

3. Policy Context

3.1 A widely used definition of 'sustainable development' is "*development that meets the needs of the present population without compromising the ability of future generations to meet their own needs*" established by the World Commission on Environment and Development (1987). Sustainable design and construction of buildings is about producing functional, robust and innovative buildings while minimising their environmental impacts.

3.2 **Policy drivers: National**

3.3 The UK Sustainable Development Strategy 'Securing the Future' (Department for Environment, Food and Rural Affairs 2005a) describes a common purpose for sustainable development: "*The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations*". Planning Policy Statement 1 (PPS1) sets out the Government's overarching planning policies on the delivery

of sustainable development through the planning system. Planning Policy Statement: Planning and Climate Change - Supplement to Planning Policy Statement 1 sets out how planning,

in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable¹.



Innovate BREEM accredited offices, Thorpe Park, Leeds

Key Construction Sector Sustainability Targets

Carbon emissions and greenhouse gasses

- 15% reduction in carbon emissions from construction processes and associated transport compared to 2008 levels by 2012 (UK Strategy for Sustainable Construction);
- Zero-carbon new homes by 2016 (DCLG, Building a Greener Future);
- Zero-carbon new schools by 2016; zero-carbon new public sector non-domestic buildings by 2019 (The Budget 2008);
- Carbon neutrality to be achieved across the central Government office estate by 2016;
- At least 80% in UK greenhouse gas emissions by 2050 (UK Climate Change Act);
- Reducing UK greenhouse gas emissions by at least 26% by 2020 (UK Climate Change Act).

Water

- 20% reduction in water consumption during construction phase compared to 2008 levels by 2012 (UK Strategy for Sustainable Construction);
- Reduce per capita water consumption in the home to 120 - 130 litres per day by 2030 (UK Climate Change Act).

Waste

- 50% reduction in construction, demolition and excavation waste sent to landfill by 2012 compared to 2008 (UK Strategy for Sustainable Construction);
- 20% reduction in construction packaging waste by 2012 (UK Strategy for Sustainable Construction).

Design

- 10% increase year on year from 2007 levels in the proportion of public building projects using Design Quality Indicators (UK Strategy for Sustainable Construction);
- BREEAM 'Excellent' to be achieved on all new builds and 'Very Good' on all major refurbishments procured by central Government (UK Sustainable Procurement Strategy);
- All public sector housing to be built to Lifetime Homes Standard (Lifetime Homes, Lifetime Neighbourhoods) and all residential projects delivered with Housing Corporation or English Partnerships funding to achieve a minimum of Level 3 of the Code for Sustainable Homes.

Social

- Reduce the incidence rate of fatal and major injury accidents by 10% year on year from 2000 levels (UK Strategy for Sustainable Construction);
- Increase apprenticeships completed to 18,700 annually by 2012 (UK Strategy for Sustainable Construction).

Environmental

- All projects exceeding £1m capital value to have biodiversity surveys carried out and necessary actions investigated;
- 25% of products used in construction projects to be from schemes recognised for responsible sourcing by 2012 (UK Strategy for Sustainable Construction).

¹ The Government have recently issued a consultation document (Department for Communities and Local Government 2010a) that brings together the Planning and Climate Change supplement to PPS 1 with the 2004 PPS 22 on Renewable Energy into a new draft PPS on Planning for a Low Carbon Future in a Changing Climate. This new PPS will replace the 2007 and 2004 PPS and it is proposed that it will become a consolidated supplement to PPS 1.

The Government have also issued a consultation document (Department for Communities and Local Government 2010b) to bring together related policies on the natural environment and on open and green spaces in rural and urban areas to ensure that the planning system delivers healthy sustainable communities which adapt to and are resilient to climate change and gives the appropriate level of protection to the natural environment. Another objective for the streamlining and consolidation of policy in this area is to deliver, for the first time, planning policy on green infrastructure.

From 'The Value of Sustainable Construction', Drivas Jonas (2008)

3.4 The Government have signalled their intention to drive up standards of sustainable construction in the UK and planning is a key mechanism to achieve this. Building a Greener Future (Department for Communities and Local Government 2007), set out a target for all new homes to be zero carbon from 2016.

The Government announced in Budget 2008 an ambition that from 2019 every new non-domestic building should be zero carbon and, in order to show government leadership in tackling climate change, an additional ambition for new public sector buildings to be zero carbon from 2018.



3.5 Policy drivers: Regional

3.6 At a regional level, the Regional Spatial Strategy (RSS)² for Yorkshire and the Humber (Government Office for Yorkshire and the Humber 2008), includes policy YH2 on climate change and resource use which states that *“Plans, strategies, investment decisions and programmes should... Help to meet the target set out in the [Regional Economic Strategy] to reduce greenhouse gas emissions in the region in 2016 by 20-25% (compared to 1990 levels) with further reductions thereafter by:*

1. *Increasing population, development and activity in cities and towns*
2. *Encouraging better energy, resource and water efficient buildings*
3. *Minimising resource demands from development*
4. *Reducing traffic growth through appropriate location of development, demand management, and improving public transport and facilities for walking and cycling*
5. *Encouraging redevelopment of previously developed land*
6. *Facilitating effective waste management*
7. *Increasing renewable energy capacity and carbon capture.”*

3.7 Regional targets are set to reduce greenhouse gas emissions from the region in 2016 by 20-25% (compared to 1990 levels); to increase the average home energy rating to SAP 65 by 2016 for all stock; for all publicly funded housing to achieve at least Code for

CASE STUDY: ‘Energy Research Building’

Aiming for BREEAM Excellent, this building achieves a low energy consumption target through using energy efficient mechanical and electrical systems. Features include lighting controls with presence detection, low energy fume cupboards and ventilation

systems with thermal wheel heat recovery, low energy lift, and use of natural ventilation where possible and making use of the thermal mass of the structure. There is also a green roof on the outbuildings.

Designed by Fairhurst Design Group Ltd for Leeds University

Sustainable Homes level 3; for all new Yorkshire Forward funded development to meet at least BREEAM ‘Very Good’.

3.8 Policy ENV 5 on energy states that the region *“will maximise improvements to energy efficiency and increases in renewable energy capacity. Plans, strategies, investment decisions and programmes should:... Reduce greenhouse gas emissions, improve energy efficiency and maximise the efficient use of power sources by:*

1. *Requiring the orientation and layout of development to maximise passive solar heating*
2. *Ensuring that publicly funded housing, and Yorkshire Forward supported*

3. *development, meet high energy efficiency standards*
3. *Maximising the use of combined heat and power, particularly for developments with energy demands over 2MW, and incorporating renewable sources of energy where possible*
4. *Ensuring that development takes advantage of community heating opportunities wherever they arise in the region, including at Immingham and near Selby*
5. *Providing for new efficient energy generation and transmission infrastructure in keeping with local amenity and areas of demand*
6. *Supporting the use of clean coal technologies and abatement measures.”*

² At the time of writing, only temporary clarification had been reached about how RSS might be treated in decision making. It is the stated intention of the government to formally revoke RSS as part of the Localism Bill currently before parliament; and this intention is currently a material consideration.



Designed by Rio Architects for Innovate Property

CASE STUDY: Innovate, Thorpe Park, Leeds

Innovate Green Office at Thorpe Park is a commercially viable, sustainable building. It has been given the highest BREEAM Excellent rating (87.55%) ever given to a building in the UK. It features a central atrium offering solar gains, solar shading and thermal mass, and over 25% of materials used in its construction are recycled.

that the council has agreed, government, a single shared set of outcomes and priorities for the city. The Leeds Strategic Plan also embraces the Local Area Agreement for the city. The Leeds Strategic Plan includes commitments to:

- Reduced ecological footprint through responding to environmental and climate change;
- Reduce emissions from public sector buildings, operations and service delivery, and encourage others to do so;
- Undertake actions to improve our resilience to current and future climate change;
- Improve the quality and sustainability of the built and natural environment.

3.9 Regional targets are set in advance of targets being set in Development Plan Documents such that *“new developments of more than 10 dwellings or 1000m² of non-residential floorspace should secure at least 10% of their energy from decentralised and renewable or low-carbon sources, unless, having regard to the type of development involved and its design, this is not feasible or viable”*; indicative local targets for installed grid-connected renewable energy for Leeds are 11 MW by 2010 and 75 MW by 2021.

3.10 **Policy drivers: Local**

3.11 At a local level, Leeds has a long standing commitment to the principles of sustainable development. The ‘Vision

for Leeds’ (Leeds Initiative 2004), states that the Local Strategic Partnership (LSP) for Leeds will *“develop planning guidance and new policies to make sure we design and construct new buildings that affect the environment as little as possible.”* It also states that the LSP *“will encourage developers and the construction industry to make new buildings more energy-efficient buildings while minimising their environmental impacts and reduce the amount of waste and pollution they produce.”*

3.12 The Leeds Strategic Plan (Leeds City Council 2008b), sets out the priorities for Leeds for 2008 to 2011. The plan is a significant milestone in partnership working in Leeds as it is the first time

- 3.13 Leeds City Council values emphasise the importance of sustainable development in delivery of all council services.
- Working as a team for Leeds
 - Being open, honest and trusted;
 - Working with communities;
 - Treating people fairly;
 - Spending money wisely.

In this context the need for all development to be inclusive is an important aspect of sustainability.

CASE STUDY: York Environment Centre

The centre is set in St Nicholas Fields Local Nature Reserve, which has been created from a former rubbish tip. The building is a low energy, high thermal mass, passive solar design powered by renewable energy from photovoltaics and a wind turbine. Hot water is pre-heated by solar panels. The need for space heating is reduced to a minimum and is provided by

locally sourced timber, burnt in an efficient wood stove feeding the few radiators from a back boiler. Human sewage is biologically treated through dry compost toilets. Potable water is provided by collecting and purifying rain from the roof.

Designed by Ecoarc for Friends of St Nicholas Fields



3.14 The strategic policy framework for this SPD is provided by the adopted revised UDP (Leeds City Council 2006c), specifically Policy GP11 – “*where applicable development must ensure it meets sustainable development principles*”. This revision was endorsed by the inspector’s report on the revisions which stated that “*sustainable design principles are always applicable, even to small-scale development*” (Leeds City Council 2005c).

3.15 A further revision would have required a “*sustainability assessment... to accompany the submission of all applications for major development*” (as per the definition of major development set out in Circular 15/92 ‘Publicity for Planning Applications’). This latter revision was not fully supported by the inspector who recommended that the council should “*encourage*” rather than “*require*” such assessments and that this should be taken forward through a supplementary planning document which this SPD seeks to achieve (see 2.6).

3.16 Leeds has been applying sustainable development principles to significant developments in the city, notably in Holbeck Urban Village (Leeds City Council

2006b), where the planning framework contains detailed policies and guidance covering eco-homes and BREEAM standards for new and refurbished development, sustainable construction materials, sustainable urban drainage (SUDS), water conservation, renewable and low carbon energy, waste management and biodiversity (see www.holbeckurbanvillage/about/key-documents.htm for further information).

3.17 Leeds City Council signed the Nottingham Declaration on Climate Change in 2006 pledging to systematically address the causes of climate change and to prepare the community for its impacts. The Climate Change Strategy for Leeds (Leeds Initiative 2009), includes priorities to:

- Develop and enforce appropriate planning policies and guidance within the LDF and Sustainable Construction Supplementary Planning Document;
- Develop skills in Leeds City Council to advise developers on carbon reductions from major developments and renewables applications.

3.18 Planning Policy Statement: Planning and Climate Change Supplement to Planning Policy Statement 1 (Department for Communities and Local Government 2006), is clear that any “*policy relating to local requirements... for sustainable buildings should be set out in a DPD, not a supplementary planning document*”. It is therefore not appropriate for this SPD to set mandatory standards for sustainable buildings. Any such policies will be set out in the appropriate DPD such as the forthcoming Core Strategy.

3.19 However it is appropriate for this SPD to set voluntary standards that the council will encourage developers to achieve in advance of any policy being established in a DPD. These voluntary standards will set the context for the negotiation of appropriate planning conditions or obligations on a development by development basis with individual developers wishing to work with the authority in delivering a more sustainable future for Leeds.

Therefore, this SPD establishes the following voluntary standards which are consistent with the policies in the emerging Core Strategy:

✓ Leeds City Council voluntary standards on sustainable design and construction

The council encourages developments of 1,000 or more square metres or 10 or more dwellings (either new build or conversion if feasible) to meet at least the standard set by the

Code for Sustainable Homes (for residential development) or BREEAM (for non-residential development) as shown in table 3.1. A post construction review certificate will also be required.

Table 3.1:

Date	2010	2013	2016
Leeds Code for Sustainable Homes requirement	Code level 3	Code level 4	Code level 6
Leeds BREEAM standard for non-residential buildings requirement	Very Good	Excellent	Excellent

✓ Leeds City Council voluntary standards on Climate Change – CO₂ Reduction

The council encourages developments of 10 dwellings or more or over 1,000m² of floorspace, whether new build or conversion, to:

- a) reduce total predicted carbon dioxide emissions to 20% less than the Building Regulation Target Emission Rate until 2016 when all development will be expected to be zero carbon; and
- b) provide a minimum of 10% of the predicted energy needs of the development from decentralised, renewable or low carbon energy.

Carbon dioxide reductions achieved in meeting voluntary standard (b) will contribute to meeting voluntary standard (a).

The required percentage reduction may increase as advances in technology enable higher levels of carbon reduction. Details of this will be provided in future versions of this SPD.

If it can be demonstrated that decentralised, renewable or low carbon energy generation is not practical on or near the proposed development, it may be acceptable to provide a contribution equivalent to the cost of providing the 10% which the council will use towards an off-site renewable energy scheme.

The renewable or low carbon energy technologies must be operational before any new or converted buildings are occupied.

- 3.20 To demonstrate leadership and good practice in this endeavour, the Council Business Plan (Leeds City Council 2008a), includes an undertaking by the council to *“ensure all new buildings and refurbished buildings (where possible) commissioned by the council meet BREEAM excellent standards with maximum energy credits.”*³
- 3.21 Leeds has also selected National Indicators 185 (CO₂ emissions from local authority operations) and 188 (Adaptation to Climate Change) as two key performance indicators.

³ Other organisations are also setting similar requirements: Yorkshire Forward require development that they fund to achieve BREEAM 'Very Good' ratings. NHS Estates now require all new buildings to achieve BREEAM 'Excellent', and all refurbishments to achieve BREEAM 'Very Good' ratings.

CASE STUDY: Greenhouse

Greenhouse, located in South Leeds, is a pioneering sustainable development of 166 flats together with work spaces, on site gym, video conferencing facilities, deli café and other amenities.

The building won the RIBA White Rose Award for Sustainability in 2010 and is striving for a BREEAM 'Excellent' rating.

The development comprises part refurbishment of a 1930s hostel together with supplemental new build to comprise one of the most sustainable and progressive developments in the UK whereby everything is designed to increase sustainability in the broadest sense.

The building has exceptional levels of insulation vastly reducing the U values of the building envelope. The original brick structure has been externally clad with 120mm of insulation. This, together with an increased level of air tightness significantly reduces the heating requirements of the building.

A ground source heat pump draws water from an aquifer 80m below the building and via a heat pump, provides heating and cooling to all apartments.

Solar thermal panels mounted on the roof provide all of the hot water during the summer months, with the ground source heat pumps providing top up of the solar thermal in the winter. With various means of heat recovery between the different systems the overall result is a very efficient system for heating and hot water.

The two roof top mounted wind turbines provide electricity for powering the communal areas, and with dedicated energy efficient and LED lighting throughout, PIR's to corridors, A/A+ rated appliances and a host of other energy saving means, the overall result is a vastly reduced electricity requirement.

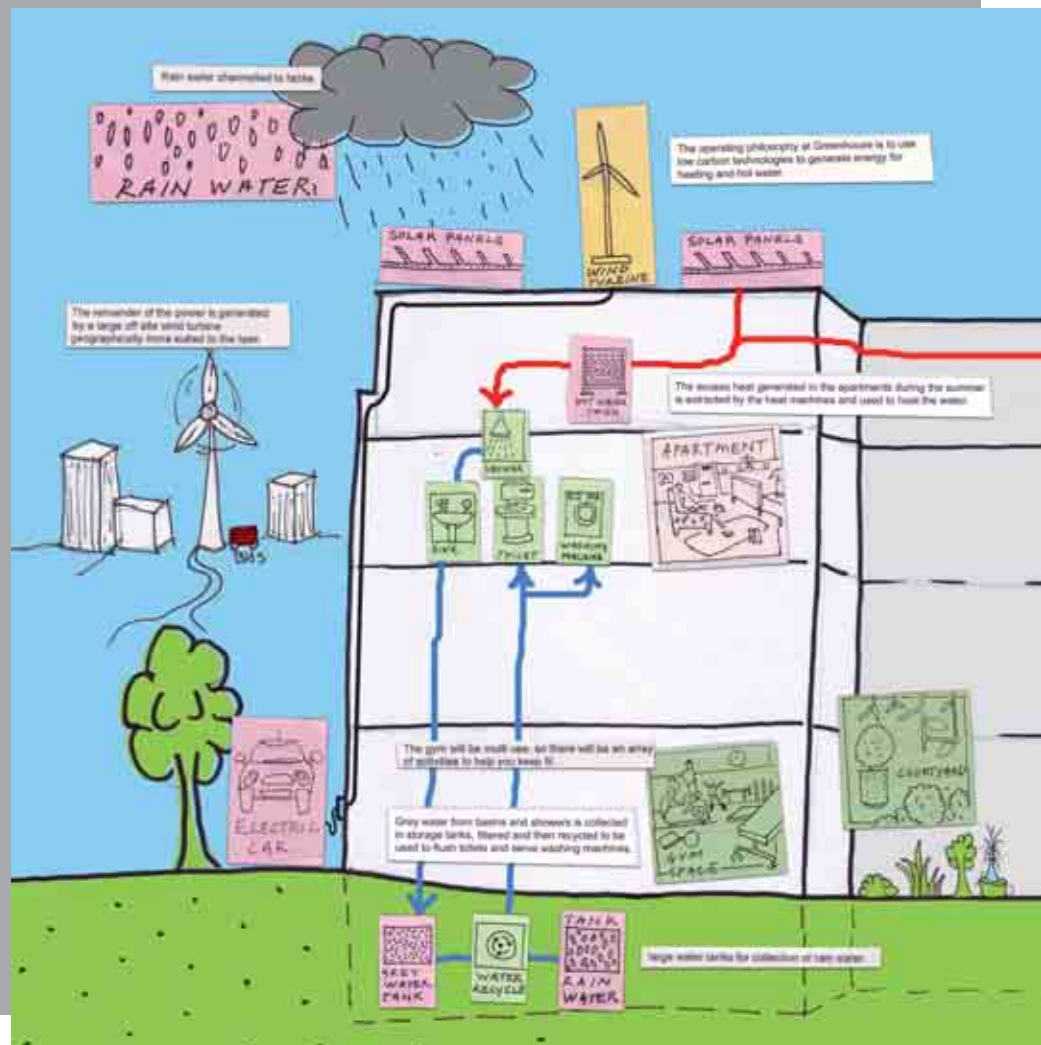
The building boasts a full rain and grey water recycling system which re-uses the recycled water for flushing the dual flush toilets and operating the washing machines. All taps and shower heads are also aerated to reduce the water usage by around 40% from standard fittings. Materials were all carefully chosen with GGBS (Ground Granulated Blastfurnace Slag) concrete, bamboo floors, natural carpets and recycled yoghurt pot signage to name but a few.

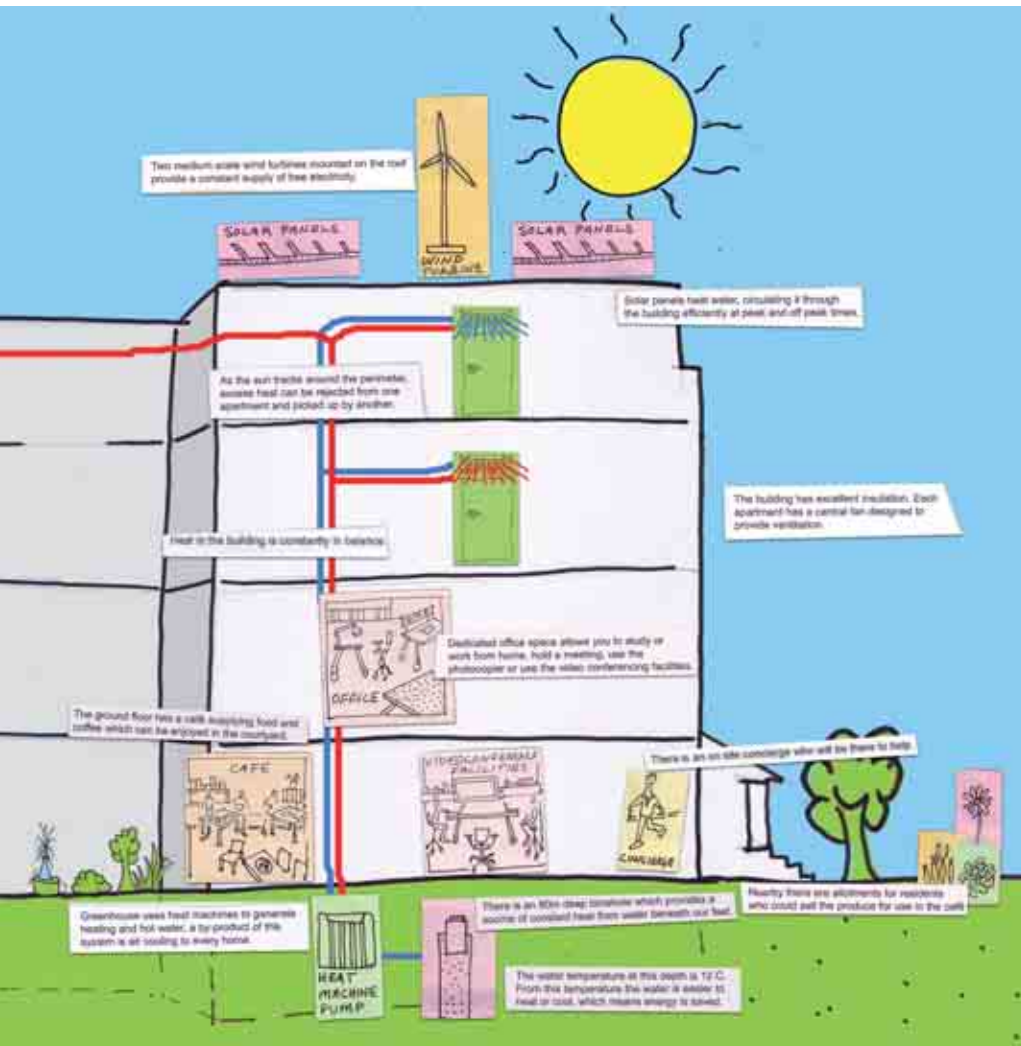
The entire building is linked via an IP Network where each apartment or office receives their energy information directly to their TV/ Screen so that real time energy, heating and water usage can be viewed and compared over time to the average. The next generation network provides high speed internet to the building enabling IPTV, video on demand, voice over IP telephony as well as a high speed internet connection.



This IP Network also allows people to view real time transport information via their TV's including bus, train and car hire, ultimately making public transport that bit more convenient. There is also a community section on the TV to allow residents to communicate messages to others, for example, what they're growing in the local allotments.

Designed by West and Machell Architects (and architectural advisors Sturgeon North) for Citu Ltd





"At the Greenhouse development, sustainability permeates all aspects of the development and the phrase 'build tight, insulate right' has been the architect's watchword."

Robin Machell, West and Machell Architects