

BDP.

A large, stylized illustration of a dandelion seed head is positioned on the left side of the page. The seed head is composed of many small, radiating lines, each ending in a small circle representing a seed. The illustration is rendered in a light gray color. Several individual dandelion seeds are shown floating away from the main seed head, scattered across the upper right portion of the page. The seeds are also rendered in a light gray color, with thin lines representing their stems and small circles representing their heads.

Our Journey

Introduction

As an interdisciplinary design studio of architects, designers, engineers and urbanists, we have a pivotal role to play in shaping our future towns and cities.

We are in a fortunate position where the decisions our designers and consultants make can influence the way people behave and the impact they have on the environment.

As such, we have been working hard over the last five decades to deliver truly sustainable buildings and places that have improved and continue to improve quality of life, promote aspiration and drive prosperity. Throughout our history sustainability has sat at the heart of our ethos and continues to inspire everything we do.

We possess the technical, planning, and design expertise to not only deliver resource efficient developments, but human, vibrant places in which people want to live, work and play.

This expertise is connected and shared to create successful developments that enhance quality of life now, without jeopardising our collective journey to a truly sustainable future.

Across the practice, much of this work is coordinated and managed by our in-house specialist sustainability team. This team provides a home for our sustainability thought-leaders, and provides specialist consultancy services and advocacy work for a broad range of clients from local authorities to blue-chip organisations.

Throughout our history sustainability has sat at the heart of our ethos and continues to inspire everything we do.

Opposite, from left to right:

We developed the standard shell and core specification for this all-new BREEAM Outstanding Waitrose store, including sunpipes over check-out areas. This is now being replicated across the country.

The RIBA award-winning Cardiff Library achieved a BREEAM Excellent rating, including an extensive green roof for less than 0.5% of the construction cost.

The newly opened Abraham Darby Academy in Telford utilises a predominantly timber frame, with a host of sustainable features, achieving a 64% reduction over Part L2.

Main image, below:

Our landscape designers have opened up access to the River Ravensbourne via new pathways, backwaters and decks, creating new habitat areas for wildlife, new bridge connections and children's play and performance space, in Lewisham, London.









As a business we are committed to not only sustainable design but also to embedding sustainability into the operation of our day to day business.

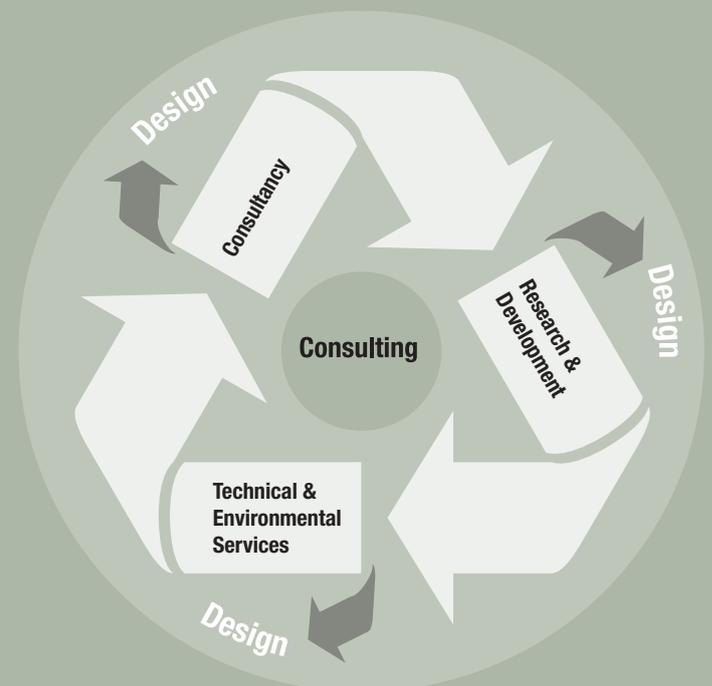
BDP is ISO 14001 certified... and has been since 2011.

In 2013 we extended the scope of the accreditation to cover the projects we deliver to ensure our designers apply the same rigour and testing throughout the design process as we do in the operation and management of our studios.

In addition to our project work, we also seek to contribute to the communities in which our studios sit. Whether this is through the creation of apprenticeship positions, voluntary community initiatives such as Manchester Garden City, or pro-bono design services, a key part of our operation is focussed on giving something back. This sits with our vision for the future where both town and bottom up initiatives and interventions are necessitated as part of a shared sustainable future.

Our operation is focussed around three key workstreams, which create a loop of continual improvement and design development. These workstreams, which are described in this document, are:

- Technical Environmental Services
- Environmental Consultancy, and
- Research and Development.



*Main image, above:
Liverpool One, a Stirling Prize nominee, has brought a new social and economic vibrancy to what was 42 acres of derelict but historic buildings. BDP was masterplanner, architect, landscape and lighting designer.*

*From left to right:
Our naturally ventilated Manchester studio achieved BREEAM Excellent.*

Roche HQ, demonstrating the importance of natural light, achieved BREEAM Excellent.

7 More London achieved the first BREEAM Outstanding awarded to an office building in London.

Through our ethos

ETHOS



1981
Low energy hospital study
St Mary's on the Isle of Wight becomes the first prototype low energy hospital

DESIGN



1987
Energy Unit embraces environment
The BDP energy and environment unit is formed as one of the UK's leading research groups



1992
BDP & BRE collaboration
BDP energy unit becomes one of the first licensed to undertake BREEAM assessments

CONSULTANCY



2005
Sustainable Designer of the Year
BDP receives award at inaugural sustainability awards by Building Magazine

OPERATION



2001
BDP sustainability group established
BDP develops new group to act as interface between clients and design teams to reduce impact

Building Services Award
2004 Gaelscoil An Eiscir Riada, Tullamore, Co Offaly (Environmental Initiative of the Year)



2006
Roche HQ wins BCO top award
BDP's BREEAM Excellent design wins 'Best of the best' award at the BCO awards

AJ100 Awards
2006 BDP (Commendation for Sustainability)

Sustainability Awards
2005 BDP (Sustainable Designer of the Year)

2005 National Maritime College, Ringaskiddy, Cork (Low Energy Building of the Year)

Sustainability is fundamental in our approach, our heritage and our future.

RIAI Irish Architecture Award

2007 Nurse Education Building, Waterford Institute of Technology (Best Sustainable Building) RIBA European Award

RIBA European Award
2007 Environmental Research Institute, University College Cork

Sustainable Energy Award
2012 Colaiste Choilm, Tullamore, Republic of Ireland (Energy Sustainability in the Built Environment)

RIBA European Award
2012 Carroll's Facility Building, Dundalk Institute of Technology, Ireland

CEEQUAL Awards
2012 Glencorse Water Treatment Works, ('Excellent' Whole Project Award)

North West Property Award
2010 BDP's Manchester studio, Manchester (The Green Award)



2007 Sustainable Futures Award
BDP launches award scheme given to projects that demonstrate exemplary performance



2010 BDP awarded two CEEQUAL Awards
Two projects win CEEQUAL Awards, both achieving the maximum threshold of Excellent



OUR FUTURE

INNOVATION



2008 Leigh Academy
Leigh Technology Academy in Dartford wins 'Best of the Best' at the Building Services Awards



2011 PwC awarded BREEAM Outstanding
First building in London and the first major office in the UK to be awarded BREEAM Outstanding

Building Services Award
2008 Leigh Technology Academy, Dartford (Best of the Best, Project of the Year & Best Use of IT)

Sustainable Building Services Award
2008 BDP (Sustainable designer/consultancy)

CEEQUAL Awards
2009 Derry City Centre Public Realm, Northern Ireland ('Excellent' Whole Project Award)

CIBSE Sustainable Building Services Design Award
2009 Chris Croly, for the Waterford Institute of Technology's new Tourism & Leisure Building

RIAI Irish Architecture Award
2011 Carroll's Facility Building, Dundalk Institute of Technology, Ireland (Best Conservation/Restoration Category)

BREEAM Award
2013 Waitrose, Bracknell (Winner of retail category)

AJ100 Awards
2013 BDP (Shortlisted for Sustainable Practice of the Year)

CEEQUAL Awards
2013 Glencorse Water Treatment Works, Edinburgh (Community Relations Winner)

Through design

Our designers are passionate advocates of delivering sustainable environments and places.

Through our iterative and interdisciplinary operation, our designs commonly exceed planning and regulatory requirements. Our in-house sustainability consultants work closely with our architects and engineers to ensure cutting edge techniques and practices are disseminated throughout our studios.



Our engineers and sustainability consultants are working closely with architects, Architype, on the new gateway building for the University of East Anglia. The Enterprise Centre will house teaching and research accommodation as well as building and enterprise suites.

The building is being designed to Passivhaus standards and is

seeking to achieve BREEAM Outstanding - the first building ever to achieve both certifications. The development will also have a 100 year design life, and will be truly zero-carbon (in fact, it will act as a carbon sink through its use of natural materials). Materials are being sourced locally, including prefabricated thatched panels, which is also inspiring local trades and economies.



Our designs for an Eco-housing development in Nanjing, China showcase world class sustainable technologies, not only in China, but to an internationally recognised standard.

The highly efficient design delivers an estimated annual heating energy demand of $0.95\text{kgCO}_2/\text{m}^2$, outperforming the energy performance of the best in European low-energy residential buildings (such as Passivhaus), and challenging the forthcoming UK zero carbon homes standards.

The design takes into account several active technologies to further reduce the carbon emissions and running costs of the building, such as solar hot water collectors, photovoltaic cells, advanced heat recovery, LED lighting, CHP and earth tubes.



Main image, opposite:

The naturally ventilated B&Q Store Support office ensured energy and water efficiency was maximised through material use, construction accuracy and building design, whilst natural light maximised through rooflights and internal courtyards.

Below:

At Alder Hey Children's Hospital the long elevations of the fingers are orientated broadly north-south, which is ideal for passive energy design, good daylighting, ventilation and views to all patient areas. This passive design approach, together with the green roofs and a number of active engineering systems, underpin our sustainability strategy, ensuring that we contain the hospital's energy consumption and CO₂ emissions.

Bottom, left to right:

The award winning Graham Headquarters reflects sustainability in material selection, environmental engineering and sustainable construction techniques, and serves as an exemplar for any new office development seeking to minimise its carbon footprint while offering a superb working environment. It has achieved a BREEAM Excellent and an EPC A rating, making it one of the lowest energy office buildings in Northern Ireland.

The brand new Environment and Sustainability Institute at the University of Exeter has achieved BREEAM Outstanding through a holistic approach of energy efficient design, low impact materials, and a healthy internal environment.

The early design stage model for Cardiff and Vale Community Campus, which will house one of the largest PV arrays in the UK, is set to be the largest construction project in Cardiff.





Through consultancy

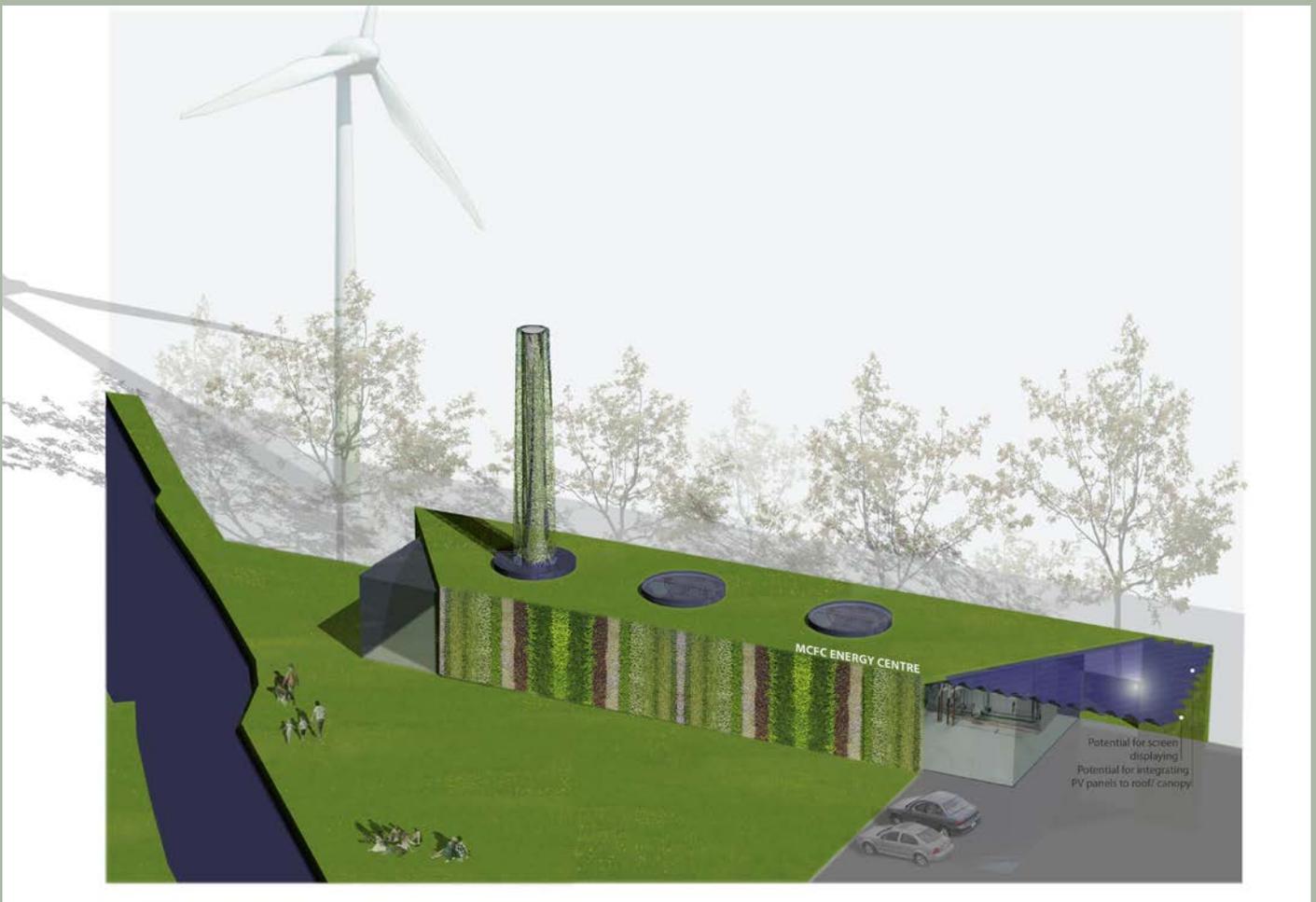
Our sustainability team assists organisations in lowering the impact of their operations through consultancy, technical services and research and development.

Eastland's Redevelopment Energy Strategy

We were appointed by the Eastland's Energy Group to develop a business case for a sustainable energy strategy for their current and emerging estate. The study compared a base case strategy, compliant with minimum regulatory carbon and energy requirements, to an exemplary sustainable strategy incorporating best-practice and cutting edge technologies.

A key aspect of the strategy was aligning it with the proposed phasing of the masterplan for the redevelopment of the site. The base case assumed each phase to be unrelated and stand alone. The exemplary sustainable energy solution assumed a joined up approach, incorporating carbon reduction strategies and future flexibility.

The strategy investigated potential energy demand for the site and provided capital and operational expenditure to communicate investment and payback periods to the client. The report provided four layers to the solution, each with different costs, energy contributions and payback periods. On the basis of the whole life-cycle cost, the sustainable solution proposed the implementation of a flexible and expandable low carbon district heat network fed from an architectural energy centre positioned on the site, serving the proposed and existing Eastland's estate, and a large scale (circa 90m hub height) wind turbine with visitor viewing deck positioned in the North Car Park of the stadium.





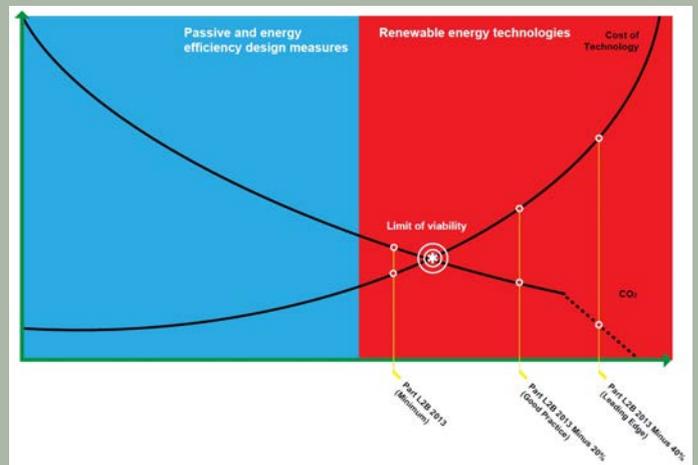
HAL (formally BAA) Environmental Consultancy

We produced a study for Heathrow Airport Ltd (HAL) that identifies the environmental ambition they should target in their next capital investment period (Q6 CIP) from 2014 – 2019.

The study was outward looking, in that it captured the business, legislative, regulatory and financial environment in which HAL will be operating over the course of the Q6 CIP. The report deals with design standards for both new build and fit out projects recommending ambition / performance levels in the fields of energy efficiency, water efficiency, operational waste and low impact materials, contractor site performance considering energy, waste, water and pollution and BREEAM targets.

The report also addresses construction waste, covering demolition, excavation and construction standards. The report sets the ambition level and standards to be incorporated into the design briefs for the Q6 construction programme. The standards and ambition level will be reviewed on a yearly basis.

We have an ongoing relationship with HAL and are producing sustainable design briefs to dictate the environmental performance standards for energy efficiency and water resource efficiency required in all new development across the estate. These standards are based on the level of ambition described in the previous commission, and will form the basis of the organisation's Employer's Requirements.



Establishing BAA's Environmental ambition for Design and Construction within Heathrow's 2014-2019 Capital Investment Programme

BAA

BDP.



This work will inform where interventions and focus will have the greatest impact on reducing emissions further.

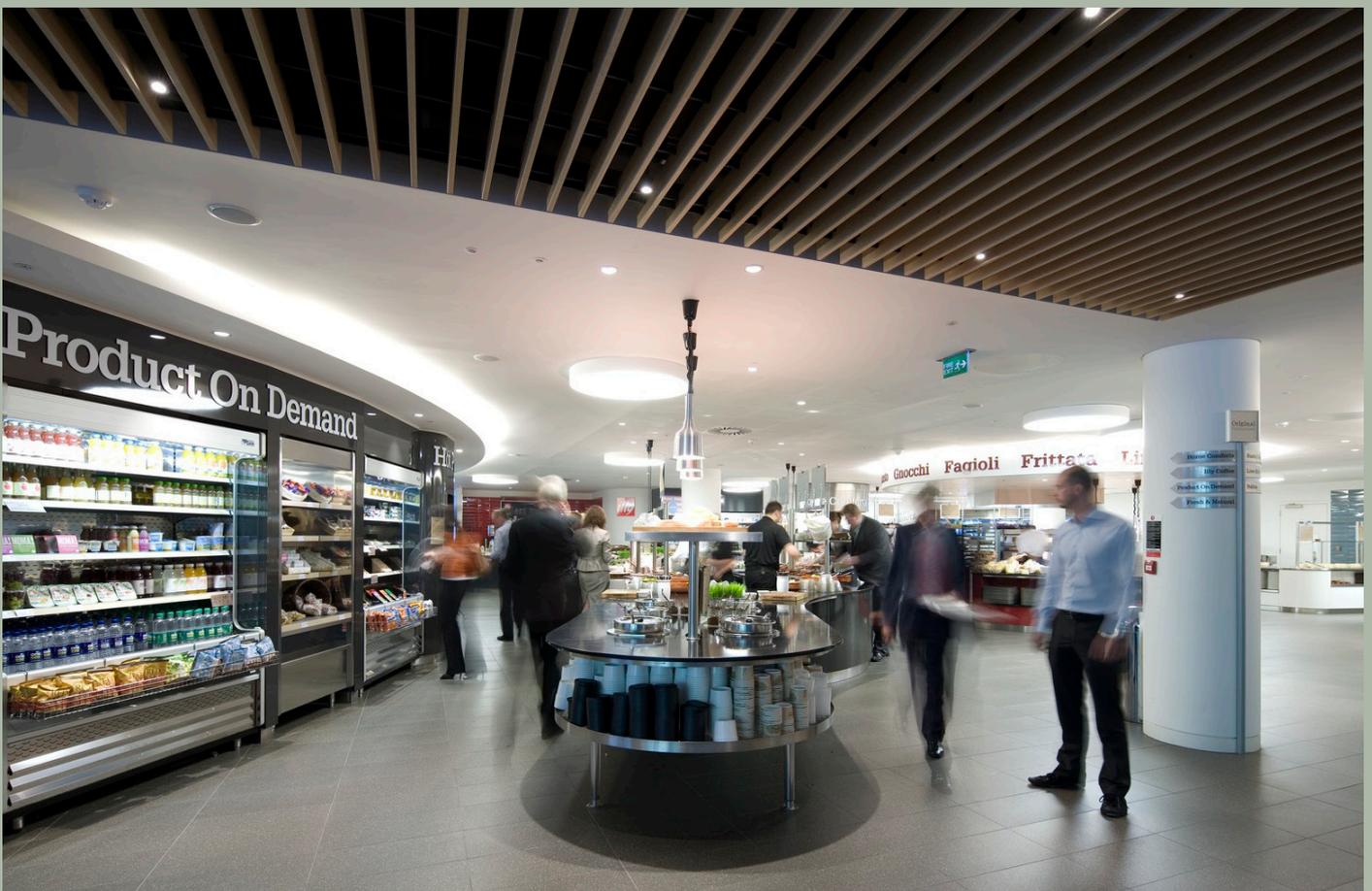
7 More London Post Occupancy Evaluation

Our successful and award winning fit-out design of 7 More London was the first building in London and the first major office in the UK to be awarded BREEAM Outstanding. Subsequently the client reinforced this successful relationship by commissioning us to undertake a formal Post-Occupancy Evaluation (POE). This evaluation will establish whether the building is performing as designed following occupation and commissioning of systems.

The fit-out design, alongside cutting-edge renewable and low carbon technologies, included extensive metering and zoning to permit the close tailoring of systems to minimise wasted energy, particularly under part-occupation. Therefore, reviewing performance post-occupancy was always important to the client to ensure that these design features were a worthwhile investment that facilitated a reduction in emissions. This review will explore the energy consumption of the different functional areas of the building to facilitate investigation and changes in operation, where feasible and viable.

The first stage was to work closely with the client to complete a BREEAM In-Use assessment, and to obtain the appropriate information and evidence to ensure that the score is maximised across the asset, organisation and management functions. Where information is missing or lacking, we will provide consultancy on achieving a standard that is both beneficial to the organisation and is BREEAM compliant.

The second phase is to aggregate and profile the energy meter data for the building. With a large number of energy meters throughout the asset, a major task is interpreting this data and turning it into a useable form. Following this, the data will be profiled to provide information on consumption across zones to determine which are the highest and lowest consumers, and explore why. This data will then also be fed back into the energy model that we completed during design to determine the accuracy of the assumptions included within this. This intention is that, collectively, this work will inform where interventions and focus will have the greatest impact on reducing emissions further.



Through our operation

Environmental Management

The focus and attention we give to our projects ensures they contribute positively to the environment. In addition to this we also take seriously the impact of our business operations.

We have been monitoring and recording our resource consumption since 2006. In 2010 we updated and formalised this process to align with the GHG Protocol scopes and emissions to ensure our consumption is comparable throughout the UK.

Our 2010 consumption figures show we were able to set a baseline level of environmental performance on which to set reduction targets for 2012 and 2014. This target, alongside a significant update of policies and processes, is part of our policy to ensure continual improvement and continual reductions in emissions.

We are ISO 14001 certified and have been since 2011. This covers all of the activities and operations that contribute to our day-to-day business.

In 2013 we extended the scope of the accreditation to cover the projects we deliver to ensure our designers apply the same rigour and testing throughout the design process as we do in the operation and management of our studios. This has seen revised procedures to ensure that comprehensive gateway assessments and checklists are used as a benchmarking tool and describe the efforts that have been taken to minimise impact and ensure that all of our project work is assessed against the same high standards.



Adopted Measures

London:

An extensive programme of updating all light fittings throughout the studio to LED to **reduce lighting power loads dramatically**, with a calculated payback period of just over 3 years.

Manchester:

Server virtualisation has seen a **significant reduction in onsite power consumption** from both reduced equipment loads and cooling loads

Bristol:

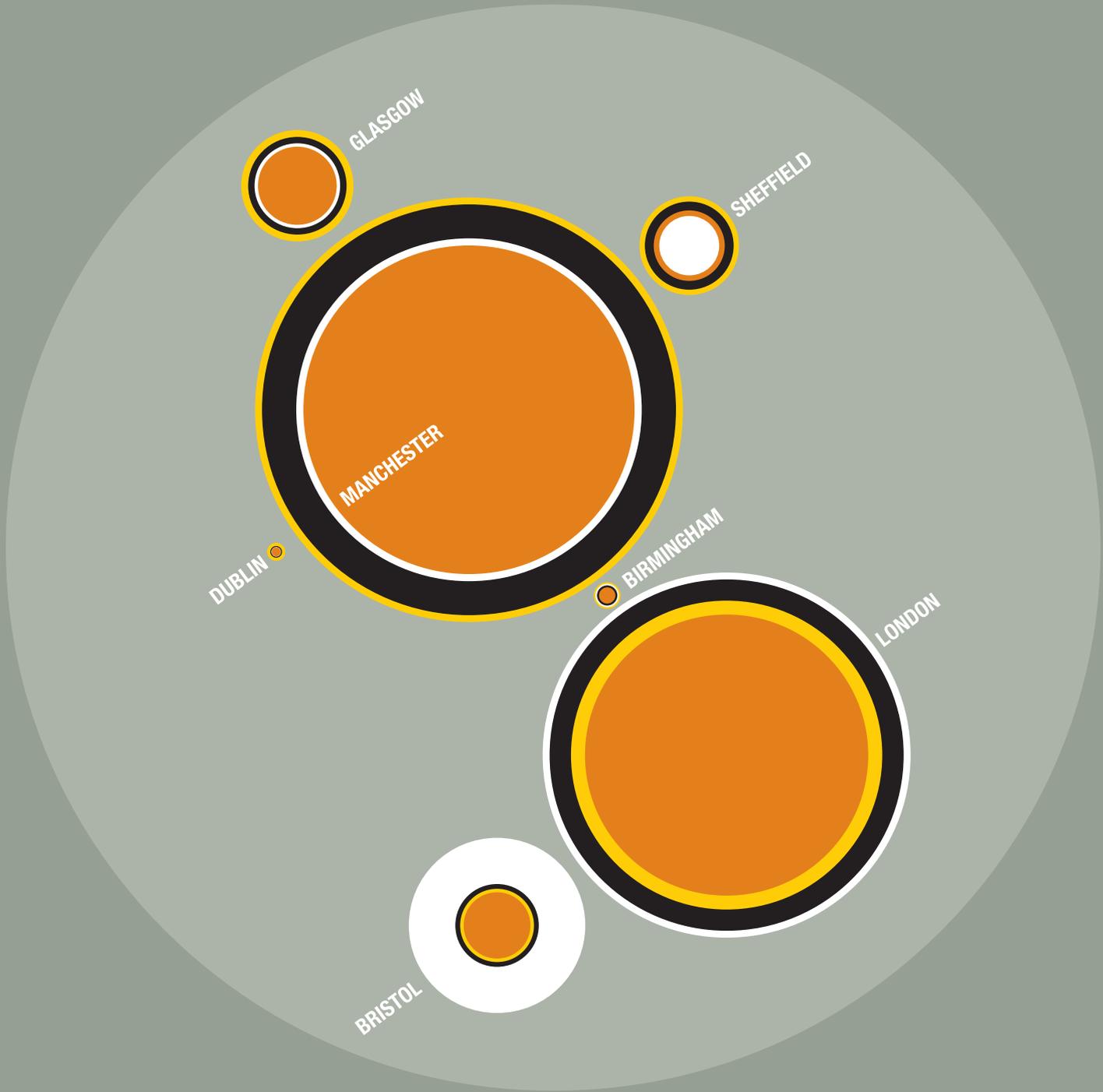
Lighting and heating zones have been upgraded to provide greater control of the space, creating perimeter and central core zones.

Sheffield:

The studio's contract with its waste contractor sees **>95% of all waste recycled**. The 5% that isn't is processed in a waste-to-energy facility.

We are on target to meet a 20% reduction in carbon emissions benchmarked against our 2010 baseline





Carbon Consumption by year and office:

	Birmingham	Bristol	Dublin	Glasgow	London	Manchester	Sheffield	TOTAL	
● 2010-2011	46.89 1.9	196.55 7.8	26.58 1.1	232.02 9.2	833.08 33.1	976.44 38.7	208.35 8.3	2519.92	tCO ₂ e %
● 2011-2012	59.36 2.2	438.71 16.5	22.85 0.9	214.10 8.0	916.10 34.4	859.84 32.3	150.18 5.6	2661.13	tCO ₂ e %
● 2012-2013	47.37 2.5	131.56 6.9	32.10 1.7	199.30 10.5	522.29 29.1	759.51 40.0	177.37 9.3	1899.50	tCO ₂ e %
● 2013-2014	TARGET OF 20% REDUCTION ACROSS ALL OFFICES								





Through innovation and our future

The SUE (Sustainable Urban Environments) lab is our new home for sustainable thought leadership across the practice and beyond.

The lab provides a home for the interdisciplinary delivery of research and development and of our advanced design projects. A home for the exchange of information, opinion and knowledge and a vehicle for cross-industry collaboration to address the issues of urbanisation in the context of environmental, social and economic sustainability.

The following information captures a snapshot of research and development projects, initiatives and collaborations which are currently going through our SUE lab.

For more information and to keep up to date with our activities, follow us on twitter [@SUEBlog1](#)





Our initiatives

We have embarked on an ambitious initiative drive. This has seen us partner with a number of charities, local communities and research groups to improve the urban realm and develop new products and techniques for doing things.

The Biospheric Project, Manchester

As part of the Manchester International Festival 2013, we partnered with the Biospheric Project. Part farm, part laboratory and part research centre, this disused industrial building is filled with innovative sustainable food systems, ranging from urban forestry to large scale aquaponic farming.

The facility supplies healthy, organic food, to the residents of Salford, whilst generating research and data and development spin-offs which will, in the fullness of time, become nationally and internationally recognised.

Manchester Garden City

Cities are playing an increasingly important role in the global debate about food security and sustainability, a trend that is clearly set to continue as the world's population becomes ever more urbanised.

As part of our Manchester Garden City initiative we have provided city centre residents with grow boxes which function as temporary urban allotments. In the future pilot schemes such as this must become much more mainstream as we tackle the global food challenge.





Through our SUE lab we actively undertake R&D work, feeding back the results into our design projects.

Greenius Project

The bio-productive climatic facade, known as 'Greenius Wall', is a working food-producing facade prototype which utilises aquaponic technology built into an integrated facade system. The bio-productive facade uses the dormant spaces on the sides of buildings to produce crops within an urban environment where land available for food production is scarce. The system also aims to reduce building energy use by providing shading and transpirational cooling.



Urban Resilience research – Harmonise

We are undertaking a three year partnership research project to develop a concept that improves the security and resilience of large-scale urban developments such as shopping centres, sports venues or business centres with underground transportation nodes. This will look at state of the art built infrastructure protection products as well as planning and engineering tools to ensure security and resilience against disasters.

Environmental Assessment and Management (EAM)

We were successful in a research funding bid with the University of Liverpool to look at 'Enhancing Attractiveness and Relevance of Environmental Assessment and Management (EAM) related to Higher Education in the UK'.



The Greenius Award is a UK Technology Strategy Board funded project, led by BDP in conjunction with Queens University Belfast, The Biospheric Foundation, Glassolutions and Siemens.



Out and About:

February 2013
 Centre for Built Environment,
 Cambridge
 James Hepburn, Environmental
 Engineer presenting Ventilation in
 Passivhaus & Low Carbon Buildings.

March 2013
 Ecobuild, London ExCel
 Mark Ridler, Lighting Director chairing
 Sustainable Design for Exterior Lighting.

Malachy McNamara, Structural
 Engineer presenting NRP Enterprise
 Centre as a case study.

March 2013
 National Retrofit Conference, Dublin
 David Brennan Environmental Engineer
 presenting Commercial Buildings.

March 2013
 Constructing Excellence Seminar,
 Manchester
 Steve Merridew/Anthony Nickson/
 Ameet Ankarikar, Sustainability Group
 presenting Passivhaus - Towards Zero
 Carbon.

April 2013
 Creating Culture of Sustainability,
 Brewhouse Yard
 Philip Gray/Helen Moorhouse
 Sustainability and Communications
 group, hosting a Net Impact evening
 event

April 2013
 Energy Show - Ireland, Dublin
 David Brennan Director of
 Environmental Engineering presenting
 Transformation of Old Urban Buildings
 into Nearly Zero Buildings.

July 2013
 The Biospheric Project opened its
 doors, Manchester

July 2013
 Designing the City, Manchester
 Gavin Elliott, Architect Director chairing
 an event at the Biospheric Project.



Manchester

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