



Draft for Consultation

London Borough of Richmond upon Thames

Supplementary Planning Document

Sustainable Construction Checklist

Guidance Document

December 2019

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1 Introduction

This Sustainable Construction Checklist SPD forms part of the assessment for planning applications for new build, conversion and retrofit properties within the London Borough of Richmond upon Thames. The GLA guidance on preparing energy assessments October 2018 provides detailed guidance which should be followed, however it will not necessarily cover all local policies therefore the below should be read in conjunction. The aim of this Checklist is to engage and inform developers on sustainability issues relevant to their development. This will enable all building works to make an increased contribution towards local sustainability and help create a townscape which will adapt to climate change as well as mitigate its effects. Overall, measures will be implemented towards improving cost efficiency of our buildings, minimising environmental impact, and improving quality of life for all of those in the Borough of Richmond.

The Checklist forms a **mandatory** part of the planning application for the following classes of development:

- All new residential development providing **1 or more new dwellings**, including conversions and extensions that create one or more new dwellings.
- All new non-residential development including conversions providing **100m² or more floor area**, including extensions over 100m².

Other classes of development which require planning permission but do not fit into the above categories, specifically including retrofits, conversions or extensions of residential or non-residential development that do not meet these thresholds, are **encouraged to comply** with this Checklist as far as possible.

This Checklist **does not** replace the requirement to comply with any relevant provisions of the Building Regulations.

It is recommended that developers consider the Checklist's requirements at an early stage in order to incorporate provision for sustainability as easily as possible into their designs. This will ensure maximum viability for sustainability solutions, and avoid the need for costly, late-stage design alterations.

All policies referred to should also be checked, as achieving a good score in the Checklist isn't in itself indicative of all policies being complied with.

2 Checklist contents

The Checklist will be used to assess compliance with Richmond Borough's minimum policy requirements with regards to environmental ratings for non-residential developments under BREEAM (Building Research Establishment Environmental Assessment Method) as well as energy and carbon dioxide emissions savings. All residential developments are required to ensure compliance with the national standard in relation to water usage. Applicants must therefore ensure they provide all the necessary information required for the initial minimum policy compliance section of the Checklist.

In addition, the Checklist covers relevant matters not assessed under BREEAM (see sections 1 to 6) and voluntary residential accreditation schemes in each section, and points may be gained for providing design features which contribute towards better sustainability practice. As a result, the Checklist will also measure 'additional' sustainability impacts of the proposed development which are particularly relevant to Richmond Borough, and which will not require repetition of information already provided as part of a BREEAM assessment submitted for compliance with the Council's minimum policy requirements.

The Checklist covers a range of sustainability issues, from energy consumption to site accessibility. Each section should be completed to the best of the developer's ability or knowledge when applying for planning permission.

Some areas of the Checklist ask for further information or **supporting evidence** to be submitted with the planning application. The minimum policy compliance requires the following:

Energy Performance

An Energy Statement: This is an assessment of expected energy demand at the site, showing how energy and carbon dioxide emissions will be reduced through the implementation of the Draft London Plan energy hierarchy; consisting of energy efficient design measures ('Be Lean'), decentralised heating ('Be Clean') and renewable energy technologies ('Be Green') designing for minimum energy use and installing on-site renewable energy in line with LBRuT and the GLA Energy Assessment Guidance requirements. Further guidance regarding producing an Energy Statement can be found in section 7 of this document.

Water Use and Supplies Policy for Residential Developments

Water supplies are essential to the sustainability of the London Borough of Richmond upon Thames and to the welfare of its people. London's consumption of water already

outstrips available supplies in dry years and ensuring a sustainable and secure water supply is an urgent priority.

Residential developments are required to minimise the use of mains water by:

- Incorporating water saving measures and equipment
- Designing dwellings so that mains water consumption would meet a target of 105 litres or less per head per day. (Excluding an allowance of 5 litres or less per head per day for external water consumption).

Sustainability Accreditation (Mandatory)

- A BREEAM preliminary assessment for non-residential developments (as relevant) undertaken by an accredited assessor;
- A BREEAM preliminary assessment (Domestic Refurbishment) for residential conversion developments undertaken by an accredited assessor.

Where deemed feasible, developments are actively encouraged to pursue accreditation with the Home Quality Mark or Passivhaus standard.

<http://www.homequalitymark.com> & <http://www.passivhaus.org.uk/>

Accredited Assessors

BREEAM assessments and certifications will only be accepted if they have been carried out by a licensed BREEAM Accredited Assessor. It is important to ensure that the assessor is accredited by a scheme that has been approved by the The Ministry of Housing, Communities and Local Government (MHCLG). The Building Research Establishment (BRE) will retain the responsibility for the provision of training and certification procedures for BREEAM.

The “[Green Book Live](#)” by BRE Global Ltd provides a wide range of products and services as well as a directory and database for licensed and accredited Energy and BREEAM assessors, including all BREEAM schemes:

<http://www.greenbooklive.com/search/index.jsp>.

Once planning permission is granted, the Council will also require a design stage assessment prior to construction and a post construction review to be undertaken by an accredited assessor. A BREEAM, Homes Quality Mark and/or Passivhaus certificate confirming that the completed development has met the required ratings must finally be provided prior to occupation of the building.

Minimum information requirements for: all new non-residential development providing 100m ² or more floor area and Domestic refurbishments		
	Environmental Rating	Renewable energy and carbon emission reductions
Planning Application stage	BREEAM* Pre Assessment	Initial design SBEM** calculation, technical details of proposed system(s), saving calculation following approved method summarised in an Energy Statement, as required by GLA Guidance Energy Planning
Pre-commencement	BREEAM design assessment and calculation	Final design SBEM calculation, technical details of proposed system(s), saving calculation following approved method summarised in an Energy Statement.
Post-completion	BREEAM Post-construction assessment calculation and report	As-built SBEM calculation and technical details of system(s) installed, CO ₂ saving calculation following approved method
Prior to occupation	Final BREEAM certificate	
<p>* BREEAM is the Building Research Establishment Environmental Assessment Method. ** SBEM is the Simplified Building Energy Method for Part L2 (non-domestic) compliance with the Building Regulations (2013) which concerns non-domestic buildings</p>		

If the developer/applicant does not comply with the required BREEAM ratings, or where a development is unable to comply with the requirements set out in planning policy due to technical and financial feasibility, an independent external consultant will be instructed by the Council for an impartial view on the BREEAM assessment. The independent assessor is payable by the applicant prior to the assessment being carried out. The onus will be on developers to pay for any cost of independent assessment and provide robust evidence for not meeting the target.

Further information or **supporting evidence** to be submitted may also include (depending upon the nature of the site):

- Biomass boiler information sheet¹
- Lighting pollution report
- Travel plan or Transport statement
- Ecology report
- Tree report
- Flood risk assessment
- Site contamination remediation plan

¹ Available from: http://www.richmond.gov.uk/biomass_boilers

Some of these reports need to be completed by an independent specialist. It should be noted that the majority of sites (particularly of small development scale) may not need to complete all of these additional reports, but please read the Checklist to determine applicability to a given site. When submitted, these reports will be reviewed following the standard planning application procedures, which can involve review by experts as appropriate.

Electric Vehicle Charging Points

All developments are encouraged to ensure that 1 in 5 parking spaces (both active and passive) provide an electrical charging point. Where this ratio cannot be secured, developments are expected to secure the highest number of installations available, given the nature and characteristics of the site.

Summary of standards

Type of development	Standards to be met
Major residential development (10 units or more)	<ul style="list-style-type: none"> • Zero carbon standards • Submit energy statement • National water standards - 110 l/p/d • Submit Sustainable Construction Checklist
All development that results in a new residential dwelling or unit including conversions, reversions, change of use and extensions that create one or more new dwellings	<ul style="list-style-type: none"> • 35% reduction in CO2 emissions over Building Regulations (2013) • Submit energy statement • National water standards - 110 l/p/d • Submit Sustainable Construction Checklist
Change of use or conversion to residential and residential extensions which do not result in a new dwelling	<ul style="list-style-type: none"> • BREEAM Domestic Refurbishment 'Excellent' (where feasible) • Submit Sustainable Construction Checklist
New non-residential buildings, including extensions, over 100sqm floorspace. Including change of use or conversion to non-residential and between non-residential use classes.	<ul style="list-style-type: none"> • BREEAM 'Excellent' • 35% reduction in CO2 emissions over Building Regulations (2013) • Submit energy statement • Submit Sustainable Construction Checklist • BREEAM refurbishment and fit out if one or more of the Parts are applicable as laid out in the Scope of the technical manual.
Major new non-residential buildings, including extensions, over 1,000sqm floorspace	<ul style="list-style-type: none"> • Zero carbon standards from 2019 • BREEAM 'Excellent' • Submit energy statement • Submit Sustainable Construction Checklist

3 Scoring process

The overall score for the Checklist will reflect the positive contribution which the development has made towards incorporating sustainability measures. A rating is provided for the score in order to indicate the overall performance of the development.

The Checklist will be read as a whole with the score and will form an element of material weight in the planning application. Whilst the Checklist endeavours to be applicable to as many development types as possible, it is recognised that not all the measures included will be appropriate for all types of development. This will be taken into account when reviewing the responses and the final score achieved. If a site has scored poorly overall, justification in the relevant areas will need to be provided. Comment space is provided for this and any additional relevant information.

Checklist areas which developers state they will comply with shall be enforced by planning condition.

4 Financial benefits of sustainable design and construction

The specific environmental benefits of the measures included in the Checklist are discussed in the justification and further information sections below, however the financial benefits also provide a key consideration in choosing to build more sustainably.

In terms of initial build cost, designing with an aim of creating an energy efficient building can make it easier and cheaper to meet increasingly stringent Building Regulations targets under Part L. Adopting a best practice approach to energy efficiency will help those involved in construction stay ahead of the game for meeting these targets as they continue to tighten, as well as allowing designers to develop means of meeting these targets more cost-effectively.

Energy efficiency measures will translate directly into lower fuel bills for residents and occupiers. With fuel prices expected to rise in the coming years, those enjoying the benefits of low fuel bills will have their costs future-proofed against these price rises, helping to maintain income levels.

Reducing water consumption will also translate directly into lower water (and fuel) bills for residents and occupiers. The Mayor's aim for London is to have water meters installed in all houses and in all flats by 2020. Improved awareness of water consumption will help occupiers to proactively reduce their usage and associated bills.

It is often more difficult and expensive to provide energy efficiency improvements to existing buildings. By incorporating these measures into current developments, we will create a building stock that will have a significantly reduced need of refurbishment and retrofit, and thus improve the lifetime of our buildings.

Retrofitting existing buildings to improve their performance offers the opportunity to reduce CO₂ emissions and to adapt existing buildings to a changing climate, all of which will translate directly into lower utility bills. Works to prevent flood water entering a building or which will reduce the time and cost of recovering from a flood will significantly reduce the damage, cost and time of repair if properties are flooded.

Research suggests that improvements in indoor air quality resulting from sustainable building techniques and the use of better materials, improves health of residents and workers, corresponding to increased productivity².

By stimulating the market in sustainable construction products, we also contribute towards developing the market in these products, establishing supply chains into the borough with better quality goods, higher standards of certification and lower costs for developers.

5 Guidance

Guidance for completing the Checklist is available in the section below (Further support / information). This section on further information sets out support and guidance for each area of the Checklist.

The relevant policy guidance for the Checklist can be found in section 6 of this document.

If you have additional questions on the Sustainable Construction Checklist, you can contact the Planning Policy team through the planning website https://www.richmond.gov.uk/services/planning/planning_policy

² BRE (2010). *Indoor air quality: Assessment and evaluation of indoor air quality*. [Online]. Available from: <http://www.bre.co.uk/page.jsp?id=720> [Accessed 11.05.10]

Checklist Section	Further support / information
1 Minimum policy compliance (Residential and Non-Residential)	
Energy Assessments	<p>Richmond Council Developers Guidance for Energy Statements can be found in Section 7 of this document.</p> <p>The Greater London Authority provides further detail on addressing the London Plan's energy hierarchy through the provision of an energy assessment to accompany strategic planning applications. The purpose of an energy assessment is to demonstrate that climate change mitigation measures are appropriate for the development and integral to the scheme's design and evolution. For additional information, follow the link below: www.london.gov.uk/sites/default/files/energy_assessment_guidance_2018_-_update.pdf</p>
Carbon dioxide emissions reduction	<p>LBRUT ask that all developments seeking to reduce CO₂ emissions follow the Mayor of London's 'Energy Hierarchy', which first focuses on reduction in energy demand through energy efficiency measures, then on 'clean' energy supply through heat networks or community heating where appropriate, and finally considers applicability of renewable energy supply to the site. (Further details on this are available in the guidance for Section 1 below.) This is to ensure that developments are designed for energy efficiency as far as possible before renewable energy is considered. The Draft London Plan 2017 requires major developments to be zero carbon with a minimum 35% reduction on building regulations achieved on site and 10% (residential) or 15% (non-residential) achieved through energy efficiency.</p> <p>The reduction in total site CO₂ emissions must be calculated using an energy baseline which includes both 'regulated' energy (for space and hot water heating, electricity for lighting and all other fixed items) and 'un-regulated energy' (covering the use of energy for cooking and all appliances).</p> <p>For residential developments, site specific SAP calculations should be used to estimate regulated energy consumption and CO₂ emissions. Non-regulated emissions should be estimated using accepted methodologies such as BREDEM-12 (available from the BRE). These calculations should be included with the planning application.</p> <p>For non-residential developments, SBEM should be used to estimate regulated energy consumption and CO₂ emissions, which should be included with the planning application. Non-regulated emissions should be estimated using CIBSE Guide F benchmarks (available from CIBSE and also from the commercial benchmarks contained in the LEP's Low Carbon Designer tool), or the most recent CIBSE benchmark data where available.</p> <p>The CO₂ emissions associated with the total energy consumed by a development should then be reduced following the Mayor's hierarchy. Energy savings from efficiency measures and clean supply should be calculated to produce an 'energy efficient' baseline for the site. The % savings made through the installation of renewable energy on site should then be calculated from this 'efficient' baseline, and this figure should be provided in the checklist, calculations should then be provided for any amount of carbon it has not been possible to eliminate on site and the proposed offsetting.</p>
1A Minimum policy compliance (Non-Residential and Domestic Refurbishment)	
Environmental Rating: BREEAM	<p>The BRE Environmental Assessment Method (BREEAM) is the leading and most widely used environmental assessment method for buildings. It has become the de facto measure used to describe a non-residential building's environmental performance. Follow the link below for additional information: www.breeam.com/</p>

Checklist Section	Further support / information
	<p>To gain a rating under BREEAM, various credits must be achieved in a range of credit areas, from energy performance to pollution and building management. The first step of assessment involves preparation of a preliminary assessment by an accredited and licensed BREEAM assessor, who will be able to advise on a suitable strategy to meet the desired BREEAM rating. This report should be submitted as part of the planning application. After planning permission is granted, the accredited BREEAM assessor will conduct a full Design stage assessment, which is reviewed by the BRE. Following construction, a Post-Construction assessment is conducted, after which the BRE certification body will issue a certificate confirming the BREEAM level has been attained. An optional post-occupancy certification stage is available, which will review management practices and operation of the building in comparison to the predicted rating.</p> <p>A variety of BREEAM assessments are available for assessment of new build, refurbishments, extensions and fit-outs of non-domestic buildings.</p> <p>Planning applications will be required to demonstrate achievement of the standard relevant at the time of application. These rating systems provide an authoritative rating for converted or renovated homes, and covers houses, flats and apartments. Dwellings which are created as a result of extensions, refurbishments or conversions are subject to BREEAM Domestic Refurbishment accreditation. It is only available for conversions or extensions where a significant level of change is proposed; please contact a licensed assessor to check whether or not your proposed development falls into this category.</p>
1B Minimum policy compliance (Residential)	
Water Usage	<p>Residential developments are to be designed to ensure that mains water consumption meets the target of 105 litres or less per head per day (excluding an allowance of 5 litres or less per person per day for external water consumption). Commercial developments will be expected to achieve at least BREEAM Excellent standard of water efficiency in line with policy SI5 of the London Plan. Exact requirements will depend on the applicable BREEAM version.</p>
Section 2: Energy use and pollution	
Need for cooling	<p>The Draft London Plan and supporting documents set out a cooling hierarchy which should be followed as below:</p> <ol style="list-style-type: none"> 1) minimise internal heat generation through energy efficient design 2) reduce the amount of heat entering a building through orientation, shading, albedo, fenestration, insulation and the provision of green roofs and walls 3) manage the heat within the building through exposed internal thermal mass and high ceilings 4) provide passive ventilation 5) provide mechanical ventilation 6) provide active cooling systems. <p>See Draft London Plan Policy SI4 for more details.</p>
Heat generation	<p>The Draft London Plan and supporting documents set out a heating hierarchy which should be followed as below:</p> <ol style="list-style-type: none"> a) connect to local existing or planned heat networks

Checklist Section	Further support / information
	<ul style="list-style-type: none"> b) use available local secondary heat sources (in conjunction with heat pump, if required, and a lower temperature heating system) c) generate clean heat and/or power from zero-emission sources d) use fuel cells (if using natural gas in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler) e) use low emission combined heat and power (CHP) (in areas where legal air quality limits are exceeded all development proposals must provide evidence to show that any emissions related to energy generation will be equivalent or lower than those of an ultra-low NOx gas boiler) f) use ultra-low NOx gas boilers <p>See Draft London Plan Policy SI3 Energy infrastructure for more details.</p>
Pollution: Air, Noise and Light	<p>Measures to reduce pollution during the construction process can often be simple to implement but have significant wider benefit.</p> <p>Such measures include: reducing waste during demolition and construction, thereby reducing landfill costs; ensuring air pollution monitoring is carried out; disturbing topsoil as little as possible, to maintain soil quality; protect trees and vegetation; protect waterside zones; and, use pollution prevention techniques.</p> <p>The <i>Considerate Constructors</i> 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.</p> <p>www.considerateconstructorsscheme.org.uk/</p>
Pollution: Air, Noise and Light	<p>Please also see Richmond Council's Draft Guidance Note: LBRuT (2018) Development Control for Noise Generating and Noise Sensitive Development SPD, LBRuT</p>
3. Transport	
Provision for the safe, efficient and sustainable movement of people and goods	<p>Transport For London have comprehensive travel advice for travel within Greater London, available from: http://www.tfl.gov.uk/</p>
Provision of charging points for electric cars	<p>Developments are to ensure that 1 in 5 parking spaces (both active and passive) provide an electrical charging point to encourage the uptake of electric vehicles.</p>
Provision of cycle parking	<p>Developments are to ensure that they meet the level of cycle parking provision for their type set out in the Draft London Plan Table 10.2</p>

Checklist Section	Further support / information
4. Biodiversity	
Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people	<p>Ensure there is no net loss of ecological features or habitats and aim to achieve a net gain of biodiversity features and habitats where possible. Aim to link existing and new biodiversity features and habitats into the wider green infrastructure network, and ensure that their adaptability to climate change is taken into account.</p> <p>For information, refer to the Draft London Plan and supporting documents on green walls and roofs, and the new Local Biodiversity Action Plan https://swlen.org.uk/wp-content/uploads/2019/06/LBRuT_BAP_2019-06-06_version.pdf-resized.pdf</p>
5. Flooding and drainage	
Is your site located in a high risk flood zone?	<p>A Flood Risk Assessment will be required for all developments, including extensions and conversions, in areas at risk from flooding (this also includes other sources of flooding, not just river flooding), and for sites greater than 1 hectare in low risk areas (zone 1). Please refer to LP21 Flood Risk and Sustainable Drainage. This should use the Mayor's Regional Flood Risk Appraisal, Strategic Flood Risk Assessment and Surface Water Management Plan in line with Local Plan SI12.</p> <p>The Environment Agency flood map (http://www.environment-agency.gov.uk/homeandleisure/37837.aspx) will allow you to work out the risk of flooding for the development, proximity to likely sources of flooding and includes guidance for what to do in high flood zone. The Council has also adopted a Strategic Flood Risk Assessment, which identifies areas in the borough at risk from flooding from the River Thames, its tributaries and other sources.</p>
Sustainable drainage and measures to mitigate surface water flooding risk	<p>Please see Richmond's SuDS guidance for details, this includes:</p> <ul style="list-style-type: none"> • A reduction in surface water discharge to greenfield run-off rates wherever feasible • Where greenfield run-off rates are not feasible, this will need to be demonstrated by the applicant, and in such instances, the minimum requirement is to achieve at least a 50% attenuation of the site's surface water runoff at peak times based on the levels existing prior to the development
6. Improving Resource Efficiency	
Re-use and recycling of construction materials	<p>Wrap.org includes guidance on site waste management plans.</p> <p>In most cases minimum standards for SWMPs will be provided by BREEAM assessors.</p>
Site on contaminated land	<p>Gov.uk has introductory guidance on contaminated land, specialist help should be sought in determining potential contaminations and appropriate mitigation.</p>
Composting	<p>Composting food and organic waste on site can not only reduce the amount of waste sent to landfill, and harmful greenhouse gases produced as a result, but also provides free fertilizer for garden spaces.</p> <p>More information on setting up composting is available from: http://www.recyclenow.com/</p> <p>If there is no scope for setting up composting on site, then your development may be eligible to join LBRuT's food or garden waste</p>

Checklist Section	Further support / information
	collection schemes. Please contact council for more details.
Water Conservation	Water use should be calculated in line with Part G Building Regulations. Note that depending on which version is used, the BREEAM assessment may use a different methodology to calculate l/p/d value. Waterwise has a range of resources available to help reduce this value.

Checklist Section	Further support / information
7. Design Standards and Accessibility	
<p>Ensure flexible and adaptable use of long term structures</p>	<p>Policy LP 1 Local Character and Design Quality sets that one of the criteria that will be considered when considering proposals is: 3. layout, siting and access, including making best use of land.</p> <p>Policy LP 28.B Social and Community Infrastructure sets out that proposals for new or extensions to existing social and community infrastructure will be supported where: 2. is of a high quality and inclusive design providing access for all Access for all is important including for the young, old and disabled. The appropriate level of accessibility to the public will depend on the nature of the scheme and its catchment. The types of larger facilities in multi-use buildings that will be visited regularly and by a greater number of people should be located in the borough's centres or areas of good public transport accessibility. Smaller facilities serving a more local catchment should be accessible by walking or cycling. The Council will encourage high quality and sustainable design of social infrastructure including measures to improve its actual, and perception of, accessibility. (see paragraph 8.1.7 of the Local Plan)</p> <p>Also note, Policy LP 30 Health and Wellbeing A. The Council will support development that results in a pattern of land uses and facilities that encourage: 5. Access to toilet facilities which are open to all in major developments where appropriate (linked to the Council's Community Toilet Scheme). 6. An inclusive development layout and public realm that considers the needs of all, including the older population and disabled people.</p> <p>Policy LP45 Parking Standards and Servicing sets out that 3. Car free housing developments may be appropriate in locations with high public transport accessibility, such as areas with a PTAL of 5 or 6, subject to: a. the provision of disabled parking;</p> <p>The nationally described space standard sets out internal space requirements to improve the quality of housing.</p> <p>Accessibility requirements are included within Building Regulations www.planningportal.gov.uk/buildingregulations/approveddocuments/partm/adm/admv01 for residential in Part M Volume 1: dwellings. Note the optional Building Regulation M4(2) and M4(3) cannot be applied to conversions and change of use proposals. Building Regulations Part M Volume 2 covers buildings other than dwellings.</p>

6 Planning policies

The following documents set out the planning policies relevant for the Sustainable Construction Checklist SPD:

- Richmond Local Plan (July 2018)
- London Plan Consultation Draft (December 2017), including the Draft London Plan – Consolidated Suggested Changes Version (July 2019)

As some of the policy documents are emerging and may be updated, including those produced by the Council and London-wide, this section will be updated separately to signpost other relevant guidance.

Minimum Policy Compliance

Environmental rating:

- Richmond Local Plan Policy LP 22 Sustainable Design and Construction

Carbon Dioxide emissions reduction:

- Richmond Local Plan Policy LP 22 Sustainable Design and Construction
- Draft London Plan Policy SI2 Minimising greenhouse gas emissions

1. Energy Use and Pollution

Need for Cooling:

- Richmond Local Plan LP 12 Green Infrastructure
- Richmond Local Plan LP 16 Trees, Woodlands and Landscape
- Richmond Local Plan LP 17 Green roofs and walls
- Richmond Local Plan LP 20 Climate Change Adaptation
- Draft London Plan Policy SI4 Managing heat risk

5.11 Green roofs and development site environs

Pollution: Air, Noise and Light:

- Richmond Local Plan Policy LP 15 Biodiversity
- Richmond Local Plan Policy LP 17 Green roofs and walls
- Richmond Local Plan Policy LP 8 Amenity and living conditions
- Richmond Local Plan Policy LP 10 Local Environmental Impacts, Pollution and Land Contamination.
- Richmond Local Plan LP 20 Climate Change Adaptation
- Draft London Plan Policy G5 Urban Greening

2. Transport

Provision for the safe efficient and sustainable movement of people and goods

- Richmond Local Plan Policy LP 44 Sustainable Travel Choices
- Richmond Local Plan Policy LP 45 Parking Standards and Servicing

- Draft London Plan Table 10.2
- Richmond Local Plan LP 27 Local shops and services

3. Biodiversity

- Draft London Plan Policy G5 Urban Greening
- Richmond Local Plan LP 12 Green Infrastructure
- Richmond Local Plan Policy LP 15 Biodiversity
- Richmond Local Plan Policy LP 17 Green roofs and walls

4. Flooding and Drainage

Mitigating the risks of flooding and other impacts of climate change in the borough

- Richmond Local Plan LP 21 Flood Risk and Sustainable Drainage
- Draft London Plan Policy SL12 Flood risk management
- Draft London Plan Policy SL13 Sustainable drainage

5. Improving Resource Efficiency

Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling

- Richmond Local Plan LP 22 Sustainable Design and Construction
- Richmond Local Plan LP 24 Waste Management
- Draft London Plan Policy SI 10 Aggregates
- Draft London Plan Policy SI5 Water Infrastructure

6. Design Standards and Accessibility

Ensure flexible adaptable and long-term use of structures

- Draft London Plan Policy E10 Visitor infrastructure if applicable
- Draft London Plan D4 Housing quality and standards
- Richmond Local Plan Policy LP 20 Climate change adaptation
- Richmond Local Plan Policy LP 35 Housing Mix and Standards
- Draft London Plan Policy SI4 Managing heat risk
- Draft London plan Policy DM5 Accessible housing

7 Energy Statement Guidelines for Developers

When is an Energy Statement needed?

The Council expects all schemes including 1 or more residential units, and commercial or other developments of 100m² or more to design for minimum energy use and reduce predicted site CO₂ emissions, which should be addressed in an Energy Statement. An Energy Statement should therefore be provided for all new developments that meet the relevant thresholds, and should be submitted to the Local Planning Authority with the full planning application.

What should an Energy Statement include?

The statement should provide an assessment of the predicted energy demand and carbon dioxide emissions for the site and how these have been reduced in accordance with the energy hierarchy by: 1. Using less energy, 2. Supplying energy efficiently, 3. Using renewable energy, with using less energy having the highest priority.

The following information should be included:

1. Baseline energy consumption, which should include both regulated and non-regulated³ energy use.
 - Regulated energy consumption should be calculated using the Government's Standard Assessment Procedure (SAP) for residential developments, or the Simplified Building Energy Model (SBEM) for non-residential development.
 - Non-regulated energy consumption should be calculated using the BREDEM-12 tool for residential developments. For non-residential developments, non-regulated energy should be estimated using CIBSE Guide F benchmarks or an updated version of this guidance if available.
2. Baseline carbon dioxide (CO₂) emissions, calculated using standard SAP 10 conversion factors.
 - This should be total development emissions, including both regulated and non-regulated emissions.
 - The baseline should include emissions from gas and electrical energy consumption
 - Emissions associated with water and space heating should be calculated from a gas baseline, unless an electrical baseline can be justified
 - SAP 10 conversion factors should be used in line with GLA guidance – Energy Planning
3. Reductions in energy consumption and carbon dioxide emissions resulting from energy efficiency measures. These measures should be considered before renewable

³Regulated energy consumption includes those forms of energy use covered in Building Regulations. This includes all fixed consumption inherent in the building, e.g. fixed lighting, space heating, water heating. Non-regulated energy consumptions are those energy uses not covered by Building Regulations. This includes energy consumed by 'plug-in' appliances (e.g. lamps, TVs) and cooking.

energy installations in order to reduce the expected energy consumption of the development and consequently make it as energy efficient as possible.

- Provide details of the energy efficiency measures that will be incorporated into the development.
- Where available, specific details, such as building material U values, ratings of electrical appliances, etc should be included.

4. Reductions in energy consumption and carbon dioxide emissions resulting from supplying energy efficiently.

- Illustrate in the proposal how the use of Combined Heat and Power (CHP) technology or a community / district heating scheme or centralised heating system has been explored, and if feasible the expected CO₂ emissions reductions this will deliver.
- This may not be applicable to all sites. If it is not applicable, give the reason why this consideration has been excluded.

5. Estimation of CO₂ reduction through use of renewable energy technologies⁴. This should at least meet the minimum % reduction from the efficient energy baseline required by LBRuT.

- The required % emissions reduction should be calculated as a reduction from the efficient baseline emissions level calculated in step 4 (or calculated from the baseline in step 3, if step 4 is not applicable).
- For each technology deemed to be suitable for the site, a CO₂ reduction estimate should be presented. This should include as a minimum: Proposed system size; estimated energy generation; estimated CO₂ savings; site-specific design requirements; maintenance requirements; estimated lifecycle.
- Where a technology has been ruled out, clear justification outlining the technical reasons for this should be provided
- The location of any renewable or low carbon energy technologies should be shown in design plans: e.g. proposed location of solar panels on roof; location of plant room for communal heating system etc.
- Example formats for simple tables containing the necessary energy and CO₂ offset data are given below. These may be used to summarise the information contained in your Energy Statement.

6. Estimation of the total remaining carbon emissions over 30 years which have not been eliminated on site. Expected offset payments as a result at current price set by the borough (£95/tonne at time of writing). Provision should be made to update this based on as built calculations.

7. A concluding section should be provided outlining the contribution of each set of measures, technology or combination of technologies towards meeting the relevant target and providing recommendations as to which would be more suitable for the site.

⁴ These are technologies that provide energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy and energy from heat gradients is also included.

Where it has not been possible to reach the target, a clear explanation should be provided.

Notes on presentation

An Energy Statement should present technical data while remaining easy to read and to understand. Clearly laid out tables should be used to present data for ease of reading and comparison. Site plans should be used where possible, e.g. to indicate suitable roof areas for installing solar technologies or the location of a plant room. References should be used to explain where data has been obtained from.

Example Tables

1. Summary of baseline energy demand.

This table may be amended or duplicated to show energy demand before and after the application of energy efficiency measures or renewable energy technologies.

	Total Energy Demand (kWh/yr)	Associated Total CO ₂ (kgCO ₂ /yr)
Hot water		
Space Heating		
Fixed Electrical		
Appliances/Non-regulated		
... (any other energy consumption)		
Total		
30 year total		KgCO ₂
Predicted offset cost		£

2. Summary of CO₂ emissions reductions

	Total CO ₂ emissions (kgCO ₂ /year)
Baseline emissions	
Improved emissions (after application of energy efficiency measures)	
Improved emissions (after incorporation of efficient energy supply)	
Improved emissions (after incorporation of renewable	

energy technology)	
% CO ₂ displaced in total	
% CO ₂ displaced by energy efficiency measures	
% CO ₂ displaced by efficient supply of energy	
% CO ₂ displaced by renewable energy	

8 Abbreviations

BRE	Building Research Establishment
BREEAM	Building Research Establishment Environmental Assessment Method
CIBSE	Chartered Institute of Building Services Engineers
CHP	Combined Heat and Power [generator]
GLA	Greater London Authority
HQM	Home Quality Mark
LBRuT	London Borough Richmond upon Thames
LDA	London Development Agency
PHPP	Passive House Planning Package
SAP	Standard Assessment Procedure
SBEM	Simplified Building Energy Method
SUDS	Sustainable Drainage Systems
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance