

## **Sustainable Construction Policy for Cumbria County Council buildings**

### **Introduction**

The Climate Change Bill set targets for reducing the UK's CO<sub>2</sub> emissions by 30% by 2020, rising to 60% by 2050. Government expects local authorities to lead by example by tackling their own emissions and by encouraging other local organisations to follow suit.

Nearly 50% of all carbon emissions in the UK are from energy use in buildings, and construction accounts for 30% of total UK waste, so it is important that any new buildings should be designed and built to higher standards now to meet the long term targets. Whilst long term energy prices are difficult to predict, there seems little doubt the upward trend will continue. Investing in low carbon buildings is, therefore, an insurance against future increases in running costs.

Sustainable construction aims to minimise the carbon and general environmental footprint of a building by taking a holistic approach to the design, construction and operation processes. This policy guide sets out how sustainable design and construction principles should be addressed in a comprehensive and co-ordinated way for new developments, by making them an integral part of the design process. This approach avoids the problems and expense of trying to make changes part way through the process, when key decisions may have already been made.

The policy applies both to new buildings, and to any significant extension (over 100m<sup>2</sup>) and refurbishment of existing buildings. Currently, the council has an annual target for reducing energy use in its existing building stock by 2% p.a. This will reduce CO<sub>2</sub> emissions by 20% by 2020, in addition to the 14% already achieved since 2003/4, through a programme of investment in energy efficiency measures.

The success of the sustainable construction policy will be judged against the achievement of recognised environmental standards. This policy promotes the use of BREEAM<sup>1</sup> as the environmental assessment tool for buildings to ensure that all the relevant factors are considered. The aim is to achieve BREEAM "Very Good" standard as a minimum at both design and operation stages. The standard required will be periodically reviewed to ensure consistency with national guidelines.

More detailed guidance on requirements and measures to meet the overall aims set out here will be available from the Property Unit and the Environment Unit within the council.

### **Policy Objectives**

#### **1. Design and procurement process**

Sustainability principles will be addressed from the earliest concept stage through the business case, budgeting, funding decisions and site selection, to detailed design and construction. The Cumbria Sustainability Framework<sup>2</sup> provides guidance on these principles.

## **2. Energy and carbon emissions**

The carbon emissions resulting from operation of new buildings and standalone extensions should achieve a minimum 10% improvement on the target set by the Building Regulations Part L for CO<sub>2</sub> emissions (TER), through low energy design, use of renewable energy sources and combined heat and power.

## **3. Materials**

Materials and construction should minimise embodied carbon, support higher environmental specification, and greater durability, and increase use of re-used or recycled materials.

## **4. Waste and Recycling**

All construction projects should minimise waste and maximise re-use and recycling during construction and demolition, and ensure that completed developments provide facilities for segregating and recycling waste effectively.

## **5. Water and Drainage**

Utilise current best practice to minimise the use of water, and to reduce the flow of water into drainage systems in both normal and flood conditions.

## **6. Land and Biodiversity**

Conserve and enhance the local environment, quality of life and biodiversity, by providing urban green spaces and connecting green corridors where opportunities exist, landscaping, tree planting and green roofs.

## **7. Transport and Accessibility**

Select sites and organise working arrangements to reduce private car usage, both for journeys to work and operational journeys, manage contractor traffic during construction to minimise the environmental impact.

### *References*

1. *BREEAM = Building Research Establishment Environmental Assessment Method*

2. *The Cumbria Sustainability Appraisal Framework*

<http://www.cumbria.gov.uk/elibrary/Content/Internet/538/2004/3908795734.pdf>

## Key Action Lists for Sustainable Construction

### 1. PROJECT INCEPTION AND SITE SELECTION

#### 1A. Transport and accessibility

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>• A business case for all major new developments to minimise carbon emissions from travel</li> <li>• Transport assessments for any development that may materially add to local congestion, or impact on the trunk road network.</li> <li>• Travel Plans for all developments over 2,500 sq m, for new or expanded schools, or where the Transport Assessment suggests this may be necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Does the site location minimise staff, member and public car journeys?</li> <li>• Is the site linked to other areas through bus routes, footpaths, cycle routes? - if not, could these be created as part of the development.</li> <li>• Do Safer Routes to School Principles apply?</li> <li>• Is there a School or Work Travel Plan, and does the development support this?</li> <li>• Have secure cycle racks and showers been included in the development?</li> </ul>

#### 1B. Land and biodiversity

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>• Sufficient time to be allowed for ecological surveys at appropriate times of year.</li> <li>• Where the site affects protected habitats and species, including local national and international protected assets, first reconsider suitability of site.</li> <li>• Where the site is necessary, include adequate mitigation, or as a last resort, effective compensation.</li> <li>• Any compensatory habitat provision to be additional, and reasonably permanent.</li> <li>• No peat products to be used.</li> </ul>	<ul style="list-style-type: none"> <li>• Has a qualified ecologist assessed the site for its biodiversity value and potential contribution to UK and Cumbria biodiversity plans or to green corridors or wildlife areas? Could the design incorporate a green roof?</li> <li>• Is there a tree survey and landscape plan?</li> <li>• Do landscape designs protect trees, and adopt low water and low maintenance techniques?</li> <li>• Have building occupiers been involved in the design?</li> </ul>

## 1C. Design brief and costing

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>• The use of BREEAM design assessments in all projects over 500m<sup>2</sup> floor area, with a target of BREEAM “Very Good” or higher standard, and a post-completion assessment of standards achieved.</li> <li>• For all smaller projects, the use of the “core credits” scheme in BREEAM<sup>3</sup> to achieve an Environmental Performance Index of 8 or higher.</li> <li>• Whole life costing to be integrated in all new developments; with best estimates agreed for future energy costs over the building’s lifetime.</li> <li>• Design and Access statements that accompany all planning applications for its own developments, to include proper consideration of all sustainability issues.</li> </ul>	<ul style="list-style-type: none"> <li>• Has the re-use of existing buildings and land been considered?</li> <li>• Does the building design allow flexibility for future use or adaptation?</li> <li>• Has professional design and sustainable construction advice been procured?</li> <li>• How have the partnering team or design team been briefed - is sustainability reflected in the partnering ethos?</li> <li>• Does the brief include for early stage carbon assessments in the scope of the work?</li> <li>• Are environmental assessment toolkits or accreditation systems being used within the project? E.g. BREEAM, Environmental KPI’s, Considerate Constructor Award, environmental briefing of subcontractors.</li> </ul>

*Note<sup>3</sup>: BREEAM Offices Management and Operation Assessment Prediction Checklist*

## 2. CONSTRUCTION BRIEF AND PRE-PLANNING APPLICATION DISCUSSION

### 2A. Energy

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>• BREEAM assessment as above, with focus on reducing carbon emissions.</li> <li>• Best practice passive low carbon design to reduce energy consumption through orientation, to utilise solar gain and optimise the use of natural daylight and ventilation, while avoiding the need for air conditioning.</li> <li>• Carbon savings to be maximised for given cost expended over and above minimum requirements.</li> <li>• Use of suitable opportunities for on-site energy generation.</li> <li>• Carbon Trust, or similar, design consultancy at an early stage.</li> <li>• All buildings will include the specification of low energy lighting and sensor control.</li> <li>• All buildings should allow for future climate change (see CIBSE Guide L).</li> </ul>	<ul style="list-style-type: none"> <li>• Has the potential for lower energy consumption been considered in the siting and orientation of the development?</li> <li>• Do designs make use of natural ventilation and minimise the need for mechanical cooling?</li> <li>• Where mechanical cooling is deemed necessary, have alternative low energy cooling technologies been considered?</li> <li>• Does the design maximise thermal mass to store passive solar heating?</li> <li>• Do levels of insulation exceed building regulations and approach current best practice?</li> <li>• Do designs make use of: <ul style="list-style-type: none"> <li>High efficiency systems and controls</li> <li>Variable speed fans and pumps</li> <li>Occupant control of heating and ventilation (within agreed limits)</li> <li>Sub-metering for effective energy management</li> <li>Energy and temperature displays for occupants</li> <li>On site renewable energy technologies to source a minimum of 10% of site demand</li> <li>Combined heat and power (CHP) or micro CHP systems</li> </ul> </li> <li>• Energy option appraisal based on £ invested per tonne of CO<sub>2</sub> saved over the lifetime of the building?</li> <li>• Will the building have the capacity to deal with predicted future changes in temperature?</li> <li>• Will commissioning procedures ensure that the building meets its sustainability targets and is operating in accordance with the design strategy?</li> </ul>

## 2B. Materials

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>All developments to maximise materials with low embodied energy.</li> <li>Major building elements to have an “A” rating, as defined in the BRE Green Guide to Specification.</li> <li>FSC Certified timber will be sought for all developments and contents.</li> <li>Recycled and reused materials to be used, where feasible.</li> <li>Alternatives to PVC will be sought for all developments and excluded where alternatives exist.</li> </ul>	<ul style="list-style-type: none"> <li>Has material specification included lifecycle impacts and whole life costs?</li> <li>Has material specification <u>included</u> the use of: <ul style="list-style-type: none"> <li>FSC Certified timber;</li> <li>Natural insulation products;</li> <li>Natural flooring materials;</li> <li>Timber framed windows;</li> <li>Structural timber frame;</li> <li>Timber cladding;</li> <li>Natural paints;</li> <li>Avoidance of organic solvent based floor finishes, paints, glues, stains and adhesives?</li> </ul> </li> <li>Has material specification <u>excluded</u> high energy intensive products including: <ul style="list-style-type: none"> <li>PVC;</li> <li>Aluminium;</li> <li>Copper &amp; Lead (very high embodied energy);</li> <li>The use of virgin aggregates - use of recycled aggregates is preferred?</li> </ul> </li> <li>Has material specification included products with high recycled content and locally sourced?</li> <li>Where refrigerants are necessary, have these been specified with a low global warming potential?</li> <li>Are local suppliers and contractors proactively supported to reduce total embodied energy?</li> </ul>

## 2C. Waste and recycling

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>A site waste management plan to include minimisation of waste during construction, segregation of re-usable and recyclable waste, and maximum recovered value from waste.</li> <li>Recycling contracts during construction projects.</li> <li>Provision for waste recycling facilities in the completed building.</li> </ul>	<ul style="list-style-type: none"> <li>Does the design incorporate procedures to minimise waste/reuse/recycle and segregate construction wastes? E.g. prefabrication, standardised components, waste segregation on site, composting, specification of products with a high recycled content.</li> <li>Does the design incorporate space for waste segregation and storage facilities for the completed building users?</li> </ul>

## 2D. Water and drainage

Key Actions	Key Considerations
<p>The Council will require:</p> <ul style="list-style-type: none"> <li>• Development brief or site planning brief to consider all aspects of water and drainage.</li> <li>• The inclusion of rainwater recovery in all new developments of appropriate size.</li> <li>• Sustainable Urban Drainage schemes where possible, with ongoing maintenance costed into the scheme.</li> <li>• Accessible water meters in all new buildings.</li> <li>• The specification of water efficient taps and appliances in all developments.</li> </ul>	<ul style="list-style-type: none"> <li>• Is the development located in flood risk areas? Have the implications been incorporated into site planning?</li> <li>• Will sub metering be installed to enable effective water management by occupants? Are the meters accessible?</li> <li>• Have opportunities for making use of rainwater or recycling water been assessed?</li> <li>• Has the management of run off been addressed with the principles of a sustainable urban drainage scheme?</li> <li>• Could reed beds be used for the treatment of sewage?</li> <li>• Has it been considered that greater future rainfall may require larger rainwater goods?</li> <li>• How has the development maximised water efficiency? E.g. specification of water efficient taps, WC's, showers and urinal controls, specification of water efficient appliances.</li> <li>• Has a maximum water use target appropriate to the type of building been set?</li> </ul>