project positioning



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## Low Carbon Building Technology Gateway Phase 2

- To support the pathway to 2013 and 2016 low carbon step changes there are a number of Innovation Gateway's underway
- Whether in design, manufacture, construction, or product integration within new systems or supply chains there are opportunities of support and guidance available:

*offsite construction, energy efficiency, micro-renewables, innovative foundations, structural connectors, cross laminated timber, thermal isolation, noise and vibration, closed panel systems, passive design, value engineering, engineered wood products, full scale housing prototype development, thermal mass, utility real-time displays, photo-voltaics, air source heat pumps, recycled materials, phase change elements, smart technologies, lifetime homes, technical compatibility, section 7 – Sustainability, feasibility studies, innovation vouchers, knowledge transfer partnerships, research and development guidance, specialist test facilities, climate change adaptation, post occupancy evaluation, innovation den, solar thermal systems, innovative insulation systems..... and many more!*



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## Innovation Management

- Managing and disseminating of technical information linking the enterprises and their innovations for the sustainable construction sector
- Managing multi-stakeholder meetings involving housing developers (private and public), contractors, product manufacturers and regulatory bodies
- Organising and coordinating visitor and exhibition events to the facilities including conducting technical tours
- Managing visitors from overseas and international industry/government visitor delegations

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### **Innovation Coordination**

- Initial review for product integration
- Co-ordination of full scale demonstration or prototype buildings
- Facilitation of meetings between enterprises and supply chain integration
- Facilitation of commercial capabilities from product and system innovations
- Facilitation of outreach and client engagement through workshops, seminars and media, organised for both phases of the project

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### **Testing Support**

- Coordinating contractors and businesses operating on the site
- Development of R&D and testing processes to assess future and exiting building regulation and functional standard compliance
- Development of technical tours and presentation material which will be provided to visitors of the facility
- Liaison between R&D on-site and research and knowledge transfer organisations, e.g. Universities and Colleges

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## INTERNATIONAL INNOVATION PARKS

## bre Innovation Park at Watford

### View of Park



### Partners/Stakeholders

- Build Partners & supply partners
- EEDA (Enterprise Hub)
- BRE Group & BRE Trust
- St Albans Council

### Key Facts

- Over £10m industry investment into the buildings on the Park
- Over £15m research & development projects secured from the Park
- Directly influenced over 100 developments and demonstrations projects in the UK
- Over 300 organisations showcasing innovative products on the Park
- Over 4000 contacts on the Park's membership scheme
- Over 50,000 visitors to the Park since its launch in 2005
- National and global media coverage: Over £5m AVE (Advertising Value Equivalent)
- Over 100 awards and prizes
- Education programme visits: over 4000 schools children.
- Publications: over 20 documents

## Beijing Innovation Park

- 27 June 2011
- Peter Bonfield and Yu Liang, CEO of Chinese company Vanke signed an MoU today in the presence of Chinese Premier Wen Jiabao, and Prime Minister David Cameron as part of the UK-China Trade Summit.
- The MoU sets out the future collaboration between the two organisations which includes BRE developing a masterplan for a 450,000 m<sup>2</sup> site in Beijing called the 'Green Building Park'.

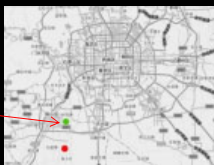


## bre Innovation Park at Beijing, China

### View of Park



Innovation Park



### Key Facts

- 15 km from Beijing
- Size of Innovation Park = 40,000m<sup>2</sup>
- Size of Beijing Green Building Park (BGBP) = 650,000 m<sup>2</sup>
- Sustainable Homes Park (SHP)
- Research & Development Centre (RDC) Building

### Partners/Stakeholders

- Vanke (Landowner & developer)
- Eco Intellect (BREEAM Assessor)
- MacFarlane Wilder Architects (Masterplanner)
- Beijing Research Institute
- Beijing Local Authority (Planning)
- Chinese Government
- UKTI China & British Embassy

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## Signing of Accord with Brazil

11<sup>th</sup> August 2011



Signed Accord that sets out the Brazilian Government's and industries' intent to work closely with BRE on a growing programme of research, innovation, sustainability, standards setting, certification and knowledge exchange focussed on addressing the challenges and opportunities in the built environment in Brazil.



Over 1 Million homes to be built over next year

Programme to send 100,000 engineers and scientists to other countries to bring best practice back to Brazil

Minister Mercadante announced a multibillion dollar fund to promote innovation across Brazil

## bre Innovation Park at Brazil



### Key Facts

- Located in Brasilia in the UnB Campus
- 20.000 m2
- £12 Million (Estimation)
- Key Partners are CBIC and UnB
- Construction sector 9% Growth in 2010
- Construction sector resistant to change

### Partners/Stakeholders



## bre Innovation Park in Portland, Oregon



Two sites selected at present

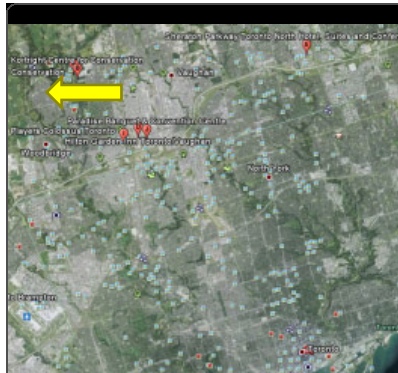
### Key Facts

- Portland Development Commission wish to establish the Park & enjoys Mayoral support!
- To build on Portland's reputation for being a sustainable city & use the Park to stimulate economic activity
- See the BRE partnership and existing Park model as a key way to do this
- MOU between BRE & PDC has been signed
- Visits planned in June & October 2011.

### Partners/Stakeholders

- City of Portland (Mayor)
- Portland Development Commission
- BRE
- Oregon University
- People & businesses in Portland
- International companies.

## bre Potential Innovation Park in Canada



### Key Facts

- 25km from Toronto
- Kortwright Environmental Education Centre/Living City campus
- 130,000 visitors per year
- Existing energy trail/Archetype low energy house
- Joint application to Fed Dev with the Toronto Regional Conservation Authority to develop park



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## TRAINING AND SKILLS

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### Training and Skills

CSH drives best practice within regulation to drive down cost of assessments

***Today's best practice is tomorrow's minimum standard!***

Innovation Park enables demonstration and learning platform....

- Development of training programmes around best practice standards
- Partnerships with further and higher education sectors.....influence curriculum
- Research dissemination to construction sector
- Attracts and levers research and enterprise funding

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Thank – you

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