5. SUSTAINABLE DEVELOPMENT

5.1 BACKGROUND

Ensuring the properties we build over the coming years are designed and constructed sustainably is another key component to a low carbon future.

Whilst the economic downturn has had a negative impact on the construction industry, putting developers under increased financial pressures, this isn’t a reason to dismiss sustainability as a primary consideration during the design, construction, and use of a development.

5.1.1 THE BUSINESS CASE

A sustainably built development is often considered to cost substantially more than a development built to conventional standards; however, this is often an incorrect assumption.

Sustainable design features can be built into a development with minimal additional cost if considered at the earliest planning and feasibility stages. Some features can even reduce costs; for example, allowing natural ventilation rather than mechanical air conditioning.

Ensuring the use of locally-sourced materials can also help to keep construction and transport costs to a minimum. Environmentally sound or reclaimed materials also have lower embodied energy than processed products, delivering them to the market at lower costs than energy intensive materials.

Market demand for sustainability is also growing, making sustainable developments more attractive to the buyer due to reduced running costs on energy and water bills. Developers need to be innovative if they are to take advantage of this emerging market opportunity.

A document produced by Communities and Local Government aims to provide guidance on the costs of building houses to Code standards. This ‘Updated Cost Review’ was produced in August 2011. It updates previous documents and reports on developers experiences in delivering sustainability measures over the last few years.
5.2 LEGISLATION AND POLICY

5.2.1 BUILDING REGULATIONS

Building Regulations requirements, with regards to energy consumption and CO₂ emissions, were made increasingly stringent in the most recent revision in 2010. The new Building Regulations Part L document ‘Conservation of Fuel and Power’ now has a greater impact on refurbishments, as well as new build, and implements a zero carbon timeline. This requires all new dwellings to be ‘zero carbon’ by 2016 and all new non-domestic buildings to be ‘zero-carbon’ by 2019.

It is now also mandatory to achieve a 25% improvement on the 2006 building regulation CO₂ reduction target. This is set to increase gradually over the next few years, setting zero carbon targets for social and private domestic properties and public and private non-domestic buildings, as shown in Table 5.2.1.

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential (Social)</th>
<th>Residential (Private)</th>
<th>Non-Domestic (Public)</th>
<th>Non-Domestic (Private)</th>
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<tr>
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<td>0%</td>
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<td>2010</td>
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<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>2018</td>
<td>Zero Carbon</td>
<td>Zero Carbon</td>
<td>Zero Carbon</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 5.2.1: Future National Buildings Targets

SAP assessments are used to demonstrate compliance with Part L of the Building Regulations at the design stage. They calculate the energy cost and carbon emissions generated to heat, light, ventilate, and provide hot water to the dwelling. Further calculations will be required post construction to take account of any changes that have occurred during the build process. More information on SAP assessments is provided in chapter 2.1.1).

5.2.2 ENERGY PERFORMANCE CERTIFICATES (EPCs) AND DISPLAY ENERGY CERTIFICATES (DECs)

Energy Performance Certificates (EPCs) are a legal requirement for any property being bought, sold, or rented. They contain an assessment of how energy efficient the property is and provide a rating from A-G. They also contain a recommendations report providing information on how the property can be made more energy efficient and reduce CO₂ emissions.
EPCs will assist in raising awareness of energy efficiency improvements and fuel costs amongst home-owners and tenants. They show the costs of space and hot water heating to aid comparison between similar properties.

Display Energy Certificates (DEC) are similar documents required to assess the energy rating of public buildings. A DEC should be displayed clearly in buildings occupied by public authorities and institutions that provide services to the public, and that have a floor area over 1,000m².

5.2.3 PLANNING POLICY

The need to achieve sustainable development is a key priority of the current National Planning Policy Framework (NPPF). This priority runs through all aspects of the plan-making and decision-taking process, highlighting how the planning system has a key economic role in helping to deliver sustainable development.

The NPPF encourages Local Planning Authorities to prepare a Local Plan for their area, consistent with the framework, and that contributes towards the achievement of sustainable development.

5.2.4 WEST LANCASHIRE LOCAL PLAN 2012-2027

West Lancashire’s emerging Local Plan, which is currently under examination by the Planning Inspectorate, sets out policies to sustain the Borough’s environment and address climate change through development.

Policy EN1 - Low Carbon Development and Energy Infrastructure: requires developers to consider low carbon design in all new developments and achieve one of the following:

- Code for Sustainable Homes level 3 as a minimum for new residential developments and conversions. This increases to levels 4 and 6 in line with increases to Part L of the Building Regulations.

- BREEAM 'very good' standard as a minimum for new commercial developments of more than 1000m². This increases to 'excellent' and 'zero carbon' standards, in line with the increases to Part L of the Building Regulations.

Policy EN1 also requires all major developments:

- Explore the potential for the installation of, or connection to, an existing district heating network. See Chapter 4: ‘Green Communities’, for more information on district heating networks.
5.3 NATIONAL STANDARDS

5.3.1 CODE FOR SUSTAINABLE HOMES (CiSH)

The Code for Sustainable Homes is a national standard relating to the design and construction of sustainable new homes. It provides a comprehensive measure of sustainability, ensuring that new homes deliver real improvements in energy efficiency, environmental performance, and carbon reduction.

Assessments are carried out in two phases:

- **A Design Stage Assessment** is carried out at the initial stages of development when the design of the building is first considered. This is based on detailed documentary evidence and commitments which results in an interim certificate of compliance being issued.

- **A Post Construction Assessment** is completed at the final stages of the development. Based on the design stage review, this includes a confirmation of compliance, including site records and visual inspection, and results in a final certificate of compliance.

The Code measures sustainability against 9 categories, rating the dwelling as a complete package and essentially benchmarking sustainability credentials. The categories include:

- Energy and CO₂ emissions
- Water
- Materials
- Surface water run-off
- Waste
- Pollution
- Health and well-being
- Management
- Ecology

Current Building Regulations are equivalent to, and therefore ensure achievement of, Code level 3 in the energy and CO₂ category. This is set to increase to Code level 4 in 2013 as Buildings Regs become more stringent and introduce a 44% improvement on the dwelling emission rate.

5.3.2 BREEAM NON-DOMESTIC DEVELOPMENTS

BREEAM is the national standard for assessment of all non-domestic new builds. The BREEAM New-Construction package contains a number of different assessments for various non-domestic building types, such as industrial, education, healthcare, and offices, as well as less common building types that can be assessed by developing bespoke criteria. There are also assessments for BREEAM Communities, Ecohomes, and refurbishments.
Similar to the Code for Sustainable Homes, the assessments contain categories covering energy, water, waste, and pollution, to name a few, and credits are allocated to the standard of sustainability met for each category.

5.3.3 CODE FOR SUSTAINABLE HOMES ASSESSMENTS, ENERGY (SAP) ASSESSMENTS, AND PERFORMANCE CERTIFICATES

The Council can undertake both Energy (SAP) Assessments and Code for Sustainable Homes assessments in-house.

Undertaking an assessment will provide many benefits to both the developer and the home buyer. We also offer a Code for Sustainable Homes pre-assessment estimator to give an indication of the development’s achievements during the early stages.

Please see the leaflet over the page for more information on the service we can provide, the benefits of undertaking a Code for Sustainable Homes assessment and guidance on how to apply.
Code for Sustainable Homes

What is the Code for Sustainable Homes?

The Code is a national standard for the sustainable design and construction of new homes. It provides a comprehensive measure of sustainability, helping new homes deliver real improvements in energy efficiency, environmental performance, and carbon reduction.

Can West Lancashire Borough Council provide a Code assessment?

Yes! The Council can now offer assessments undertaken by a qualified Code assessor.

Assessments are carried out in two phases:

A Design Stage Assessment is carried out at the initial stages of development when the design of the building is first considered. This is based on detailed documentary evidence and written Commitments that result in an interim certificate of compliance being issued.

A Post Construction Assessment is completed at the final stages of the development. Based on the design stage review, this includes a confirmation of compliance, including site records and visual inspection, and results in a final certificate of compliance.

As part of our competitive service, West Lancashire Borough Council also offers:

A Pre-Assessment Estimator that can be utilised to provide an indicative Code level achievement. This will be based solely on information provided by the developer and does not include site registration with approved body or formal issue of a certificate.

The Council's Building control service also offers SAP assessments and advice related to Building Regulations. Visit http://www.westlancs.gov.uk/planning/building_regulations

How much does an assessment cost?

Costs are dependent on the size of the development and the number of assessments required. Please contact us initially with project details and we will be able to provide a quotation to suit your requirements. A fee schedule and application form can be found at www.westlancs.gov.uk/planning

What does an assessment include?

The Code measures sustainability against 9 categories, rating the dwelling as a complete package and essentially benchmarking sustainability credentials. The categories include:

- Energy and CO2 emissions
- Water
- Materials
- Surface water run-off
- Waste
- Pollution
- Health and well-being
- Management
- Ecology

Throughout the assessment process, the Code assessor will work closely with you to identify your requirements, explain the level of information required, and offer impartial design advice to achieve the required rating.

To view our guide to sustainable development and construction, visit www.westlancs.gov.uk/gogreen

Why undertake a Code assessment?

There are many benefits to having a Code rating for a new development:

- A recognised mark of quality
- Demonstrate sustainability performance of builds
- Help with the marketing of the development
- Raised sustainability credentials
- Public relations opportunities
- Differentiate yourselves from competitors
- Meet growing consumer demand
- Be ready for increasingly stringent requirements
- Lower running costs for homebuyer
- Reduced greenhouse gas emissions and carbon footprint
- Better adaptation to climate change

West Lancashire Borough Council

52 Derby Street
Ormskirk
Lancashire
L39 2DF

Contact: Tina Ibball
Phone: 01695 585197
E-mail: christina.ibball@westlancs.gov.uk

www.westlancs.gov.uk
5.4 PLANNING PERMISSION

When submitting a planning application for a major development (over 10 dwellings or industrial/commercial developments over 1,000m²), it is a local requirement that all applicants submit a Sustainability Statement as part of the application.

Please follow this link for more information on the national and local requirements when submitting an application to West Lancashire Borough Council.

The Sustainability Statement should include details of how the applicants intend to meet the requirements of Policy EN1 of the new Local Plan, and outline all sustainable design features to be incorporated into the development.

Whilst it’s appreciated that many of these design features are not considered at outline planning stage, the majority can be achieved more easily and cheaply if considered as early in the planning process as possible. Intentions to include other design features further down the line should also be included at this stage.

Chapter 5.5: ‘A guide to Sustainable Development’, aims to provide a list of sustainability features for consideration and incorporation into any new development or refurbishment where applicable.
5.5 A GUIDE TO SUSTAINABLE DEVELOPMENT

To enable sustainable living and working, buildings must be efficient and therefore cheap to heat and power. The following checklist aims to act as a guide to developers, architects, builders and homeowners when designing any new build or, where applicable, refurbishment works.

The measures detailed below are recognised in the Code for Sustainable Homes and BREEAM assessments, where applicable, and will contribute to a developments credit score and overall assessment rating.

5.5.1 DEMAND ENERGY MINIMISATION

- Achieve low U-values to ensure good fabric energy efficiency.
- Use materials with good thermal mass that have high specific heat capacity, high density and low thermal conductivity, enabling them to slowly store and release heat.
- Ensure a high level of insulation.
- Maximise solar gain and natural light with large south-facing windows in main living spaces/habitable rooms.
- Install energy metering with display devices.
- Ensure drying space is available, avoiding the need for heating and drying appliances.
- Provide energy labelled equipment and white goods, including cold storage refrigeration systems.
- Ensure all external lighting is energy efficient.
- Investigate local energy generation from low or zero carbon energy sources, including district heating systems (see Chapters 3 and 4 for more information).
- Provide necessary space and internet connection to allow home working, thus reducing the need to travel.
- Use deciduous tree landscaping to provide shade during summer months.
- Allow natural ventilation to avoid the use of mechanical air conditioning.
- Install energy-efficient transport systems such as escalators and moving walkways.

5.5.2 WATER CONSERVATION

- Reduce the use of water consumption through specifying water-efficient fittings and appliances, and water recycling systems.
- Consider rainwater harvesting for external water uses.
- Ensure water consumption monitoring devices are installed.
- Install a leak detection system.
5.5.3 MATERIALS

- Use materials with lower environmental impacts (including embodied carbon) over their lifetime, including those used for landscaping and boundary protection.
- Always use responsibly-sourced materials, from basic building elements to finishing elements.
- Use thermal insulation with a low embodied environmental impact relative to its thermal properties. There are many types of natural sustainable insulation: for example, hemp natural fibres, recycled cotton, sheep’s wool, or cellulose insulation which comes from recycled newspapers.

5.5.4 SURFACE WATER RUN-OFF

- Manage surface water run-off to avoid, reduce, or delay discharge of rainfall run-off to watercourses.
- Keep areas of hardstanding to a minimum.
- Consider Sustainable Drainage System (SuDS) techniques.
- Ensure effective water management through the use of permeable surfaces, filter drains, rainwater and greywater harvesting, filter strips (vegetated channels), and swales and green roofs.
- Avoid development in medium or high risk flood areas identified in The West Lancashire Strategic Flood Risk Assessment.

5.5.5 WASTE

- Provide adequate internal and external storage for waste and recyclables, including facilities for operational-related waste streams.
- Promote resource efficiency by effective management and reduction of construction waste.
- Provide compost facilities to reduce household waste.
- Encourage the use of recycled or secondary aggregates, reducing demand for virgin material.
- Where possible, fit floor and ceiling finishes selected by the building occupant to avoid unnecessary waste of materials.
5.5.6 POLLUTION

- Utilise thermal and acoustic insulating materials and refrigerants that have a low Global Warming Potential (GWP) throughout their manufacture, installation, use, and disposal.
- Install A-rated heating and cooling systems that minimise nitrogen oxide (NO\textsubscript{x}) emissions.
- Ensure external lighting is concentrated in required areas and upward lighting is minimised to reduce light pollution.

5.5.7 HEALTH AND WELL-BEING

- Ensure a good level of natural daylighting.
- Ensure adequate sound insulation to ensure noise attenuation from neighbouring developments.
- Provision of private outdoor space.
- Encourage a healthy indoor environment through appropriate ventilation.
- Install effective design measures that promote low risk, safe and secure access and use of the building.

5.5.8 MANAGEMENT

- Provision of a building user-guide enabling occupants to operate the building efficiently.
- Ensure sustainable procurement is built into all aspects of the development.
- Compliance with a recognised construction certification scheme, such as the ‘Considerate Construction Scheme’.
- Design, plan, and deliver accessible functional buildings in consultation with future building occupants where possible.

5.5.9 ECOLOGY

- Look to develop sites that have a low ecological value to wildlife i.e. brownfield sites, and avoid the use of sites that have not been previously disturbed.
- Protect any existing ecological features from damage during the construction phase.
- Carry out works to enhance the ecological value of the site (post development), and minimise the long-term impact of the development, working on the recommendations of a qualified ecologist.
- Ensure efficient use of the building’s footprint by ensuring that land and material use is optimised across the development.
5.5.10 TRANSPORT

- Locate development in proximity to good public transport networks and local amenities, helping to reduce transport-related pollution.
- Ensure adequate provision of cycle facilities.
- Consider car parking capacity as an incentive to promote the use of alternative means of transport to the development, other than the private car.
- Ensure development of a Travel Plan during the early design stage, to consider accommodating a range of travel options.

Ensuring your design and construction team are familiar with the practices outlined above, and have the skills and expertise to achieve a sustainable approach, is critical for future development. It is also equally important to ensure the developments are promoted and marketed effectively to ensure buyers understand and value the benefits that sustainable design will provide.

The links below provide a list of helpful websites that provide further information:

Town and Country Planning Association
‘Good Practice Guidance: Sustainable Design and Construction’

Business Link
‘Sustainability in the Construction Industry’

Environment Agency
‘Sustainable Construction’
5.6 ALLOWABLE SOLUTIONS FUND

Energy efficiency measures and low carbon technologies can only go so far towards achieving a zero carbon development. ‘Allowable solutions’ is the Government’s proposed framework to allow carbon offsetting to deal with the residual emissions. It also proposes the predictable level of costs that the construction industry can be expected to bear through this mechanism.

The Zero Carbon Hub is in the process of developing a finalised framework presented in ‘Allowable Solutions for Tomorrow’s New Homes’. This document aims to balance national policy objectives with a local approach, enabling payment for carbon savings through a clear structure.

The proposed EN1 policy of the new Local Plan includes an onus on the Council to consider the requirements of this framework, once finalised, and how we can use this mechanism to fund and support other carbon savings projects in West Lancashire. Potential areas for funding could include district heating feasibility or installation contributions and other low carbon projects across the Borough.

Whilst this is yet to be investigated, developers are encouraged to consider the potential impact this requirement could have on future developments, if they do not start to consider and implement sustainability measures now.
5.7 CASE STUDIES

5.7.1 ELMSTEAD DEVELOPMENT IN SKELMERSDALE ACHIEVES CODE FOR SUSTAINABLE HOMES LEVEL 4

West Lancashire Borough Council, in partnership with the Homes and Communities Agency (HCA), Fawley Construction Ltd, and John McCall Architects, has recently completed a development comprising 17 new Council homes in Elmstead, Skelmersdale. The dwellings have been well designed and constructed to achieve Level 4 Code for Sustainable Homes. Measures implemented to achieve this include a high level of insulation to reduce the need for heating and cooling, the installation of internal and external energy and water saving devices, good day lighting levels, and sound insulation, to name a few. The A-rated energy efficient boilers and domestic solar PV systems will also ensure lower energy bills for Council tenants.

5.7.2 EDGE HILL UNIVERSITY

Edge Hill University has displayed an admirable contribution to sustainable development over recent years and won many awards for their work along the way.

The Faculty of Health is a state-of-the-art eco-friendly building that has many energy efficiency and low carbon features. These include a natural underground water source from the nearby lake that is channeled through pumps and heated using solar power, to provide over 50% of the building’s hot water demand. The building also has a unique ‘live energy wall’ that changes colour as the building’s energy consumption increases, reminding occupants to switch off.

The Durning Centre is entirely heated by recovering waste heat from IT servers and the University Data Centre, which is powered by a considerable array of photovoltaic cells. It also exports heat to two other university buildings.
The West Lancashire Investment Centre was designed and constructed to allow for the sustainable drainage of all surface water run-off leaving the site. The car parking area has permeable paving allowing water to soak away, and excess surface water outfalls into open swales around the perimeter of the site.

The most important issue when incorporating a SUD system into a new development is to ensure that a long-term maintenance plan is in place for any silt traps or pipework, and that it will be implemented.
### 5.8 FUTURE ACTION

#### 5.8.1 OBJECTIVE 5: TO ENCOURAGE SUSTAINABLE DEVELOPMENT AND LOW CARBON BUILDINGS

<table>
<thead>
<tr>
<th>ACTION:</th>
<th>MECHANISM:</th>
<th>POTENTIAL PARTNERS:</th>
<th>TIMESCALE:</th>
</tr>
</thead>
</table>
| Implement planning policies/guidance to promote sustainable development. | - Develop local plan policies, in line with relevant planning guidance, to promote sustainable development through the Planning process.  
- Encourage and provide support to developers to incorporate sustainability measures into the design and construction of new developments.  
- Revise the ‘Energy Statement’ requirements within the Council Validation Checklist document. | WLBC | Short term |
| Explore the possibility of utilising a Community Energy Fund, or allowable solutions, to aid delivery of off-site carbon reduction projects in West Lancashire. | - Enable financial contributions from those unable to meet sustainability requirements to aid the implementation of energy efficiency/carbon-saving projects and district heating installations in areas where it may be feasible. | WLBC | Short term |
| Investigate the opportunities for district heating and incorporation into future developments. | - Investigate financial options to aid delivery e.g. community or ESCo models.  
- Utilise the heat-mapping resources available to explore the possibility of decentralised heating in areas of suitable new development.  
- Monitor installed capacity of renewable energy across the Borough. | WLBC | Ongoing |
| Investigate the opportunities to develop a West Lancashire network of local sustainable suppliers and contractors. | - Investigate the feasibility of producing a local network facility to aid easy procurement of local sustainable materials and services.  
- Work with local suppliers and installers to produce, promote, and encourage use of the network.  
- Investigate existing resources such as the Northwest Construction Knowledge Hub, the Lancashire Best Practice Club, and West Lancashire Construction Academy.  
- Support the smaller self-builders who may require additional support and advice to economically install sustainable measures. Initiate case study sharing with the larger developers. | WLBC Interested partners | Medium term |