

Annex document

East Midlands Development Agency Sustainable Physical Development Guidance

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Annex 1: *emda* standards on the Biodiversity Duty

As set out in section 2 of *emda*'s Sustainable Physical Development Guidance, and in line with Section 40 of the Natural Environment and Rural Communities (NERC) Act, *emda* requires that as a minimum, projects should ensure there is no net loss of regional biodiversity and, wherever practicable, undertake biodiversity enhancements when designing and delivering physical development projects.

Environmental assessments of buildings, through tools such as BREEAM, include credits for ecological protection and enhancement. To demonstrate compliance with *emda*'s biodiversity standard, building projects are required to:

- Meet all mandatory standards contained in BREEAM relating to biodiversity impacts
- Take additional measures in order to score at least 40% of total available credits for ecological and biodiversity aspects of BREEAM.

As an example, the box below shows achievable credits for ecology and biodiversity in the BREEAM Manual for Industrial Buildings.

Physical development projects applying for *emda* funding which do not include a building element or BREEAM assessment are required to adopt similar aspects of good practice in protecting and enhancing ecology and biodiversity. Further information on good practice can be obtained from references shown in Annex 2.

BREEAM Industrial Buildings – credits for ecology and biodiversity

Ecological value of site and protection of ecological features:

- **1 credit** awarded where evidence provided demonstrates that the site's construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works

Mitigating ecological impact:

- **1 credit** awarded where evidence provided demonstrates that the change in the site's existing ecological value, as a result of development, is *minimal*
- **2 credits** awarded where evidence provided demonstrates *no negative change* in the site's existing ecological value as a result of development

Enhancing site ecology:

- **1 credit** awarded where the design team (or client) has appointed a suitably qualified ecologist to advise and report on enhancing and protecting the ecological value of the site; and implemented their recommendations
- **2 credits** awarded where there is a positive increase in the ecological value of the site of up to (but not including) six species
- **3 credits** awarded where there is a positive increase in the ecological value of the site of six species or greater

Long term impact on Biodiversity:

- **1 credit** awarded if the client has committed to achieving the mandatory requirements listed below and at least two of the additional requirements
- **2 credits** awarded if the client has committed to achieving the mandatory requirements listed below and at least four of the additional requirements

Mandatory Requirements

1. A *suitably qualified ecologist* (SQE) has been appointed prior to commencement of activities on site
2. The SQE confirms compliance with all relevant UK and EU legislation relating to protection and enhancement of ecology during design and construction
3. A landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion

Additional Requirements

1. The contractor nominates a 'Biodiversity Champion'.
2. The contractor trains site workforce on protecting site ecology during the project.
3. The contractor records actions taken to protect biodiversity.
4. Creation of a new, ecologically valuable habitat, appropriate to the local area.
5. Where flora and/or fauna habitats exist on site, the contractor programmes site works to minimise disturbance to wildlife.

Source: BREEAM Industrial Assessor Manual. BRE Global (2008)

Annex 2: Glossary of terms

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Access

Is concerned with the methods by which people with a range of needs (such as the disabled, those with children, or where English is not their first language) use services and participate fully in the economy, cultural and social life of their community. The Disability Discrimination Act (1995) makes it unlawful to treat disabled people less favourably in employment opportunities, education, transport, and in the provision of services, goods and facilities without lawful justification. It also requires service providers to make a range of reasonable adjustments in the way that they provide services to disabled customers. In particular, service providers must have taken reasonable steps to overcome any physical barriers, which continue to make their services impossible or unreasonably difficult for disabled people to use. Policy Planning Statement One (PPS1) sets out the overarching planning policies on the delivery of sustainable development through the planning system, including inclusive design and access for people with a diversity of needs.

See also 'Planning and Access for Disabled People: A Good Practice Guide', Office of the Deputy Prime Minister, 2003.

Access Statement

The preparation of an Access Statement is now a requirement under the Planning Acts and Building Regulations Part M (2004), as a means of providing key detailed information on how a building or area of land will be made accessible to disabled people. Design and access statements play a particular role in linking general development principles to final detailed designs, and demonstrate the commitment to take the issue of inclusive design seriously at the earliest stages of the design and development process.

See 'Building Regulations Part M: Designers Checklist of Provisions/Areas for Consideration', ODPM, 2004.

Biodiversity duty

All public bodies now have a duty to conserve and protect biodiversity through their policies and activities (See definition of NERC Biodiversity duty). In the East Midlands biodiversity priorities and sites can be viewed in the "A Biodiversity Strategy for the East Midlands" – www.emra.gov.uk while MAGIC provides a web-based interactive tool for GIS mapping of information on key environmental schemes and designations – www.magic.gov.uk

There are also a number of useful resources available from

- Biodiversity By Design – A guide for sustainable communities, by the Town and Country Planning Association – www.naturalengland.com/unis.com
- Ecological assessments within BREEAM – links to BREEAM guidance – www.breeam.com
- British Standards Institute (BSi) published a Publicly Available Specification (PAS) for incorporating biodiversity issues into the planning process. "Planning to halt the loss of Biodiversity" is a comprehensive guide – www.bsi-global.com
- A biodiversity guide *for the planning and development sectors in South East England* – www.seeda.co.uk

BS 8233:1999- Noise

This code of practice from the British Standards Institute sets out sound insulation and noise reduction for buildings. More specifically, it deals with the control of noise from outside the building, noise from plant and services within it, and room acoustics for non-critical situations.

See www.bsi-global.com

BS ISO 15686-5 – Life Cycle Costs

The new international standard, *BS ISO 15686-5 Buildings and Constructed Assets -- Service Life Planning – Part 5: Life Cycle Costing (2008)*, provides a common basis and standard terminology for whole life costing and identifies types of cost that should be included in 'whole life costs' and 'life cycle costs' (see definitions).

Building Research Establishment (BRE)

The BRE Group is a research, consultancy, training, testing and certification organisation delivering sustainability and innovation across the built environment. The main BRE products of relevance to sustainable design and construction are BREEAM Buildings and the Code for Sustainable Homes (also defined in this glossary).

See www.bre.co.uk

BRE Environmental Assessment Method (BREEAM)

BREEAM is an independent appraisal method designed to rate the environmental performance of a building. The method is applied to courts, industrial buildings, prisons, offices, retail buildings, schools and homes (previously called EcoHomes and recently replaced by the Code for Sustainable Homes). There is also a bespoke assessment used for buildings that do not conform to the above standard types. The method evaluates buildings against a number of criteria such as

energy use, transport, pollution, materials, water use, land use and ecology, resident health and wellbeing, and management. Buildings are assessed by a BREEAM Assessor pre or post construction and the data is audited by the Building Research Establishment. BREEAM 2008 came into force on 1st August 2008. It gives a greater weighting to energy, travel, water, materials and waste management than previous versions. It also introduces an 'Outstanding' category for buildings scoring >85 of which there are so far very few. However by the end of 2007 there were 143 BREEAM Excellent buildings and a further

31 in London and 300,000 sq ft elsewhere due for completion by the end of 2008.

See www.breeam.org

Building Regulations

The Department of Communities and Local Government (DCLG) is responsible for building regulations, which exist to ensure the health and safety of people in and around buildings, and the energy efficiency of buildings. The regulations apply to most new buildings and many alterations of existing buildings in England and Wales, whether domestic, commercial or industrial.

There have been a number of amendments to the legislation passed in 2000. In particular Part L, conservation of fuel and power, was amended in April 2006 and brought into effect new energy requirements. The revisions to Part L set maximum carbon dioxide emissions for whole buildings. The regulations will apply both to the construction of new buildings and renovation of existing buildings (with a total surface area over 1,000m²). In 2004, Part M, access to and use of buildings, was also updated.

See www.bsi-global.com

Building for Life

The CABE-Home Builders Federation's 'Building for Life' standard sets 20 criteria covering wide ranging aspects of the quality of a design. It is supported by the Government as the standard for the design quality of new homes. English Partnerships and the Housing Corporation expect projects they support to achieve a minimum of 14 out of 20. English Partnerships and the Housing Corporation merged to form The Homes and Communities Agency in December 2008.

See www.buildingforlife.org and the 'Building for Life' 20 questions are available at:

www.buildingforlife.org/AssetLibrary/9350.pdf

Combined Heat and Power (CHP)

Combined Heat and Power (CHP) is the simultaneous generation of usable heat and power (usually electricity) in a single process. Through the use of an absorption cooling cycle, trigeneration (see below) or schemes can also be developed. CHP is a highly efficient way to use both fossil and renewable fuels and can therefore make a significant contribution to sustainable energy goals. Trigeneration implies the simultaneous production of mechanical power (electricity), heat and cooling from a single fuel; also referred to as combined cooling, heat and power (CCHP) or combined heat and cooling production (CHCP).

Civil Engineering Environmental Quality Assessment Award Scheme (CEEQUAL)

CEEQUAL is an awards scheme assessing the environmental quality of civil engineering projects -- a civil engineering equivalent to BREEAM for buildings. Its objective is to encourage the attainment of environmental excellence in civil engineering projects, and deliver improved environmental performance in project specification, design and construction.

CEEQUAL uses a points-scoring assessment, which is applicable to any civil engineering project.

See www.ceequal.com

Climate Change

There is scientific evidence that the global climate and weather patterns are changing as a result of increasing concentrations of green house gases (Carbon Dioxide, Methane, Nitrous Oxide, amongst others) in the atmosphere emitted through human production and consumption. The Stern Review provides a review of the evidence of the natural and anthropogenic causes of climate change and the potential economic consequences of this change. It is important that developments are designed to be future proofed for climate change and more energy efficient – both in terms of new developments and retrofitting existing developments.

See www.hm-treasury.gov.uk

Climate Change Adaptation

Buildings generally have an expected lifetime of between 20 and 100 years, so planning for climate change will help to ensure a lasting legacy in the building stock. Buildings and their locations could all be adversely affected by climate change, including their structural integrity, external fabric, internal environment and service infrastructure. Adaptation in this context can mean any action taken to minimise the adverse effects of climate change or to take advantage of any beneficial effects. The Three Regions Climate Change Group has produced a useful checklist to assist with climate proofing developments.

See 'Adapting to climate change: A checklist for development, Guidance on designing developments in a changing climate', November 2005; and also, www.climatesoutheast.org.uk

Construction Industry Research and Information Association (CIRIA)

CIRIA is a member based research and information organisation which supports improvement in the construction industry. Members include representatives from all parts of the supply chain of the modern built environment, covering building and civil engineering as well as transport and utilities infrastructure. CIRIA is involved in research focused on the industry's needs, publications based on the research, training and establishing learning networks.

See www.ciria.org.uk

Code for Sustainable Homes (CSH)

The Code for Sustainable Homes, developed by the BRE and the Department of Communities and Local Government (DCLG), replaced 'EcoHomes' in April 2007. The CSH is intended to act as a single national standard to guide industry in the design and construction of sustainable homes. It is a means of driving continuous improvement and innovation in sustainable building. The Code measures the sustainability of a new home against categories of sustainable design. The Code uses a 1 to 6 star (low to high) rating system to communicate the overall sustainability performance of a new home. CSH rating became mandatory in May 2008. The code is a flexible framework that enables developers to demonstrate the sustainability of new homes. For consumers the Code is a mark of quality, giving them information they can trust.

See

<http://www.communities.gov.uk/publications/planningandbuilding/codesustainabilitystandard>

Costing sustainable buildings

A study by Cyril Sweett shows that meeting BREEAM Excellent might add 3.3-7% to the costs of a typical air-

conditioned office, depending on the location. Similarly a study for EP and the Housing Corporation estimated an average 3% increase in costs to achieve Level 3 of the new Code for Sustainable Homes compared to EcoHomes 'Very Good'. A recent RICS report, *Green Value* has found a clear relationship between the market value of a building and its 'green' features. Not only are green buildings good for the environment, provide healthier places to live and more productive places to work, they can command higher rents and prices, attract tenants more quickly, reduce tenant turnover and cost less to operate and maintain. A recent study for Jones Lang LaSalle by CoreNet Global (2008) found that 87% of those surveyed in the property market expected sustainable buildings to be 1-10% more expensive but that 62% are prepared to pay up to 10% more while a further 26% would pay 5% extra.

See www.cyrilsweett.com -- [Costing sustainability: Information paper](#)

Considerate Constructors Scheme (CCS)

The Considerate Constructors Scheme is a national initiative recommended by Government. Constructors must commit to an eight-point Code of Considerate Practice that includes being: considerate, environmentally aware, clean, a good neighbour, respectful, safe, responsible, and accountable. All participating sites are monitored to assess adherence to the Code of Considerate Practice. Building sites and street works are judged annually on the basis of their overall performance during that year and on a site visit by a specially appointed judging panel.

See www.ccscheme.org.uk

Deconstruction

'Design for Deconstruction, Principles of Design to Facilitate Reuse and Recycling', CIRIA (2004) addresses the opportunities for maximising the reuse of components and recycling of materials when a building is wholly or partially deconstructed or demolished. The guide also reviews the processes by which buildings are demolished and can be deconstructed, and current experience of designing for deconstruction.

See www.ciria.org.uk

Design Statement

A Design Statement is a document used to explain and illustrate the principles and concept behind the design and layout of a proposed development and should be submitted with the planning application. The Design Statement allows a detailed understanding of how the proposal responds to the context of the site and requirements of any design brief/guide/code. Online Design Statement tools are available to support those involved in producing Design Statements. They can be used to write and generate a Design Statement document. Key themes to cover include Permeability and Accessibility, Legibility and Identity, Vitality and safety and Robustness.

See www.designstatement.co.uk

Design Quality Indicators (DQIs)

Design Quality Indicators provide a process for evaluating design quality of buildings such as those in the Building for Life standard. The Common Minimum Standards recommends the use of DQIs and the Sustainable Construction Strategy sets a target an increase of 50% in the use of DQIs.

To view CABE's online guide see www.dqi.org.uk/DQI/Common/DQIOnline.pdf.

See also [Sustainable Construction Strategy \(June 2008\)](#) and [Common Minimum Standards](#) (2006),

East Midlands Construction Sector

The output of the sector is valued at approximately £9.5 billion a year (2007) and it employs 163,000 people, the vast majority of whom work in small and micro sized businesses. Nearly two thirds of spending in the sector is on new build projects and some 38% is spent in 5 major cities: Derby, Nottingham, Leicester, Northampton and Lincoln. Although the public sector is only directly responsible for 25% of total spending, it has a huge influence on private spending through land, grant aid and the standards its sets.

East Midlands Resource Efficiency Club (EMREC)

The East Midlands REC - funded by Envirowise – is the first to focus on the Construction Sector. It supports 12 contracting organisations and up to 60 associate members, drawn from the core members' supply chains, to become efficient at managing waste. Core members Robert Woodhead Construction, Marriott Construction, Willmott Dixon, Herbert Baggaley, North Midland Construction and Dukeries Building are involved in pilot projects to ensure that construction waste does not end up in landfill. Site based measures underway will deliver cost savings in excess of £220,000 and will also lead to significant carbon reductions. If generalised across their businesses these waste minimisation measures would save core members £2.5 m pa.

EcoHomes

EcoHomes is a version of BREEAM for homes recently replaced by the Code for Sustainable Homes (CSH). It provides an authoritative rating for new, converted or

renovated homes, and covers houses, flats and apartments similar to the other BREEAM methodologies. CSH Level 3 exceeds EcoHomes Excellent.

See www.breem.org

Energy Service Company (ESCO)

For larger developments where a development is to be served by a local community energy system, the developers may arrange for an Energy Services Company (ESCO) to design, finance, build and operate the system on a long term contractual basis. The responsibility for delivering energy services from the primary energy plant and infrastructure is invested in the ESCO once the developer has sold the properties and moved off site. The owners/occupiers of the properties would become customers of the ESCO who would meter, bill and collect revenue from the customers.

Energy White Paper

The Energy White Paper expects Regional Development Agencies to:

- Deliver energy policy at regional level.
- Report on carbon at a project level.
- Identify energy supply chain opportunities.
- Support businesses on resource efficiency.
- Support the development of energy skills.
- Ensure all regeneration projects and other developments provide funding or land to meet carbon emission standards significantly ahead of Building Regulations.

See www.berr.gov.uk - Energy White Paper

Flood Risk Assessment

Planning Policy Statement 25, published in December 2006, requires that development causes no net increase in flood risk compared to the existing conditions, and does not worsen flood risk for other adjacent sites or those further up or

downstream. To help achieve this, Local Planning Authorities should ensure that planning applications are supported by site-specific flood risk assessments, and that all new development in flood risk areas is appropriately flood resilient and resistant. The Environment Agency maps flood risk by three categories: significant, moderate or low likelihood of flooding.

See www.communities.gov.uk
and www.environment-agency.gov.uk

Forest Stewardship Council (FSC)

The Forest Stewardship Council maintains a supplier list for timber and latex products harvested from certified, sustainably managed forests that ensure long term timber supplies while protecting the environment and the lives of forest-dependent peoples. This allows consumers to be sure they are not contributing to global deforestation. A Chain of Custody certification traces forest products through the supply chain to the end-consumer ensuring accountability and transparency in the process from production to consumption.

See www.fsc-uk.org

Green Infrastructure

Green infrastructure is defined as recreational and sport facilities, parks, gardens and allotments, tracks and pathways, natural and historic sites, canals and water spaces and accessible countryside. Green infrastructure contributes to the quality of life of an area and is crucial in providing an attractive setting for investment and employment and helping to deliver biodiversity protection and enhancements.

To view Green Infrastructure in the East Midlands - A Public Benefit Mapping Project – www.emra.gov.uk

Green Guide to Housing Specification

The Green Guide to Housing Specification, published by the BRE, provides guidance to designers and specifiers on the environmental impacts of 150 common specifications used in major building elements. Relative scores of materials are determined by evaluating the environmental impacts including climate change, fossil fuel depletion, toxicity, waste disposal and minerals extraction. The Guide provides information for each specification by using a simple A B or C rating, where A represents the highest level of environmental performance.

See www.bre.co.uk/greenguide

Green Travel Plan

A sustainable transport plan for a development or organisation it is a package of measures and initiatives to reduce the number of car journeys made, by providing people with greater choice. It might include:

- Providing realistic alternatives to the car such as public transport and cycling provision
- Making alternatives to driving alone more attractive
- Reducing the need to travel e.g. through location of facilities
- Managing car parking provision

See www.dft.gov.uk/pgr/sustainable/travelplans

Greywater

Greywater is non-industrial wastewater generated from domestic processes such as washing dishes, laundry and bathing, and therefore has low levels of contamination which can be recycled for non potable uses. Greywater typically comprises between 50% and 80% of residential wastewater.

Guidance for RDAs in Appraisal, Delivery and Evaluation (GRADE)

In 2008 BERR published new Guidance for RDAs in Appraisal, Delivery and Evaluation (GRADE). It requires that sustainable development opportunities – including environmental, economic and social aspects -- are taken into consideration throughout the appraisal, development and evaluation process of RDA funded projects. Potential negative impacts need to be identified and avoided or mitigated. Minimum requirements include Office of Government Commerce (OGC) Common Minimum Standards and Whole Life Costing for larger projects.

See www.offpat.info

High Quality Employment Space Fund

emda's £35m High Quality Employment Space Fund, launched in late 2007, aims to help create and encourage more skilled and high added-value jobs in the East Midlands by providing quality sites and buildings for regional businesses. The focus is on buildings which will demonstrate high standards in both their sustainability aspirations as well as their potential to catalyse and encourage wider regeneration. Spending will be focused in areas of high growth and sub regional centres that demonstrate demand and need for increased high quality floor-space.

See www.emda.org.uk

The ICE Demolition Protocol

The ICE Demolition Protocol provides a pragmatic set of methodologies to achieve resource efficiency in construction, demolition and refurbishment projects. The Protocol forms the backbone of the Waste and Resources Action Programme (WRAP) Demolition Module and this section summarises some of its key features.

See [Visit ICE website to download the Demolition Protocol](#)

Life Cycle Costs

Life Cycle Costs include the complete costs of a building from construction, maintenance, operation, occupancy through to end-of-life costs.

See *Whole Life Costs*.

Lifetime Home

The Lifetime Home Standards set out 16 design features that together create a flexible blue print for accessible and adaptable housing, which aims to increase choice, independence and longevity of tenure, and thereby promote sustainable communities. Access statements are now an essential part of planning applications. To ensure Local Authority access needs for housing (Lifetime Home designs (Part M, Access to and use of buildings) and the Housing Corporation Scheme Development Standards are met Lifetime Homes should be considered at the earliest stages of the planning process. Lifetime Homes rarely require greater space standards and should not impact on the density of a development.

See <http://www.lifetimehomes.org.uk/>

Local Development Frameworks

Local Authorities have a range of planning policies that are used to inform decisions to approve or reject planning applications. The Planning and Compulsory Purchase Act 2004 has made some major changes to the way councils prepare planning policies. Local Development Frameworks (LDF) now outline how planning will be managed at district or borough level and are often supported by Supplementary Planning Guidance which identifies additional requirements for specific areas.

Low Carbon Development

A low carbon development is one that achieves a reduction in carbon emissions of 50% or more, compared with 2002 Part L Building Regulations. Low carbon technologies are those that can help reduce carbon emissions related to heat and power generation, such as biomass boilers, combined heat and power, hydrogen fuel cells, solar photovoltaics, groundsource heat and wind turbines.

Methods of Economic Assessment

The usual method for calculating whole life costs, including that set out in BS ISO 15686-5, is based on discounted cash flows (DCF). This takes account of the time value of money and expresses future cash flows in terms of present values (PV). Present values are defined as the sum of money that needs to be invested today to pay for all future costs at a given interest rate (discount rate) over a known time horizon. A stream of future costs can be converted into a single PV by summing the results of:

$$PV = \frac{\text{Future cost in year } N}{(1 + \text{discount percentage}) \times N}$$

Where N = number of years between the base date and the occurrence of the cost.

Net Present Value (NPV)

The Net Present Value (NPV) provides a single figure which takes into account all relevant future costs and income over the period of analysis. The NPVs of alternative construction options are compared to identify the option with the lowest whole life cost.

NERC Section 40 Biodiversity Duty

The Natural Environment and Rural Communities (NERC) Act came into effect on 1 October 2006. Section 40 of the Act places new obligations on public bodies to conserve biodiversity. The precise wording of the Act states that: *‘Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.’* To see Defra Guidance for Public Authorities and Local Authorities on implementing their biodiversity duties.

See – www.defra.gov.uk/wildlife-countryside/pdf/biodiversity/pa-guid-english.pdf

Onsite / Offsite

Planning Policy Statement: Planning and Climate Change, Supplement to Planning Policy Statement 1, uses the terms ‘onsite’ and ‘offsite’ in relation to energy which may be sourced on the development site or external to the site. PPS1 expects any ‘substantial new development to gain a significant proportion (upwards of 10%) of its energy supply onsite and renewably and/or connect to a decentralised, renewable or low carbon, energy supply where available’.

See Planning Policy Statement: Planning and Climate Change, Supplement to Planning Policy Statement 1, Department of Communities and Local Government (DCLG), 2007.

Open Space

Open space is defined as all land that is predominantly undeveloped other than by buildings or structures that are ancillary to the open space use. The definition covers the broad range of open space types, whether in public or private ownership and whether public access is unrestricted, limited or restricted, and includes the green belt and waterways.

See CABE Space guidance (*Green space strategies: A good practice guide*, 2004)

See – www.cabe.org.uk

Office of Government Commerce (OGC)

OGC’s Achieving Excellence in Construction (AEC) initiative provides guidance on achieving all the Common Minimum Standards within its best practice principles for managing and delivering construction projects.

See

http://www.ogc.gov.uk/guidance_achieving_excellence_in_construction.asp

Passive Design

Passive design is design that does not require mechanical heating or cooling. Passive solar design uses the sun’s energy for the heating and cooling of spaces. Passive design techniques include building orientation, air tightness, natural ventilation, and thermal mass.

See www.passivhaus.org.uk/

Publicly Available Specification for biodiversity

British Standards Institute’s (BSi) Publicly Available Specification (PAS) “Planning to halt the loss of Biodiversity” is a comprehensive guide for incorporating biodiversity issues into the planning process. PAS 2010:2006

See

<http://www.bsigroup.com/upload/Standards%20&%20Publications/shop.html> |

Regional Economic Strategy

The East Midland’s Regional Economic Strategy (RES) a ‘*Flourishing Region*’ sets out ‘3 Structural Themes’ of: Raising Productivity; Ensuring Sustainability; and Achieving Equality

and 10 priorities for the region's development. Construction is one of '4 Priority Sectors: *"likely to make the greatest contribution to the East Midlands economy over the lifetime of the RES"*, and to deliver progress against the. The RES recognises the sector as strategically important in providing buildings and infrastructure on which all other sectors of the economy depend. The quality of the built environment is also recognised as hugely important to quality of life within the region, and to the economy of the East Midlands. The RES takes a strong a sustainable economic well-being approach which points to new technologies (low carbon), more efficient practices (sustainable construction) and greater business awareness of environmental opportunities and liabilities.

See <http://www.emda.org.uk/res/>

Regional Spatial Strategy

In the East Midlands regional partners produce a Regional Spatial Strategy which reflects the needs and aspirations for development and land use over a period of 10 to 15 years. Following the Sub National Review the RSS will become part of a Single Integrated Regional Strategy which will also incorporate the Regional Economic Strategy.

See <http://www.emra.gov.uk/what-we-do/housing-planning-transport>

Renewable Energy

Renewable energy is generated from sources that do not require the use of exhaustible materials, such as fossil fuels. It covers those energy flows that occur naturally and repeatedly in the environment – from the wind (wind turbines), the fall of water (hydroelectric), the movement of the oceans

(tidal), from the sun (photovoltaics and solar thermal panels) and also from biomass (biomass boilers). Energy may be sourced onsite or offsite (see terms 'onsite / offsite').

Accredited external renewables are renewable energy schemes located offsite which:

- Are accredited renewables (as defined by the Energy Act 2004). These will be Renewable Energy Guarantee of origin (REGO) certified.
- Create new installed generation capacity, designed to meet the loads of the dwelling (i.e. not just units of carbon), and
- Are additional to capacity already required under the Renewables Obligation.

The London Renewables Toolkit 'Integrating renewable energy into new developments: Toolkit for planners, developers and consultants' is a widely used source of comprehensive information and support.

www.london.gov.uk/mayor/environment/energy/renew_resources.jsp

Secured by Design

Secured by Design encourages the building industry to adopt crime prevention measures in development design to help create a safer and more secure environment and thereby reduce crime and the fear of crime. It reflects one of the Government's key objectives for the planning of new housing to make available high quality, sustainable places where people choose to live. 'Secured by Design New Homes' is a requirement for Code for Sustainable Homes (CSH), whereby an Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) from the local police force is consulted at the design stage and their recommendations are incorporated into the design of the dwelling.

See www.securedbydesign.com

Site Waste Management Plans (SWMP)

Originally developed as a Voluntary Code of Practice, SWMPs provide a structure for systematic waste management at all stages of a project's delivery. Since April 2008 SWMPs have become a legal requirement for all construction projects over £300,000. SWMPs largely focus on onsite operations and amongst other things identify the types of waste that will be generated; resource management options for these wastes; and plan for monitoring and reporting on resource use and the quantity of waste.

See www.WRAP.org.uk

SMARTWaste Procedures

The SMARTWaste (Site Methodology to Audit, Reduce and Target Waste) system provides a web-based, integrated, practical approach to evaluating where and how much waste is generated. The system can be applied to any waste generating activity, and has been adapted and used for the construction, demolition, refurbishment, manufacturing and pharmaceutical industries. The system can identify cost savings, improve resource use, improve productivity and demonstrate continuous improvement.

See www.bre.co.uk

Sustainability Appraisal/ Strategic Environmental Assessment

SEA/SA is an assessment technique which uses the expertise of appraisers to assess how a given proposal is aligned with sustainable development objectives (e.g. against the Region's IRS). Aspects requiring further consideration or revision are identified and recommendations are made. The outputs from an appraisal are used in future revisions of the proposals with the intention of continued improvement in sustainability

performance. SEA/SA is a legal requirement for regional spatial and economic strategies.

Sustainable Consumption and Production

Sustainable consumption and production is a key priority in the UK Sustainable Development Strategy and the East Midlands RES. This means Improving resource efficiency to get more from less – decoupling economic growth and quality of life from consuming more resources. Reducing the impact of businesses on the environment through better waste management is one of the best ways of cutting costs. According to Envirowise, companies in the UK could save around 1% of turnover with some straightforward waste minimisation measures. In addition to cost savings, resource efficiency can result in:

- improved staff retention
- innovation
- adapting better to change
- attracting more investment; and
- identifying and exploiting new markets.

See www.defra.gov.uk/Environment/business/scp

Sustainable Procurement

A process whereby organisations meet their needs for goods, services, works, and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment.

See <http://www.defra.gov.uk/sustainable/>

Stern Review

The Stern Review analysed the effect of climate change and global warming on the world economy. It collates evidence that the global climate is rapidly heating up due to the natural and anthropogenic emission of greenhouse gases. The key

finding is that climate change could reduce world GDP by up to 20% if not addressed. The Stern Review is the cornerstone piece of scientific and economic research upon which most of the Government's climate change related policies are based.

See '[Stern Review on the Economics of Climate Change](#)', UK Government, 2006.

Sub-National Economic Development and Regeneration Review (SNR)

The SNR consultation document [Prosperous Places](#) (2008) proposes shifting Regional Assembly responsibilities for housing, transport and planning to RDAs and will give them executive responsibility for Single Integrated Regional Strategy (SIRS) which combine RES/RSSs to cover economic growth, job creation, housing, planning, transport and environmental objectives.

See [Prosperous Places](#) (2008) [needs update]

Sustainable Drainage Systems (SDS) or Sustainable Urban Drainage Systems (SUDS)

Sustainable drainage is a concept that includes long term environmental and social factors in decisions about drainage. It takes account of the quantity and quality of runoff, the amenity value of surface water in the urban environment, and reduces the total amount and flow rate of surface water that runs directly to rivers through storm water systems. SDS are designed to address problems with traditional ways of managing runoff from buildings and hardstanding areas, such as flooding, pollution or damage to the environment.

See www.ciria.org.uk/suds or www.environment-agency.gov.uk

Watermark Best Practice Benchmarks

A set of water saving benchmarks for a number of building classifications including offices, schools, hospitals, education institutions, and a range of public/community facilities.

See www.ogcbuyingsolutions.gov.uk

Water Efficiency in New Buildings

Sets out Government's proposals to make minimum standards of water efficiency performance mandatory in all new homes and new commercial developments, and was published in December 2006. These standards underpin water efficiency standards set out in the Code for Sustainable Homes.

See 'Water Efficiency in New Buildings: A consultation document', Defra and DCLG, June 2007.

Whole Life Costing (WLC)

WLC assesses the impacts of a building, product or operation on the environment throughout its life e.g. from production and manufacture, operation and maintenance, through to final disposal /demolition /reuse. Whole Life Costing includes a building's Life Cycle Costs (LCC) and non-construction costs, income and externalities not covered by LCC.

- **Construction costs:** e.g. construction of asset, adaptation or refurbishment.
- **Maintenance costs:** e.g. replacement of major systems and components; redecoration; grounds maintenance.
- **Operation costs:** e.g. energy and fuel costs; water and drainage costs; cleaning; staff engaged in servicing the building.
- **Occupancy costs:** e.g. security costs; car parking charges.
- **End of life costs:** e.g. disposal inspections; demolition costs.
- **Non-construction costs:** * e.g. land purchase, enabling works, finance cost
- **Income:** * e.g. third party income during occupation

- **Externalities:** * e.g. client defined externalities associated with the building, but which are not necessarily included in transaction costs between provider and consumer.

** Note: BS ISO 15686-5 does not include non-construction costs, income or externalities in its definition of 'Life Cycle Costs', but these three categories are included in the definition of 'whole life costs'.*

For further information and worked examples see:

- BS ISO 15686-5 Buildings and Constructed Assets - Service Life Planning – Part 5: Life Cycle Costing (2008)
- Standardised Method of Life Cycle Costing for Construction Procurement – A Supplement to BS ISO 15686-5 Buildings and Constructed Assets - Service Life Planning - Part 5: Life Cycle Costing (2008)
- Office of Government Commerce (OGC) Procurement Guide 07 – Whole Life Costing and Cost Management (2007)
- H M Treasury - *The Green Book*, Appraisal and Evaluation in Central Government

Zero carbon

Zero carbon means that, over a year, the net carbon emissions from energy use in a building would be zero. A zero carbon development is one that achieves zero net carbon emissions from energy use on site, on an annual basis. A true zero carbon dwelling is one where net carbon emissions resulting from all energy used in the dwelling is zero. This includes the energy consumed in the operation of the space heating /cooling and hot-water systems, ventilation, all internal and external lighting, cooking and all electrical appliances. The calculation can take account of contributions from renewable /low carbon installations on /in the dwelling, or provided by an ESCO on /offsite provided it directly supplies the dwelling.

See

<http://www.communities.gov.uk/planningandbuilding/buildingregulations/legislation/codesustainable/>