# Sustainable Construction Checklist

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# 1 Introduction

We all want to improve the quality of life in Richmond upon Thames and this guidance highlights the important contribution made by those involved in the design and construction of new developments. The Council wants to work in cooperation with developers to achieve the highest possible standards of sustainable design and construction. This means creating developments that are more cost effective to run, more secure, that cause minimal environmental impact and provide healthy living conditions, at the same time as respecting the area's rich heritage and distinctiveness. The Council are equally commitment to the urban design and architectural quality of new development and have recently adopted an SPD on Design Quality: these two documents should be considered together.

**The checklist describes the key principles of sustainable design and construction and also the level of detail required in the proposal. In certain circumstances, the developer may need further information or external support in order to achieve compliance with a policy. Further information sources and support services have also been provided in this document.**

The Council expects all architects and contractors to follow the guidelines set out in this document when undertaking new development in Richmond upon Thames. Whilst aimed specifically at major development at present the council encourages the application of the principles in this document to all development proposals that come forward in the Borough.

It is important to have an understanding of sustainable principles from the outset of a project. A good understating of the site and its environmental conditions should influence the design and can lead to immediate environmental benefits such as energy savings through the consideration of simple factors such as orientation. The considered analysis of site attributes will also inform a site specific approach which respects its context.

The development of this document has been informed by the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, which provides guidance to local planning authorities, architects and developers on how to meet London Plan policy for developments that are referable to Mayor. It is based on national planning guidance including Planning Policy Statement (PPS) 1: Delivering Sustainable Development, PPS23: Planning and Pollution Control, PPS25: Renewable Energy, and Planning Policy Guidance (PPG) 25 : Development and flood risk (reference is made to the draft PPS 25)

## 2 Checklist summary

All major development and applications for five or more residential units undertaken in the London Borough of Richmond will be expected to illustrate compliance with the following 18 checklist items. Non major developments will be encouraged to comply.

| # | Theme | Checklist Item |
|---|---|---|
| *1* | **Environmental Rating** | Achieve EcoHomes/ BREEAM 'Excellent' rating[1] for design |
| *2* | **Site Contamination** | Investigate potential contamination of site |
| *3* | **Site Ecology** | Undertake ecological assessment |
| *4* | **Energy Saving** | Design building and its services for minimum energy use |
| *5* | **Renewable Energy** | Reduce predicted site CO2 emissions by **at least** 10% through the use of on site renewable energy |
| *6* | **Construction Materials** | Specify environmentally-friendly construction materials |
| *7* | **Water Saving/ Recycling** | Use water conservation devices and recycling techniques |
| *8* | **Recycling** | Provide internal/ external recycling facilities |
| *9* | **Surface Water Run Off** | Prevent water pollution and overburdening of drainage systems |
| *10* | **Microclimate** | Design out negative microclimatic effects |
| *11* | **Public Transport** | Facilitate the use of public transport |
| *12* | **Cycling and Walking** | Ensure development design encourages cycling and walking |
| *13* | **Green and Open Spaces** | Enable easy access to the natural environment/ open spaces and provide new and enhanced green spaces to serve the community |
| *14* | **Secure Design** | Adopt best practice in the secure design of the development |
| *15* | **Light Pollution** | Mitigate light pollution |
| *16* | **Flood Resistant Design** | Apply the principles of flood resistant design (where applicable) |
| *17* | **Access** | Ensure that the building is accessible to all |
| *18* | **Construction Process** | Reduce adverse impact of construction process on quality of site and its surroundings |

[1] This item is relevant to major development only. Where development design achieves an EcoHomes/ BREEAM Excellent rating, it is accepted that a large number of checklist items will have been addressed.

The definition of a major development is that used currently by the ODPM PS2 form that each district planning authority must use to report general developments:
For all other uses: where the floor space will be 1,000sq metres or more (or site is 1 hectare or more). Area of site is that directly involved in some aspect of the development. Floor space is defined as the sum of floor area within the building measured externally to the external wall faces at each level. Basement car parks, rooftop plant rooms, caretakers' flats, etc. should be included in the floor space figure.

# 3 The benefits of sustainable design and construction

There are growing concerns about the property sector's impact on the environment:

- Operational buildings are directly responsible for approximately 50% of the UK's total CO2 emissions through burning of fossil fuels
- Transporting people between buildings accounts for 22% of UK energy use, with transport emissions growing by 4% each year
- In the UK, water consumption in buildings has risen by 70% over the last 30 years
- "Around 50,000 species are driven to extinction each year due to forest destruction" (Clifton2) and yet the construction industry continues to source unsustainable timber and other materials
- 26 million tonnes of waste (500kg per person) is sent to landfill each year

Not only do these issues threaten to disrupt the smooth running of our day to day lives (e.g. threaten security of energy supply and water resources), they are also contributors to the key environmental challenges facing us today: climate change, the hole in the ozone layer, acid rain and pollution. By reducing demand for energy and water, sourcing construction materials responsibly, equipping buildings with facilities for sorting waste and by ensuring that development encourages walking, cycling and the use of public transport, the property sector can help to mitigate the risk of predicted local and global disasters.

The benefits of sustainable design and construction are not simply environmental; it can also bring financial, risk management, publicity and health and wellbeing benefits:

**Financial benefits**

- Reduced energy and other running costs
- Improved staff productivity[2]

**Risk management benefits**

- Future proofing (e.g. against rising energy costs)
- Liabilities and negligence

**Publicity benefits**

- Improved image for developer
- Making premises more attractive to potential customers or tenants

**Health and wellbeing benefits[3]**

- Creating a better place for people to work more productively
- Providing a healthier, more comfortable indoor environment

[2] There is some evidence that high quality environments within commercial buildings can impact on productivity and reap financial benefits.

[3] People spend on average 90% of their time in buildings or within the built environment. Therefore, buildings significantly contribute to our quality of life, at work, home and during our leisure pursuits.

## 4 How to meet the checklist criteria

Developers working in the London Borough of Richmond should submit a sustainability statement, which describes how the principles of sustainable design and construction have been applied to the development. The Council has developed, for this purpose, a sustainable design and construction checklist, which can be used as the basis for preparing this statement.

The checklist describes the key principles of sustainable design and construction and also the level of detail required in the statement. In certain circumstances, the developer may need further information or external support in order to achieve compliance with a checklist item. Further information sources and support services have been provided in this document: see section *'Further Information and Support'*.

| Checklist Item | | Illustrating Compliance |
|---|---|---|
| 1 | • Achieve EcoHomes/ BREEAM 'Excellent' rating[4] for design | An EcoHomes/ BREEAM assessor should be appointed to the project at the earliest stages. The assessor should prepare a Preliminary Assessment, which illustrates that the 'Excellent' rating will be achieved. This assessment should then be provided to the relevant case officer.<br><br>On completion of the construction works, the developer will be required to commission a Post Construction Review and provide this to Richmond Planning Authority. This review will confirm that the criteria specified at the design stage have been implemented during construction and that the 'Excellent' rating is still valid.<br><br>**Further information/ support** |
| 2 | • Investigate potential contamination of site | Proposers of development on potentially contaminated sites should arrange pre-application discussions with the local planning authority (LPA) and other regulators, including the Environmental Health and Building Control departments of the local authority, the LPA's archaeological and nature conservation advisers and the Environment Agency (where pollution of controlled water and the waste management implications of land contamination are likely to be issues).<br><br>**Further information/ support** |

[4] EcoHomes/ BREEAM assesses new buildings (homes, offices, shopping malls, light industrial buildings, schools) against a range of environmental issues and for each issue there are a number of "credits" available. The number of credits attained is interpreted in the form of an overall rating of 'EXCELLENT', 'VERY GOOD', 'GOOD' and 'PASS'. The environmental issues assessed in order to allocate credits are as follows: Management (Offices only), Health and Wellbeing, Energy, Transport, Water, Land Use and Site Ecology, Materials, Pollution.

| Checklist Item | | Illustrating Compliance |
|---|---|---|
| 3 | • Undertake ecological assessment | 1. Secure ecological data through a scoping study, ecological survey and impact assessment (refer to London Development Agency (LDA) Design for Biodiversity guide)<br><br>2. Ensure no net loss of biodiversity on the site but aim to achieve a net gain of biodiversity through:<br>– Creating, restoring or balancing wildlife habitat on site<br>– Incorporating vegetation into built structures, such as green roofs, green walls, balconies or terraces<br>– Incorporating appropriate nesting boxes and roosting structures<br><br>3. Describe how ongoing ecological management of the wildlife habitat will be achieved<br><br>4. Where net loss of biodiversity cannot be avoided, describe how loss will be fully mitigated<br><br>*(Advice on ecology (where required) is to be sought from individuals of recognised organisations e.g. Association of Wildlife Trust Consultancies (AWTC), a member of the Institute of Environmental Management and Assessment (IEMA), a member of the Institute of Ecology and Environmental Management (IEEM), or a member of the Landscape Institute (LI) with appropriate qualifications)*<br><br>**Further information/ support** |
| 4 | • Design building and its services for minimum energy use | An energy assessment should be submitted to the planning authority, which shows the predicted energy demand and carbon dioxide emissions for the site and subsequently how these have been reduced by:<br><br>**1 Using less energy (being lean)**<br>1.1 Illustrate how energy demand for the development has been reduced by:<br>– Applying passive solar design principles<br>– Installing energy efficient measures and technologies<br><br>2 **Using renewable energy (being green)**<br>• See checklist item below<br><br>**3 Supplying energy efficiently (being clean)**<br>3.1 Illustrate in the proposal how the use of Combined Heat and Power (CHP) technology or a community/ district heating scheme has been explored (where applicable)<br><br>**Further information/ support** |

| | Checklist Item | Illustrating Compliance |
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| | | |
| 5 | • Reduce predicted site CO2 emissions by at least 10% through the use of on site renewable energy | 1. Carbon emissions from the total energy needs (heat and power) of the development should be reduced by at least 10% by the on site generation of renewable energy. The following approach should be adopted:<br>• Calculate predicted electricity and heat demand for the site (kWh)<br>• Convert energy demand (kWh) to carbon dioxide emissions (CO2)<br>• Identify renewable energy technologies that are suitable for the site<br>• Calculate level of carbon dioxide emissions offset through use of renewable energy technology (should be at least 10% to comply with policy)<br>2. All external lighting is to be solar-powered, wherever possible<br>**Further information/ support** |
| 6 | • Specify environmentally-friendly construction materials | 1. Wherever possible, existing buildings or their building materials should be reused, providing that this allows policy on energy, materials and water conservation to be complied with<br>2. The majority of timber products should be obtained from sustainable sources (CSA, FSC, MTCC, PEFC, SFI) and balance from a temperate source (i.e. non tropical wood)<br>3. Insulation materials must not contain substances known to contribute to stratospheric ozone depletion or have the potential to contribute to global warming<br>4. PVC windows should not be used<br>5. Low emission finishes, construction materials, carpets and furnishings should be used wherever practical<br>6. Recycled aggregates should be used wherever possible for road sub surface and parking areas<br>7. Materials used in the development should be sourced locally wherever possible<br>**Further information/ support** |

| | Checklist Item | Illustrating Compliance |
|---|---|---|
| 7 | • Use water conservation devices and recycling techniques | 1. Water saving devices to be installed wherever possible in the development, e.g. low flush toilets and spray taps<br><br>2. Use rainwater harvesting in gardens and soft landscaping where appropriate (e.g. water butts, central rainwater collection systems)<br><br>3. Use of greywater and rainwater for all non potable purposes should be explored<br><br>**Further information/ support** |
| 8 | • Provide internal/ external recycling facilities | 1. All development of buildings should provide internal and external recycling facilities<br><br>**Further information/ support** |
| 9 | • Prevent water pollution and overburdening of drainage systems | 1. Estimate waste water and surface water run-off impact on drainage system<br><br>2. Wherever practicable, use sustainable urban drainage systems (SUDS) to provide attenuation of water run-off to either natural water-courses and/ or municipal drainage systems. Ensure multiple benefits of SUDS are sought, such as wildlife improvements.<br><br>3. Describe how ongoing maintenance of SUDS will be ensured<br><br>4 Need to consider provision of water and sewage utilities infrastructure to service proposed development<br><br>**Further information/ support** |
| 10 | • Design out negative microclimatic effects | 1 Prove how negative impact on the microclimate of existing surrounding public realm and buildings has been mitigated:<br>• Deep shadows (particularly over water) and loss of solar gain<br>• Increased wind speeds (e.g. wind tunnel effect)<br><br>**Further information/ support** |
| 11 | • Facilitate the use of public transport | 1. Ensure that the development provides short direct safe links to public transport and / or enhancement of the public transport network |

| Checklist Item | | Illustrating Compliance |
|---|---|---|
| | | **Further information/ support** |
| 12 | • Ensure development design encourages cycling and walking | 1. Illustrate on the plans how the development has included a network of safe pedestrian and cycle routes (where applicable)<br><br>2. Provide secure cycle storage for residential and office developments. Workspaces with showers should also be considered to allow cycling to work.<br><br>**Further information/ support** |
| 13 | • Enable easy access to the natural environment/ open spaces and provide new and enhanced green spaces to serve the community | 1. Ensure no net loss of publicly accessible open space but aim to achieve a net gain of publicly accessible open space and protect and encourage biodiversity where possible<br><br>2. Aim to create open space that meets the need of biodiversity and people through provision of:<br>• Allotments<br>• Areas of wildlife habitat<br>• Access to green space for those without gardens<br>• Green roofs<br><br>3. The proposal should provide additional links in Green Chains wherever possible<br><br>4. Climate change over the next 50 years should be considered when choosing species for landscape design<br><br>**Further information/ support** |
| 14 | • Adopt best practice in the secure design of the development | 1. Developments should incorporate principles of 'secure by design' and proposers of development should consult the Community Safety Partnership to design public space<br><br>**Further information/ support**<br><br>[Secured by Design is the UK flagship initiative supporting the principles of designing out crime. It is a corporate title for a family of national police projects involving the design for new homes, refurbished homes, commercial premises, car parks and other police crime prevention projects. It is primarily an initiative to encourage the building industry to adopt |

| Checklist Item | | Illustrating Compliance |
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| | | crime prevention measures to assist in reducing the opportunity for crime and the fear of crime, creating a safer and more secure environment.] |
| 15 | • Mitigate light pollution | 1. Describe how light pollution (which can cause significant adverse impact on residential amenity or biodiversity) has been avoided through using lighting only where and when necessary, using an appropriate strength of light and adjusting light fittings to direct the light to where it is required.<br><br>2. External lighting should be energy efficient and solar powered wherever possible<br><br>**Further information/ support** |
| 16 | • Apply the principles of flood resistant design (where applicable) | 1. Consider the flood risks (current and future) associated with the development and apply the principles of flood resistant design where necessary<br><br>2. Where flood risk potential exists, developer to prove in writing that principles have been applied and that buildings will be 'insurable' (see Strategic Planning for Flood Risk. Association of British Insurers, July 2004)<br><br>**Further information/ support** |
| 17 | • Ensure that the building is accessible to all | 1. All developments will need to include a Design and Access Statement. This will need to show how the development is accessible to all.<br><br>**Further information/ support** |
| 18 | • Reduce adverse impact of construction process on quality of site and its surroundings | 1. **Waste Management:** Reduce waste during construction and demolition phases and sort stream waste on site. Proposal to include a waste management plan, which should demonstrate how the waste hierarchy will be applied during the construction process<br><br>2. **Air Quality:** Ensure adequate air pollution monitoring is carried out within and/ or around the construction site to monitor the effect of activities on site. Agree monitoring with local authority<br><br>3. **Equipment:** Ensure equipment, including vehicles used to transport materials and people, is efficient and well-maintained to minimise emissions<br><br>4. **Building Green:** Aim to disturb as little topsoil as possible and compost organic waste on site to |

| Checklist Item | | Illustrating Compliance |
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| | | supplement existing topsoil<br><br>5. **Biodiversity:** Give physical protection to existing trees and waterside zones during construction. Where construction activities require temporary access over, or removal and replacement of, habitat these operations should be supervised by trained staff, or a qualified ecologist.<br><br>6. **Considerate Contracting:** Proposers of **major developments** should sign up to the Considerate Constructors Scheme, which addresses the noise and pollution impacts of the construction process<br><br>**Further information/ support** |

## 5 Further information and support

In certain circumstances, the developer may need further information or external support in order to achieve compliance with a checklist item. Further information sources and support services have been provided in the table below.

| Checklist Item | Further support/ information |
|---|---|
| 1<br>• Achieve EcoHomes/ BREEAM 'Excellent' rating for design | EcoHomes/ BREEAM assesses new buildings (homes, offices, shopping malls, light industrial buildings, schools) against a range of environmental issues and for each issue there are a number of "credits" available. The number of credits attained is interpreted in the form of an overall rating of 'EXCELLENT', 'VERY GOOD', 'GOOD' and 'PASS'. The environmental issues assessed in order to allocate credits are as follows: Management, Health and Wellbeing, Energy, Transport, Water, Land Use and Site Ecology, Materials, Pollution.<br><br>To find out more about EcoHomes/ BREEAM or to access the list of licensed EcoHomes/ BREEAM assessors visit:<br><br>http://www.breeam.org |
| 2<br>• Investigate potential contamination of site | The DETR Circular 2/2000 Contaminated Land: Implementation of Part IIA of the Environmental Protection Act 1990 gives statutory guidance on the new regime for the treatment of contaminated land, as set out in Part IIA of the Environmental Protection Act 1990.<br><br>The *DEFRA (2004), Model Procedures for the Management of Land Contamination* provides a technical framework for applying a risk management process when dealing with land affected by contamination:<br><br>www.environment-agency.gov.uk<br><br>The following web sites provide information on contaminated land policy and remediation:<br><br>www.ciria.org<br><br>www.defra.gov.uk<br><br>www.environment-agency.gov.uk<br><br>www.iema.org.uk |

| Checklist Item | Further support/ information |
|---|---|
| | www.odpm.gov.uk<br><br>www.silc.org.uk |
| 3<br>• Undertake ecological assessment | With a few simple key steps, developers can ensure that they comply with biodiversity legislation and achieve best practice. An overview of the process by which developers can achieve these objectives is presented in the *Guide for Biodiversity* produced by the LDA. The guide outlines the critical drivers and principle processes which promote industry best practice.<br><br>http://www.lda.gov.uk<br><br>Reference can be made to "*Planning for Biodiversity and Geological Conservation: A Guide to Good Practice* (ODPM: March 2005)<br><br>The Town and Country Planning Association has produced a publication entitled *Biodiversity by Design: a guide for sustainable communities.* The guide illustrates how to maximise the opportunities for biodiversity in the planning and design of sustainable communities. The guide takes the user through the design process, presenting a toolkit of best practice that can be tailored according to the scale of the development opportunity.<br><br>http://www.tcpa.org.uk/downloads/TCPA_biodiversity_guide_lowres.pdf<br><br>The *London Biodiversity Partnership* is a group of public, private and voluntary organisations, with the core aim to conserve and enhance the capital's wildlife and natural places for future generations to benefit from and enjoy.<br><br>http://www.lbp.org.uk/<br><br>For up to date, comprehensive information and advice about green roofs, visit *Livingroofs.org* a non-profit organisation established to promote, advise upon and seek research into green roofs and similar structures within the context of urban and rural regeneration.<br><br>http://www.livingroofs.org/<br><br>The British Council and the Corporation of London has produced a *research advice note on green roofs*:<br><br>http://www.bco.org.uk/html/research/pdf/Green_roofs.pdf |

| Checklist Item | Further support/ information |
|---|---|
| 4<br>• Design building and its services for minimum energy usage | **Use less energy**<br><br>The Energy Saving Trust has produced a best *practice guide on passive solar estate layout*. The EST web site also provides a link to the Farrans Study on passive solar house design:<br><br>http://www.est.org.uk/housingbuildings/publications/index.cfm?mode=listing&pub_id=579#pub579<br><br>http://www.est.org.uk/housingbuildings/publications/index.cfm?mode=listing&pub_id=265#pub265<br><br>A number of *guides have been produced on ventilation and cooling*:<br>• Good Practice Guide 290. Ventilation and cooling options appraisal. A client guide. www.energyaction.org.uk<br>• Good Practice Guide 291. A designers guide to the options for ventilation and cooling. www.energyaction.org.uk<br>• Natural ventilation in non-domestic buildings. Application Manual AM10: CIBSE 1997. http://www.cibse.org<br><br>There are large number of *organisations/ programmes providing impartial support in the field of energy efficiency*:<br>• Practical Help – www.practicalhelp.org.uk<br>o A free enquiry service providing up to 2 hours support (per enquiry) for local authorities and housing associations offering realistic solutions for promoting and implementing sustainable energy policies and measures to reduce carbon dioxide. Also provide referral service to other EST programmes.<br>• The Energy Efficiency Best Practice in Housing programme – www.est.org.uk/bestpractice<br>o Provided by the Energy Saving Trust, this is the Government's principal energy efficiency information, advice and research programme for professional organisations involved in all aspects of housing<br>• Carbon Trust Design Advice – www.thecarbontrust.co.uk<br>o Sustainable energy design advice for developments. Subject to an approved application, clients are offered a free initial design consultancy on a building project. Further consultancy, with partial funding, may be available<br><br>**Use renewable energy**<br><br>*See checklist item below*<br><br>**Supply energy efficiently**<br><br>*Carbon Trust Energy Services* offers expert advice and support for those wishing to set up energy services schemes including affinity deals, community-based energy services and residential CHP. For those interested in pursuing an |

| Checklist Item | Further support/ information |
|---|---|
| | Energy Services approach, up to one free day consultancy is available.<br><br>www.thecarbontrust.co.uk<br><br>Creative Energy Networks (CEN) operates a Combined Heat and Power (*CHP) Energy Services programme*, undertaking assessment and implementation of CHP projects. For further information, contact CEN on 020 8683 6653 or visit the CEN web site.<br><br>www.cen.org.uk<br><br>CHP systems are eligible for Enhanced Capital Allowance (ECA):<br><br>http://www.eca.gov.uk/ |
| 5<br>• Reduce predicted site CO2 emissions by at least 10% through the use of on site renewable energy | *Creative Environmental Networks* (CEN), a not for profit organisation based in South London can provide impartial advice and assistance in meeting the building integrated renewable energy policy. For more information about their developer support service, contact CEN on 0845 678 0677 or visit the CEN web site.<br><br>www.cen.org.uk<br><br>London Renewables has produced a *toolkit for planners, developers and consultants* giving detailed guidance and information on incorporating energy efficient and renewable energy technology and design into developments. To download a copy of the Toolkit, visit:<br><br>http://www.london.gov.uk/mayor/environment/energy/renew_resources.jsp<br><br>Grants for renewable energy are currently (at January 2006) available from:<br>• www.clear-skies.org<br>• www.est.co.uk/solar<br><br>Solar water heating systems are eligible for Enhanced Capital Allowance (ECA):<br><br>http://www.eca.gov.uk/ |
| 6<br>• Specify environmentally-friendly | BRE (Building Research Establishment) has produced the *Green Guide to Specification*, which provides an environmental rating for housing construction materials and a quick and easy way for designers and specifiers to |

| Checklist Item | Further support/ information |
|---|---|
| construction materials | assess their options.<br><br>www.bre.co.uk<br><br>Demolition 'waste' can be a valuable resource. The *Demolition Protocol Implementation Document* provides guidance on how demolition recyclate can be driven up the value chain. Table 3.1.4. illustrates the recovery potential of demolition recyclate.<br><br>http://www.ice.org.uk//knowledge/document_details.asp?Docu_id=416&intPage=2&faculty=17 |
| 7<br>• Use water conservation devices and recycling techniques | *Envirowise* offers UK businesses free, independent, confidential advice and support on practical ways to increase profits, minimise waste and reduce environmental impact, including advice on water saving:<br><br>http://www.envirowise.gov.uk/<br><br>Certain water saving devices are eligible for Enhanced Capital Allowance (ECA):<br><br>http://www.eca.gov.uk/<br><br>For further information about rainwater harvesting and grey water recycling visit the *Environment Agency* web site:<br><br>http://www.environment-agency.gov.uk<br><br>Guidance of water efficiency/conservation can be obtained form the Environment Agency National Water Demand Management Centre (www.environment-agency.gov.uk) of Thames Water (www.thames-water.com/waterwise) |
| 8<br>• Provide internal/ external recycling facilities | Contact the Council's waste management team for further information on local recycling facilities and waste management requirements for new developments.<br><br>For guidelines on capacity of internal and external storage bins (residential development), consult the EcoHomes Guidance on the BRE web site:<br><br>http://www.breeam.org/ecohomes.html |
| 9<br>• Prevent water pollution and | The *Environment Agency* web site provides comprehensive information on Sustainable Urban Drainage Systems (SUDS), including: |

| Checklist Item | Further support/ information |
|---|---|
| overburdening of drainage systems | • Details of the various techniques used in SUDS drainage<br>• Details of key groups involved in SUDS<br>• Information on research currently being undertaken in the field<br>• Links to relevant web sites<br><br>http://www.environment-agency.gov.uk<br><br>The - *CIRIA* (Construction Industry Research and Information Association) SUDS web site has been established to disseminate and promote good practice in the implementation of sustainable drainage in the built environment:<br><br>http://www.ciria.org/suds/<br><br>For up to date, comprehensive information and advice about green roofs, visit *Livingroofs.org* a non-profit organisation established to promote, advise upon and seek research into green roofs and similar structures within the context of urban and rural regeneration.<br><br>http://www.livingroofs.org/<br><br>The British Council and the Corporation of London has produced a *research advice note on green roofs*:<br><br>http://www.bco.org.uk/html/research/pdf/Green_roofs.pdf<br><br>Refer to draft PPS25: Development and Flood Risk – section on areas at risk from flooding other than form river and sea. |
| 10<br>• Design out negative microclimatic effects | BRE has produced a guide entitled *Daylight and Sunlight BR209 BRE*. This guide gives advice on site layout planning to achieve good sunlighting and daylighting within buildings and in the open spaces between them. Other sections give guidance on passive solar site layout, on the sunlighting of gardens and amenity areas, and briefly review issues like privacy, enclosure, microclimate, solar dazzle, road layout and security.<br><br>http://www.bre.co.uk/ |
| 11<br>• Facilitate the use of public transport | N/A |

| Checklist Item | Further support/ information |
|---|---|
| 12<br>• Ensure that development design encourages cycling and walking | N/A |
| 13<br>• Enable easy access to the natural environment/ open spaces and wherever possible provide new and enhanced green spaces to serve the community | The *ANGsT tool* developed by the Centre for Regional Ecology provides a practical approach to green space provision:<br><br>http://www.art.man.ac.uk/PLANNING/cure/ANGST.htm<br><br>The *Guide to Preparing Open Space Strategies* sets out practical guidelines on the methodology and content of an Open Space Strategy within the London context. It provides advice on assessing the quantity and quality of open spaces and in identifying the needs of local communities and other users of open spaces.<br><br>http://www.london.gov.uk/mayor/strategies/sds/open_space.jsp<br><br>The *Guide to Preparing Play Strategies* - produced in partnership with London Play and its colleagues in the play sector - is a key part of the Play Strategy for London. It is a companion guide to the Mayor's Guide to Preparing Open Space Strategies.<br><br>http://www.london.gov.uk/mayor/strategies/play/index.jsp |
| 14<br>• Adopt best practice in the secure design of the development | The following publications address security around the development:<br>• Secured by Design. Association of Chief Police Officers Project and Design Group. 1994 http://www.securedbydesign.com/<br>• Designing out crime. RVG Clarke and P Mayhew. HMSO. 1980 |
| 15<br>• Mitigate light pollution | The Institute of Lighting Engineers has produced a *Guidance Note on Light Pollution* which provides advice on how to reduce the problems of unnecessary, obtrusive light:<br>http://www.ile.org.uk/documents/guidance-notes-light-pollution.pdf |
| 16<br>• Apply the principles of flood resistant design (where applicable) | The following guides provide information on flood resistance:<br>• Preparing for Floods DTLR February 2002 www.odpm.gov.uk (provides information on how to improve the flood resistance of houses and small business properties)<br>• Strategic Planning for Flood Risk. Association of British Insurers. July 2004 www.abi.org.uk<br>• The Planning Response to Climate Change. September 2004 www.odpm.gov.uk |

| Checklist Item | Further support/ information |
|---|---|
| | The London Climate Change Partnership, the South East Climate Change Partnership and the East of England's Sustainable Development Roundtable have produced *Adapting to Climate Change: A Checklist for Development*, which suggests ways for developers and their design teams to modify building designs to cope with the weather changes associated with global warming and climate change. An electronic copy of the guidance can be downloaded from the Government Office for London web site:<br><br>http://www.gos.gov.uk/gol/ |
| 17<br>• Ensure that the building is accessible to all | Further details on this can be found in the Design Quality SPD or in the CABE publication, "Design and Access Statements"<br><br>The following publications address accessible and inclusive environments:<br>• Building for Life Standards.CABE 2003 www.buildingforlife.org/standard<br>• Accessible London: Achieving an Inclusive Environment. SPG to the London Plan. GLA 2004 http://www.london.gov.uk/mayor/strategies/sds/accessible_london.jsp<br>• Access Audits: a guide and checklists for appraising the accessibility of buildings. Centre for Accessible Environments. 2004 edition http://www.cae.org.uk<br>• Design of buildings and their approaches to meet the needs of disabled people. BS 8300. British Standards Institute 2001. http://www.bsi-global.com/index.xalter<br>• Wheelchair Housing Design Guide. Stephen Thorpe. National Wheelchair Housing Association group. Home Housing Trust. BRE 1997 www.bre.co.uk |
| 18<br>• Reduce adverse impact of construction process on quality of site and its surroundings | CIRIA has published a seminar entitled *Biodiversity and Construction: working with wildlife (E3217)*. The seminar examines ways in which construction clients and their project teams can improve and monitor project performance in relation to ecological impacts and biodiversity. Case studies and benefits of implementing good practice are also highlighted.<br><br>http://www.ciria.org.uk<br><br>The *Considerate Constructors* initiative, started in 1997, is a voluntary Code of Considerate Practice, which is adopted by participating construction companies, and everyone involved on the construction site. The scheme promotes competent management, efficiency, awareness of local environmental issues and above all neighbourliness during the construction process.<br><br>http://www.considerateconstructorsscheme.org.uk/ |

| Checklist Item | Further support/ information |
|---|---|
| | Demolition 'waste' can be a valuable resource. The *Demolition Protocol Implementation Document* provides guidance on how demolition recyclate can be driven up the value chain. Table 3.1.4. illustrates the recovery potential of demolition recyclate.<br><br>http://www.ice.org.uk//knowledge/document_details.asp?Docu_id=416&intPage=2&faculty=17 |

## SUSTAINABILITY APPRAISAL

### 5.1.1 *Legal requirements*

Under the Planning and Compulsory Purchase Act 2004, sustainability appraisal (SA) is mandatory for Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs). The SA will incorporate the requirements of the Strategic Environmental Assessment Directive through the carrying out of a single appraisal process.

In order to test that the objectives of this SPD are in accordance with sustainability principles they have been tested for compatibility with the Council's SA objectives. The same appraisal has been undertaken on the Design Quality SPD

The strategy for the Sustainable Construction Checklist takes account of these SA objectives and the Council will require the submission of further detailed information and studies as set out in Paragraph 6.1 in support of an application for planning permission.

| | Table 1: Appraisal of SPD against Draft SA objectives (Objectives taken from the Draft Sustainability Appraisal Scoping Report) | |
|---|---|---|
| | | impact of SPD |
| ENVIRONMENTAL | 1) To promote sustainable waste management, including reducing waste and waste disposal, promoting recovery, reuse and recycling. | ++ |
| | 2) To make the most efficient use of land and to reduce contamination and safeguard soil quantity and quality. | ++ |
| | 3) Reduce air and noise pollution, including greenhouse gases, and ensure air quality improves. | ++ |
| | 4) Minimise congestion and pollution by reducing the need to travel, encourage alternatives to the car and making best use of existing transport infrastructure. | ++ |
| | 5) To maintain or where possible improve water quality, conserve water and reduce the risk of and from flooding. | ++ |
| | 6) To promote sustainable energy use through reduced energy use, improved energy efficiency and increased use of renewable energy. | ++ |
| | 7) Conserve and enhance biodiversity avoiding irreversible losses, through responsible management of key wildlife sites connecting and other areas. | ++ |
| | 8) Promote high quality places, spaces and buildings & conserve and enhance the landscape and townscape character of the borough including historical features for the benefit of both residents and visitors | ++ |
| | 9) to make best use of previously developed land and existing buildings, encouraging sustainable construction practices | ++ |

| | | |
|---|---|---|
| SOCIAL | 10) to provide new housing opportunities and sufficient affordable housing that meets local needs. | = |
| | 11) to create and maintain safer, more secure and more cohesive communities. | ++ |
| | 12) To facilitate the improved health and well-being of the population, including enabling people to stay independent and ensuring access to those health, education, sport, leisure and recreation facilities and services that are required. | = |
| ECONOMIC | 13) To increase the vitality and viability of existing town centres, local centres and parades. | = |
| | 14) To promote and encourage a buoyant and diverse economy that will provide sustainable economic growth. | = |
| | 15) provide appropriate commercial development opportunities to meet the needs of the local and sub-regional economy. | = |

**key to potential impacts:**

**+** positive **=** neutral or no impact **+ / -** both positive & negative impacts

### *Environmental Considerations*

This SPD provides a checklist that the council will expect major planning applications to comply with and encourage all other development proposals to consider. The SPD has been produced as a single reference on all aspect of development to assist all involved in development process to ensure matters relating to sustainability are considered in full and at an early stage.

The checklist covers:

- Environmental rating
- Site contamination
- Site ecology
- Energy saving
- Renewable Energy
- Construction material
- Water saving/recycling
- Recycling
- Surface water run off
- Microclimate
- Public transport
- Cycling and walking
- Green and open spaces
- Secure design
- Light pollution
- Flood resistant design
- Access
- Construction process

**Health and well-being**

Well-being will be enhanced through promoting a sustainable led approach to development proposals. Designing out negative microclimates, promoting access for all, providing easy access to green spaces, encouraging cycling and walking and promoting the considerate contractor charter could all improve health and well being

**Conservation and enhancement of biodiversity**

This forms a key part of the checklist. It calls for ecological assessment of sites, aims to prevent pollution and prevent the creation of negative microclimates.

**Preservation and enhancement of landscape**

It seeks the preservation of important site features.

**Sustainable energy use and waste management**

The SPD promotes sustainable energy use and waste management. It requries new schemes to meet EcoHomes and BREEAM excellent ratings as well as to minimise energy use, reduce $CO_2$ omissions and encourage and provide facilities for recycling.

**Traffic congestion and pollution**

The SPD promotes the reduction of pollution and encourages proposals to promote the use of public transport, cycling and walking.

**Creation of safer communities**.

The SPD promotes the consideration of the social implications of development proposals and ‘Secure by Design’ principles.

**Other matters**

Other considerations include flood resistant design and mitigating against light pollution.