Camden Planning Guidance

Design

London Borough of Camden

CPG 1

July 2015

Camden

CPG1 Design

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this Camden Planning Guidance to support the policies in our Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. The Council adopted CPG1 Design on 6 April 2011 following statutory consultation. This document was updated in 2013 to include Section 12 on artworks, statues and memorials, and updated in 2015 to revise the guidance for recycling and waste storage. Details on these updates and the consultation process are available at camden.gov.uk/cpg.

1.2 The Camden Planning Guidance covers a range of topics (such as housing, sustainability, amenity and planning obligations) and so all of the sections should be read in conjunction, and within the context of Camden's LDF.

Design in Camden

1.3 Camden has many attractive and historic neighbourhoods as well as both traditional and modern buildings of the highest quality. These are a significant reason that the borough is such a popular place to live, work and visit. As well as conserving our rich heritage we should also contribute towards it by ensuring that we create equally high quality buildings and spaces which will be appreciated by future generations.

1.4 This objective of achieving high quality design does not just concern new development or large-scale schemes, but also includes the replacement, extension or conversion of existing buildings. The detailed guidance contained within this section therefore considers a range of design-related issues for both residential and commercial property and the spaces around them.

What does this guidance cover?

1.5 This guidance provides information on all types of detailed design issues within the borough and includes the following sections:

1. Introduction
2. Design excellence
3. Heritage
4. Extensions, alterations and conservatories
5. Roofs, terraces and balconies
6. Landscape design and trees
7. Shopfronts
8. Advertisements, signs and hoardings
9. Designing safer environments
10. Waste recyclables storage
11. Building services equipment
12. Artworks, statues and memorials

1.6 This guidance supports the following Local Development Framework policies:

Core Strategy

- CS14 Promoting high quality places and conserving our heritage
- CS15 Protecting and improving our parks and open spaces & encouraging biodiversity
- CS17 Making Camden a safer place
- CS18 Dealing with our waste and encouraging recycling

Development Policies

- DP24 Securing high quality design
- DP25 Conserving Camden's heritage
- DP27 Basements and lightwells
- DP29 Improving access
- DP30 Shopfronts

1.7 It should be noted that the guidance covered in this section only forms part of the range of considerations that you should address when proposing new development. In addition to these specific design matters you should also consider wider issues such as cycle storage, residential space standards, wheelchair housing, designing in sustainability measures and impacts on neighbours. Further guidance on these, and other issues, is contained within the Local Development Framework documents and the Camden Planning Guidance.

2 Design excellence

KEY MESSAGES

Camden is committed to excellence in design and schemes should consider:

- The context of a development and its surrounding area;
- The design of the building itself;
- The use of the building;
- The materials used; and
- Public spaces.

2.1 High quality design makes a significant contribution to the success of a development and the community in which it is located. Design of the built environment affects many things about the way we use spaces and interact with each other, comfort and enjoyment, safety and security and our sense of inclusion.

2.2 The purpose of this guidance is to promote design excellence and to outline the ways in which you can achieve high quality design within your development.

2.3 This guidance primarily relates to Core Strategy Policy CS14 Promoting high quality places and conserving our heritage and Development Policies DP24 Securing high quality design.

When does this apply?

2.4 This guidance applies equally to all development, whether new build, converted, refurbished, extended and altered development. However, the implications for a proposal will vary greatly depending on the nature of the site, the proposed use, the scale of development, its interaction with surrounding sites, and existing buildings and structures on the site.

2.5 Other sections in this Camden Planning Guidance (CPG) relate to specific types of developments and relevant design matters, for example advertisements, signs and hoardings, designing safer environments, extensions, alterations and conversions, heritage and shopfronts.

General guidance on design

2.6 Camden is committed to excellence in design. The borough contains many special and unique places, many of which are protected by conservation area status. In accordance with draft London Plan policies 7.1–7.7, Core Strategy policy CS14 requires development schemes to improve the quality of buildings, landscaping and public spaces and we will not approve design which is inappropriate to its context or fails to improve the character of an area.

2.7 We are working with our partners to promote design excellence and improve public buildings, landscaping and the street environment. We have established the Camden Design Initiative which seeks to encourage involvement, awareness and understanding of good design and this is promoted through the bi-annual Camden Design Awards which acknowledge high quality and innovative design. We are also a promoter of the national Civic Trust Awards which are awarded to buildings judged to have made a positive cultural, social or economic contribution to the local community.

2.8 In order to achieve high quality design in the borough we require applicants to consider buildings in terms of context, height, accessibility, orientation, siting, detailing and materials. These issues apply to all aspects of the development, including buildings and other structures (e.g. substations, refuse or cycle storage), outdoor spaces, landscaping and access points and should be considered at an early stage in the design of a development, as these elements are often difficult to change in later stages.

Context

2.9 Good design should:

- positively enhance the character, history, archaeology and nature of existing buildings on the site and other buildings immediately adjacent and in the surrounding area, and any strategic or local views. This is particularly important in conservation areas;
- respect, and be sensitive to, natural and physical features, both on and off the site. Features to be considered include, but are not limited to: slope and topography, vegetation, biodiversity, habitats, waterways and drainage, wind, sunlight and shade, and local pollutant sources. Movement of earth to, from and around the site should be minimised to prevent flood risk, land instability and unnecessary transport of aggregates, especially by road; and
- consider connectivity to, from, around and through the site for people using all modes of transport, including pedestrians, cyclists, wheelchair users, those with visual impairments, people with pushchairs, and motorised vehicles.

Building design

2.10 Good design should:

- ensure buildings do not significantly overshadow existing/proposed outdoor spaces (especially designated open spaces), amenity areas or existing or approved renewable energy facilities (such as solar panels). For further information, refer to CPG3 Sustainability Renewable energy (A shadowing exercise may be required for tall buildings or where they are near open spaces);
- consider the extent to which developments may overlook the windows or private garden area of another dwelling;
- consider views, both local and London wide, and particularly where the site is within a recognised strategic viewing corridor (as shown on the policy Proposals Map);
- consider the degree of openness of an area and of open spaces, including gardens including views in an out of these spaces
- contributions to the character of certain parts of the borough;
- provide visual interest for onlookers, from all aspects and distances. This will involve attention to be given to both form and detail;
- consider opportunities for overlooking of the street and, where appropriate, provide windows, doors and other ‘active’ features at ground floor; and
- incorporate external facilities such as renewable energy installations, access ramps, plant and machinery, waste storage facilities and shading devices into the design of the development. Careful consideration must be given to ensure that the facility does not harm the built environment.

Land use

2.11 The use of a building should:

- take into account the proposed use, and the needs of the expected occupants of the buildings and other users of the site and development; and
- provide clear indication of the use of the building. It is noted, however, that reuse of existing buildings, as well as the accommodation of possible future changes of use, can make this difficult.

Materials

2.12 Materials should form an integral part of the design process and should relate to the character and appearance of the area, particularly in conservation areas or within the setting of listed buildings. The durability of materials and understanding of how they will weather should be taken into consideration. The quality of a well designed building can be easily reduced by the use of poor quality or an unsympathetic palette of materials. We will encourage re-used and recycled materials, however these should be laid to ensure a suitable level accessible surface is provided. Further guidance is contained within CPG3 Sustainability (Sustainable use of materials).

Tall buildings

2.13 Tall buildings in Camden (i.e. those which are substantially taller than their neighbours and/or which significantly change the skyline) will be assessed against a range of design issues, including:

- how the building relates to its surroundings, both in terms of how the base of the building fits in with the streetscape, and how the top of a tall building affects the skyline;
- the contribution a building makes to pedestrian permeability and improved public accessibility;
- the relationship between the building and hills and views;
- the degree to which the building overshadows public spaces, especially open spaces and watercourses; and
- the historic context of the building's surroundings.

2.14 In addition to these design considerations tall buildings will be assessed against a range of other relevant policies concerning amenity, mixed use and sustainability. Reference should be made to this CPG (Heritage chapter), CPG3 Sustainability (Climate change adaptation chapter) and CPG6 Protecting and improving quality of life (Overlooking and privacy and Wind/microclimate chapters).

2.15 Where a proposal includes a development that creates a landmark or visual statement, particular care must be taken to ensure that the location is appropriate (such as a particular destination within a townscape, or a particular functional node) and that the development is sensitive to its wider context. This will be especially important where the

development is likely to impact upon heritage assets and their settings (including protected views).

2.16 Design should consider safety and access. Guidance on these issues is contained within this CPG (Designing safer environments chapter) and CPG4 Protecting and improving quality of life (Access for all chapter). Schemes over 90m should be referred to the Civil Aviation Authority.

Design of public space

2.17 The design of public spaces, and the materials used, is very important. The size, layout and materials used in the spaces around buildings will influence how people use them, and help to create spaces that are welcoming, attractive, accessible, safe and useful. They can also contribute to other objectives such as reducing the impact of climate change (e.g. the use of trees and planters to reduce run-off and provide shading), biodiversity, local food production and Sustainable Urban Drainage Systems (SUDs), and provide useful amenity space. In Conservation Areas there may be particular traditional approaches to landscaping/boundary treatments that should be respected in new designs.

2.18 The spaces around new developments should be considered at the same time as the developments themselves and hard / soft landscaping and boundary treatments should be considered as part of wider cohesive design. The landscaping and trees chapter in this CPG, and individual Conservation Area Appraisals, provide further guidance on this issue.

2.19 Public art can be a catalyst for improved environmental quality by upgrading and animating public space and enhancing local character and identity through helping create a sense of place. The Council will therefore encourage the provision of art and decorative features as an integral part of public spaces, where they are appropriate to their location and enhance the character and environment.

2.20 It is important that public spaces and streets are maintained to a high standard and so, in line with the Local Implementation Plan, the Council will continue to undertake public space enhancement works through specifically targeted programmes. The Designing safer environments chapter in this CPG provides more detailed guidance on the incorporation of safety and security considerations in public spaces.

Design and access statements

2.21 Design and Access Statements are documents that explain the design ideas and rationale behind a scheme. They should show that you have thought carefully about how everyone, including disabled people, older people and children, will be able to use the places you want to build.

2.22 Design and Access Statements should include a written description and justification of the planning application and sometimes photos, maps and drawings may be useful to further illustrate the points made. The length

and detail of a Design and Access Statement should be related to the related to the size and complexity of the scheme. A statement for a major development is likely to be much longer than one for a small scheme.

2.23 Design and Access Statements are required to accompany all planning, conservation and listed building applications, except in certain circumstances as set out on our website www.camden.gov.uk/planning. Our website also provides a template for Design and Access Statements and lists the information that each statement should contain. Further guidance on Access Statements in provided in CPG4 Protecting and improving quality of life (Access for all chapter).

Further information

General	By Design: Urban Design in the Planning System – Towards Better Practice, DETR/CABE, 2000 Design and Access Statements; how to read, write and use them, CABE, 2007
Tall Buildings	Guidance on tall buildings, English Heritage/CABE, 2007
Historic Environment	Understanding Place: conservation areas designation, appraisal and management (2011) Building in Context, English Heritage/CABE, 2002. Seeing History in the View (2011) Good Practice Advice 3- Settings and Views (2015)
Other	Royal Institute of Chartered Surveyors (RICS); and Royal Institute of British Architects (RIBA).

6 Landscape design and trees

KEY MESSAGES

- Camden's trees and green spaces are integral to its character.
- Landscape design and green infrastructure should be fully integrated into the design of schemes from the outset.
- We require a survey of existing trees and vegetation to be carried out prior to the design of a scheme.

6.1 This guidance sets out how to protect trees and vegetation and design high quality landscapes in conjunction with development proposals to ensure an attractive, safe, accessible, sustainable and ecologically diverse environment.

6.2 This chapter sets out:

- how existing trees and landscape should be protected;
- what specific protection is given to some trees;
- how new landscaping should be incorporated into developments; and
- considerations for specific landscaped areas and types of landscaping.

6.3 The green landscape of the Borough is formed by parks and open spaces, railway and canal corridors, trees, gardens, green walls and roofs. These landscape components provide Camden's green infrastructure and play a key role in maintaining the local climate, reducing storm water run off, increasing biodiversity, providing space for urban food production and providing public enjoyment.

6.4 We expect landscape design and the provision of green infrastructure to be fully integrated into the design of development proposals from the beginning of the design process.

6.5 This section sets out further guidance on how we will apply Core Strategy Policy CS14 Promoting high quality places and conserving our heritage and Development Policy DP24 Securing high quality design.

Where does this guidance apply?

6.6 This guidance applies to all proposals affecting or including landscape design on and around buildings and proposals relating to on and off site trees.

How should existing Trees and Landscape be protected?

Benefits of retaining vegetation and trees

6.7 Vegetation of all types is at a premium in Camden given the Borough's dense urban environment. Camden's tree canopy and other existing vegetation are integral to its character. If you maintain existing trees and

vegetation on a development site it will help provide a sense of maturity to a development and integrate a development into its setting. Existing trees and vegetation are a key component in adapting to climate change and conserving biodiversity. See CPG3 Sustainability chapters on Climate change adaptation and Biodiversity. Existing species can serve as an indicator of what might be successfully grown on the site when selecting additional plants. The retention of existing mature trees and vegetation also make an important contribution to the sustainability of a project. For example by reducing the impacts and energy demand associated with the provision of new plants such as in their transportation and the irrigation required.

How should existing trees and vegetation be protected?

6.8 We will require a survey of existing trees and vegetation to be carried out prior to the design of a scheme in order to identify what trees and vegetation should be retained and protected on site. We will expect developers to follow the principles and practices set out in BS 5837: 2005 Trees in relation to construction to integrate existing trees into new developments.

6.9 BS5837: 2005 Trees in relation to construction outlines the survey method for identifying which trees should be retained and protected. Once the survey has identified the important trees and vegetation a Tree Constraints Plan (TCP) needs to be prepared for the site. The TCP is essential to site planning as it provides the limitations for development including:

- site layout and building lines;
- changes in levels;
- foundation design; and

- service provision where the root zones and crown spread of trees are to be protected.

NEW UTILITIES

Useful guidance for the installation of new utilities in the vicinity of trees is also provided in National Joint Utilities Group (NJUG) Vol 4 - Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

6.10 The TCP should also identify the provision of sufficient space, above and below ground for new planting to develop and mature and existing trees to continue to grow (see paragraph 6.42 below regarding soft landscape design).

6.11 Where trees are identified to be retained it is imperative that contracting and site supervision procedures are in place to ensure that there is no damage during and after construction. We will normally seek a Method Statement which sets out how trees that are to be retained, both on and adjacent to the site will be protected. The Method Statement should identify how the provision of site accommodation, storage areas, site access and the positioning, heights and arcs of cranes will not affect the trees and vegetation that are to be protected.

Root zone

The area and volume of soil around the tree in which roots are found. May extend to three or more times the branch spread of the tree, or several times the height of the tree.

Crown spread

The extent of the branches, twigs and leaves that form the top of the tree

Specific protection for trees

6.12 Where a planning application involves works that affect trees either within the application site or on adjacent land (including street trees) we will require the following information to determine the application:

1. A Tree Survey
   (see section 4.2 of BS5837:2005)
2. A Tree Constraints Plan
   (see sections 5.2 and 5.3 of BS5837:2005)
3. An Arboricultural Implications Assessment
   (see section 6 of BS5837:2005)
4. An Arboricultural Method Statement for the protection of trees to be retained including a Tree Protection Plan
   (see section 7 of BS5837:2005)

6.13 Failure to supply the documents outlined above may lead to a planning application not being validated.

6.14 To obtain a copy of BS5837:2005 please visit www.StandardsUK.com and for a list of arboricultural consultants visit www.trees.org.uk, www.charteredforesters.org and www.consultingarboristssociety.co.uk.

Tree preservation orders

6.15 Many trees in Camden are covered by a Tree Preservation Order (TPO). Please contact the Council to find out if a tree is protected by a TPO.

TREE PRESERVATION ORDER

A tree preservation order is made by the Council to legally protect specific trees or groups of trees that provide public amenity.

Unauthorised works to a tree with a TPO is a criminal offence and may result in prosecution and, upon conviction, a fine.

6.16 Works (above or below ground) to trees with a TPO require our permission. Application forms for these works are available at www.camden.gov.uk.

6.17 Works to a tree with a TPO required to enable the implementation of a planning permission are dealt with as part of a planning application. A further TPO application is not required.

Trees in Conservation Areas

SECTION 211

Under Section 211 of the Town & Country Planning Act 1990, anyone proposing to cut down or carry out work on a tree in a Conservation Area must provide the Council 6 weeks notice of their intention to do so.

6.18 All trees in Conservation Areas with a trunk diameter of 75mm or greater measured at 1.5m above ground level are protected under section 211 of the Town and Country Planning Act 1990 (as amended). If you are proposing works to a tree in a Conservation Area, above or below ground, you are required to give Camden Planning Services six weeks notice of your proposals (See above link for forms). Works to a tree in a Conservation Area required to facilitate the implementation of a planning permission are dealt with as part of a planning application. A further section 211 Notification is not required. If you carry out unauthorised works to a tree in a Conservation Area is a criminal offence and may result in prosecution and, upon conviction, a fine.

How should new landscaping be included into a development?

General principles

6.19 Urban landscape design encompasses the following types of spaces:

- streets and associated public spaces,
- parks, public and private squares, gardens,
- amenity and servicing space around buildings; and

- buildings themselves.

6.20 The principle components of landscape design are soft landscape details (planting) and hard landscape details (the constructed aspects of design) for example surfaces, lighting, seating, water features and boundary treatments.

6.21 Urban spaces have particular character which results from a combination of factors including geology, ecology, topography and the history of their development and use. We will expect new landscape design to respond to, preserve and enhance local character, including through the:

- preservation of existing trees and hedges;
- planting of new trees and hedges; and
- detailed design of boundary treatments and spaces within the site particularly where they are visible to the public domain.

6.22 Planning applications will be assessed against

- the successful resolution of the above elements into the design of the site
- whether the site design has optimised opportunities to increase a site's sustainability and function in adapting to climate change (see CPG3 Sustainability for further details on Biodiversity and Climate change adaptation)
- the need to reduce opportunities for criminal behaviour (see the chapter in this guidance on Designing safer environments)
- the need to provide inclusive environments (see CPG6)

Specific areas that are landscaped and contain trees

6.23 Areas within a development site that are generally landscaped include:

- gardens;
- access and servicing routes;
- parking spaces and cycle stores;
- boundary walls, fences and railings; and

- building roofs and walls.

Gardens

6.24 Front, side and rear gardens make an important contribution to the townscape of the Borough and contribute to the distinctive character and appearance of individual buildings and their surroundings. Gardens are particularly prone to development pressure in the Borough with their loss resulting in the erosion of local character and amenity, biodiversity and their function in reducing local storm water run off.

Front Gardens

6.25 The design of front gardens and forecourt parking areas make a large impact on the character and attractiveness of and area and in particular the streetscene. The design of front gardens and other similar forecourt spaces should:

- consider a balance between hard and soft landscaping. Where changes take place no more than 50% of the frontage area should become hard landscape. Where parking areas form part of the forecourt enough of the front boundary enclosure should be retained to retain the spatial definition of the forecourt to the street and provide screening;
- retain trees and vegetation which contribute to the character of the site and surrounding area;
- retain or re-introduce original surface materials and boundary features, especially in Conservation Areas such as walls, railings and hedges where they have been removed. If new materials are too be introduced they should be complementary to the setting; and
- prevent the excavation of lightwells as a means of providing access to basements where this does not form past of the historical means of access to these areas.

Paving of front gardens

CHANGES TO PERMITTED DEVELOPMENT

The General Permitted Development Order no longer allows the creation of more than 5 square meters of impermeable surfaces at the front of dwelling houses that would allow uncontrolled runoff of rainwater from front gardens onto roads without first obtaining planning permission.

Changes to frontages incorporating hard standings may also be affected by Article 4 Directions. Article 4 Directions are issued by the Council in circumstances where specific control over development is required, primarily where the character of an area of acknowledged importance would be threatened, such as conservation areas

6.26 Planning Permission will not be granted for hard standings greater than five square metres that do not incorporate sustainable urban drainage systems (SUDS) into the design. SUDS incorporate permeable surfaces to allow water to soak into the subsoil, rather than being diverted into the stormwater system. SUDS are particularly appropriate in the parts of the borough north of Euston Road as this area has predominantly clay soils. Methods for choosing the appropriate design of a SUDS are provided in "Responsible rainwater management around the home" available from www.paving.org.uk. Planning applications which incorporate car parking areas into developments will be required to demonstrate that the chosen solution is appropriate to the underlying soil type.

Creating a cross over

6.27 For single family dwellings planning permission is not required for the creation of a cross over unless the property is affected by an Article 4 Direction or the cross over is to a classified road. However permission is required for the formation of a cross over from the Highways Authority. The Highways Authority will generally refuse permission where it would result in the loss of on street car parking spaces.

6.28 Planning permission is required for forecourt parking at the fronted of buildings divided into flats. Listed Building Consent is required to alterations to structures affecting listed buildings including structures within their curtilage.

Listed building consent

Legally required in order to carry out any works to a Listed Building which will affect its special value. This is necessary for any major works, but may also be necessary for minor alterations and even repairs and maintenance. Listed Building Consent may also be necessary for a change of use of the property.

Rear Gardens

6.29 Rear gardens are important as they:

- form part of the semi public domain where they are over looked by large numbers of properties and the occupants of surrounding buildings benefit from the outlook.

- form the character of an area in terms of the relationship between buildings and spaces and the resulting openness or sense of enclosure
- provide a sense of the greenery where they can be viewed through gaps between buildings
- provide a sense of visual separation and privacy
- soften the impact of buildings and integrate them into their setting
- play a significant role in maintaining the biodiversity of the borough (see CPG3 Sustainability for further details on Biodiversity). In particular groups of trees and vegetation along the rear boundaries of garden provide important wild life corridors within existing development patterns.

6.30 The potential detrimental affects of new structures in gardens can be reduced by:

- carefully siting structures away from vegetation and trees,
- designing foundation to minimises damage to the root protection zones of adjacent trees,
- including green roofs, green walls on new development and vegetation screens.

Root protection zone

The area around the base or roots of the tree that needs to be protected from development and compaction during construction to ensure the survival of the tree.

6.31 Planning permission is unlikely to be granted for development whether in the form of extensions, conservatories, garden studios, basements or new development which significantly erode the character of existing garden spaces and their function in providing wildlife habitat (See the chapters on Extensions, Alterations and Conservatories in this guidance document, and CPG4 on Basements).

Access and servicing areas

6.32 Where underground parking and/or servicing forms part of a larger development, access should be integral to the design of the development. Entrances and ramps should be discrete.

6.33 Entrances and adjoining areas of buildings are often spaces which require the integration of a number of competing needs such as the provision of bins, cycle storage, meters and inspection boxes and external lighting. These elements should be constructed with materials sympathetic to the site and surroundings. You can minimise the visual impact of storage areas by careful siting and incorporating planters to screen developments and incorporating green roofs as part of their structure.

6.34 Space and location requirements for the storage of waste and recycling can be found in this guidance in chapter on Waste and recycling

storage. Further guidance on how access to site and parking areas should be designed can be found in CPG6 Transport.

Boundary Walls, Fences and Railings

6.35 Boundary walls, fences and railings form the built elements of boundary treatments. They should be considered together with the potential for elements of soft landscaping. For example, we encourage the combination of low brick boundary walls and hedges as a boundary treatment. Boundary treatments should:

- delineate public and private areas;
- contribute to qualities of continuity and enclosure within the street scene; and
- provide site security and privacy.

6.36 Due to the prominence of the boundary treatments in the streetscene we will expect the design, detailing and materials used to provide a strong positive contribution to the character and distinctiveness of the area and integrate the site into the streetscene.

6.37 With regards to boundary walls, fences and railings, we will expect that:

- you consider repairing boundary walls, fences and railings before they are replaced;
- they make a positive contribution to the appearance and character of the development site and to the streetscene;
- you consider designs to be effective for their function.
- the design and construction does not damage any on site or off site trees that are identified for retention (See paragraphs 6.15 to 6.18 above).

6.38 For boundary treatments around listed buildings or in a conservation area we will expect:

- the elements are repaired or replaced to replicate the original design and detailing and comprise the same materials as the original features
- the works preserve and enhance the existing qualities and context of the site and surrounding area

6.39 Planning Permission is not required for the erection of a boundary treatment no higher than 1m where it abuts the highway or 2m on any other boundary. These heights are measured from ground level and include any structure that may be attached for example a trellis attached to the top of boundary wall.

6.40 Listed Building consent may be required for any works to boundary treatments within the curtilage of a listed building.

Types of landscaping

6.41 Landscaping are divided into the following broad types:

- soft landscaping (planting);
- hard landscaping; and
- landscaping on building.

Soft Landscape Details (Planting)

6.42 Soft Landscape is a term to describe the organic, vegetative or natural elements of Landscape Design. There are three main objectives in planting design (1) Functional (2) Ecological and (3) Aesthetic. Each of these objectives is likely to be inter related however one may be prioritised over another for the purpose of a particular project.

6.43 Functional objectives include:

- integrating a site with its surroundings;
- providing spatial definition and enclosure;
- directing pedestrian and vehicular movement;
- providing shelter,
- providing micro climatic amelioration and
- providing SUDS.

Ecological Objectives include:

- maintaining and enhancing natural processes; and
- increasing the biodiversity value of a site.

Aesthetic Objectives include:

- creating or contributing to the character of a place; and
- adding to people's sensory enjoyment in the use of a space.

Crown canopy

The uppermost layer in a forest or group of trees.

6.44 Landscaping schemes need to maintain and plant large canopy trees as a means of countering the negative effects of increasing urban temperatures due to climate change. Existing large canopy trees are part of the character of several areas in the Borough. In these areas in particular and other areas where the opportunity arises space should be made for the growth and development of large canopy trees. Large canopy trees are usually considered to be trees which reach a mature height of 15-20m+. Site design should make provision for the expansion of the crown canopy of these trees and sufficient soil volume to support a trees growth to maturity. As a general rule the soil volume required to support a healthy large canopy tree is 6m x 6m x 1m depth. The detailed requirements for the growth and development of large canopy urban trees can be found in “Up by the Roots” by James Urban (International Society for Arboriculture, 2008).

6.45 The long term success of planting schemes will determine species selection suitable for local growing conditions (soil conditions, temperature ranges, rainfall, sun light and shade) and provision for on

going maintenance. Generally native species are considered to be most adapted to local conditions however there are a range of exotic plants which are at least equally adaptable to the unique ecology of urban areas and which provide an important contribution to a site's biodiversity.

6.46 Maintenance requirements should be considered at the design stage in terms of ensuring there is access for maintenance, whether maintenance materials need to be stored on site and that there are available sources of water. Water conservation should be intrinsic to the design of a planting scheme whether it is by selecting drought tolerant plants, maintaining soil conditions conducive to water retention with, for example, mulching or providing for on site water harvesting and grey water recycling.

6.47 Planning applications will be assessed against the degree to which planting schemes meet their objectives and that the chosen objectives are appropriate for the site. Planning applications should be accompanied by:

1. a statement of the design objectives of planting plans;
2. planting plans indicating species, planting patterns, planting size and density; and
3. where appropriate managements plans.

Hard Landscape Details

6.48 Hard landscape is a term used to describe the hard materials used in landscape design such as paving, seating, water features, lighting, fences, walls and railings (see paragraphs 6.35 to 6.38 above for guidance on boundary walls, fences and railings and the chapter on Design excellence regarding the design of public space).

6.49 Hard landscape makes a significant contribution to the character of the Borough. The scale, type, pattern and mix of materials help define different uses and effects the perception of the surrounding buildings and soft landscape and overall quality of an area. To help integrate the development with its surroundings and contribute to the sustainability of the project we will expect:

- the selection of materials, patterning and methods of workmanship to consider those already at use in the area;
- traditional and natural materials to be used, especially in Conservation Areas (Guidance can be found in Conservation Area Statements, Appraisals and Management Plans);
- the use of salvaged and re used materials, where appropriate; and
- all paving to be level and accessible where used by pedestrians, this needs careful consideration where the use of historic materials is proposed.

6.50 The Council will discourage the replacement of soft landscaping with hard landscaping in order to preserve the environmental benefits of vegetation identified above. However where hard landscape is

unavoidable we will seek sustainable drainage solution to any drainage (see CPG3 Sustainability chapter on Flooding).

Lighting

6.51 Lighting can make an important contribution to the attractiveness of an area. It is also important for the security and safety of an area. The design and siting of columns and lights can provide a significant role in the creation of the character of a place. Other lighting techniques include wall mounting, bollards with integral lights and ground level up lighters. While adequate lighting is required, the intensity of lighting should be appropriate to its function. Care should be taken not to over light which can lead to unnecessary light pollution and energy consumption and in some cases become a nuisance to neighbouring residential properties. Lightning can also become a disturbance to local wildlife, particularly bats, and can affect the wildlife that uses and lives on the canal.

Landscaping on buildings

6.52 Landscaping on buildings includes both soft and hard landscaping and occurs in the forms of green and brown roofs and green walls. Green roofs, brown roofs and green walls can provide important landscape detail, biodiversity improvements, prevent local flooding and keep a building insulated. See CPG3 Sustainability (Green roofs and walls chapter).

Camden Planning Guidance

Housing

CPG 2

London Borough of Camden

July 2015

Camden

CPG2 Housing

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this Camden Planning Guidance (CPG) to support the policies in our Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. The Council formally adopted CPG2 Housing on 6 April 2011 following statutory consultation. The Camden Planning Guidance documents (CPG1 to CPG8) replace Camden Planning Guidance 2006.

1.2 This document (CPG2 Housing) has been subject to two updates:

- 4 September 2013 following statutory consultation in November to December 2012, and
- 17 July 2015 following statutory consultation in March to April 2015.

Details on these updates and the consultation process are available at camden.gov.uk/cpg.

1.3 The Camden Planning Guidance covers a range of topics (such as design, sustainability, amenity and planning obligations) and so all of the sections should be read in conjunction, and within the context of Camden's LDF.

Housing in Camden

1.4 A key priority for the Council is to ensure that everyone has the opportunity to live in a decent home at a price they can afford in a community where they want to live. Camden is a very popular place to live, which means that average house prices are high and that the demand for affordable housing far outstrips supply.

1.5 The Local Development Framework seeks to make full use of Camden's capacity for housing to establish a plentiful supply and broad range of homes. In addition to meeting or exceeding Camden's housing targets, the Local Development Framework seeks to ensure that new homes are built to a high standard and provide well-designed accommodation that meets the needs of a range of occupiers.

What does this guidance cover?

1.6 This guidance provides information on all types of housing development within the borough. It provides specific guidance on:

- Affordable housing
- Student housing
- Residential Space standards
- Lifetime homes and wheelchair housing
- Development involving net loss of homes

1.7 It highlights the Council's requirements and guidelines which support the Local Development Framework policies:

- CS1 – Distribution of growth
- CS5 – Managing the impact of growth and development
- CS6 – Providing quality homes
- CS14 – Promoting high quality places and conserving our heritage
- DP1 – Mixed use development
- DP2 – Making full use of Camden's capacity for housing
- DP3 – Contributions to the supply of affordable housing
- DP4 – Minimising the loss of affordable housing
- DP5 – Homes of different sizes
- DP6 – Lifetime homes and wheelchair housing
- DP7 – Sheltered housing and care homes for older people
- DP8 – Accommodation for homeless people and vulnerable people
- DP9 – Student housing, bedsits and other housing with shared facilities
- DP26 – Managing the impact of development on occupiers and neighbours

4 Residential development standards

KEY MESSAGE

Development should provide high quality housing that provides secure, well-lit accommodation that has well-designed layouts and rooms.

4.1 This guidance relates to Camden Core Strategy policies CS5 – *Managing the impact of growth and development*, CS6 – *Providing quality homes* and CS14 – *Promoting high quality places and conserving our heritage* plus Camden Development Policy DP26 – *Managing the impact of developers on occupiers and neighbours*. In addition, homes of all tenures should meet lifetime homes standards in accordance with Development Policy DP6 and the CPG on Lifetime homes and wheelchair housing.

TENURE

Describes the ownership of a home and the relationship between a household and their home i.e. owner-occupied, shared ownership, private rented, social rented, etc.

4.2 The '**Access for all**' section in CPG6 **Amenity** sets out the Council's approach to providing buildings and spaces that are accessible to everyone. Reference should also be made to the **Design Excellence** section of CPG1 **Design** and to other sections of CPG2 **Housing**.

4.3 The space standards in this guide are minimum requirements and should not be taken as maxima. Housing which exceeds the minimum standards will always be encouraged.

4.4 This guidance applies to planning applications involving the provision of residential accommodation and residential conversions, extensions and change of use. In cases involving residential conversions of listed buildings a sensitive and imaginative approach to achieving these standards may need to be taken.

MAYOR'S HOUSING SPG

The Mayor has prepared a draft replacement housing SPG. The Mayor's draft SPG supports the emerging replacement London Plan, which makes provision for residential standards to be applied across all tenures of development. Both the draft replacement London Plan and the draft replacement Housing SPG are expected to be adopted in autumn 2011.

In addition, we anticipate that housing with public subsidy in London will have to comply with the Mayor's London Housing Design Guide from April 2011 (published in interim form in August 2010). The Mayor is seeking to adopt the London Housing Design Guide standards for all housing tenures in London through the London Plan.

4.5 Camden's Core Strategy indicates that we will seek a range of self-contained homes to meet identified dwelling size priorities. These

priorities are set out in detail in our Development Policies document – see particularly policy DP5 and paragraph 5.4.

Guidance on residential development standards

General principles

4.6 All residential developments in the Borough are required to be designed and built to create high quality homes:

- All newly created dwellings for households of 2 or more people should be self-contained (applies to homes in Use Class C3, but does not apply to care homes for elderly or vulnerable people, student housing, bedsits, or other Houses in Multiple Occupation (HMOs)).
- Each dwelling should have its own secure private entrance which leads either directly from the street or off a common entrance hall – the number of entrances off one corridor should be limited.

SELF-CONTAINED

Accommodation with its own kitchen, bathroom and toilet for the sole use of occupants behind a separate front door.

HOUSES IN MULTIPLE OCCUPATION (HMO)

HMOs are flats or houses permanently occupied by more than one household, where each household does not have exclusive access to all cooking, washing and toilet facilities behind a locked front door.

Layout

4.7 There should usually be a permanent partition between eating and sleeping areas. Kitchens and living rooms that are permanently separated are preferable. However, combined kitchen and living areas are considered acceptable as long as the floor area is sufficient to allow for the greater range of activities that will take place in them.

Rooms

- All rooms should be able to function for the purpose for the purpose for which they are intended.
- They should have an adequate size, shape, door arrangement, height, insulation for noise and vibration and natural lighting and ventilation.
- They should lead off a hallway or lobby so that it is possible to access any habitable room without passing through another habitable room, although Building Regulations Part B - Fire Safety allow inner rooms provided they meet certain criteria.

HABITABLE ROOM

A room that is capable of being used as primary living space. Generally consists of living rooms, dining rooms, large kitchen/diners and large bedrooms

Flexible construction/layout

4.8 In addition, wherever practical dwellings should be designed to enable greater flexibly in construction design so that they can be capable of some form of extension or adaptation in order to accommodate changing lifestyles and family needs or other social use.

4.9 For example design features that could be considered, include:

- open plan layouts or generic layouts/floor plans;
- avoiding load bearing internal walls;
- easily accessible services and utilities e.g. a central accessible core or accessible floor/ceiling cavity.
- For further examples see: By design urban design in the planning system: towards better practice: www.communities.gov.uk/publications/planningandbuilding/bydesignurban by DETR (2000) (accessed April 2011).

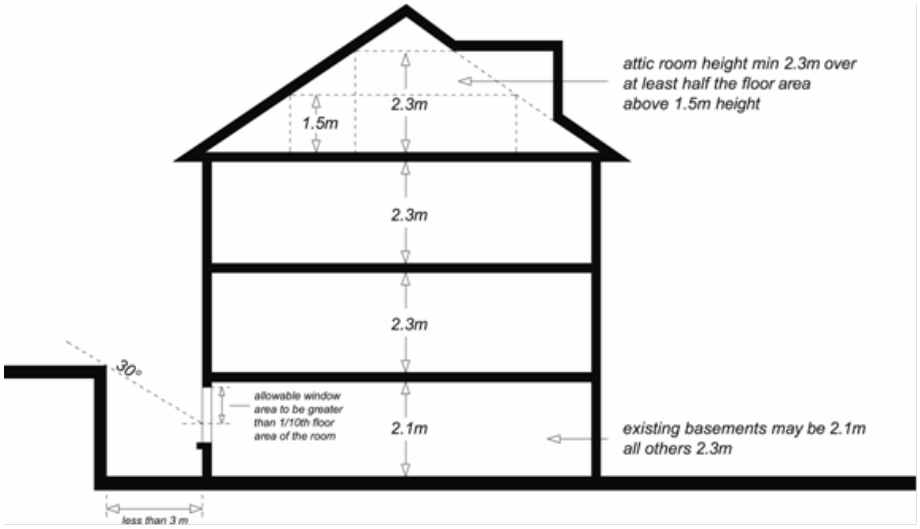
Internal space standards

Ceiling heights

4.10 All habitable rooms should have minimum headroom of 2.3 metres. The exceptions are habitable rooms in existing basements, which may have 2.1 metres headroom, and habitable rooms in attics which should have a minimum room height of 2.3 metres over at least half of the floor area (not including any floor space where the ceiling height is less than 1.5 metres). See Figure 9.

4.11 Any floor area where the ceiling height is less than 1.5 metres will not count towards the habitable floorspace. We will also consider the suitability of floor to ceiling heights in relation to context of building and how size or windows and floor to ceiling heights impact design. Please also refer to CPG1 **Design** (see particularly the sections on '**Design Excellence**' and '**Roofs, terraces and balconies**') and CPG4 **Basements**.

Figure 9. Ceiling heights and natural light for basements



Space and room sizes

4.12 Although planning cannot control the precise internal layout of individual proposals, it is important to ensure that dwellings are capable of providing a suitable layout and adequate room sizes that reflect the use and type of accommodation. The Council will be flexible in the application of these guidelines in order to respond to site-specific circumstances.

4.13 The Council has set minimum space standards to ensure rooms are large enough to take on varying uses. Space standards relate to the occupancy of a home rather than number of bedrooms and the developer will be required to state the number of occupants each dwelling has been designed to accommodate. The occupancy of housing at the time of its first occupation is not a reliable prediction of future levels of occupancy over the lifetime of a home. The only sensible assessment of occupancy is therefore the designed level of occupancy.

4.14 The overall internal floorspace in new self-contained dwellings (excluding communal lobbies and staircases) should normally meet or exceed the minimum standards set out in the following table.

Number of Persons	1	2	3	4	5	6
Minimum floorspace (sq m)	32	48	61	75	84	93

4.15 For dwellings designed for more than 6 people, allow approximately 10sq m. per extra person. In order to successfully to provide ease of movement and storage space for wheelchair users, the council will normally wheelchair housing dwellings to exceed the minimum floorspace standards. Please also refer to the section on ‘Lifetime homes and wheelchair housing’ in this CPG document.

4.16 The Council will expect bedrooms to meet or exceed the following minimum sizes:

- First and double bedrooms - 11.0 sq m
- Single bedrooms - 6.5 sq m

4.17 The Council's Private Sector Housing Team has produced specific minimum standards for Houses in Multiple Occupation (HMO's) and hostels which includes guidance on room sizes and facilities. Schemes for bedsits, shared houses and flats and hostels should be prepared with reference to these standards. These can be viewed on Camden's website www.camden.gov.uk/housing (see Private Sector Housing/ Private Housing Standards pages).

4.18 Self-contained homes providing a floorspace below the minimum standards may be considered in exceptional circumstances, for example to reduce the cost of Intermediate Housing to the occupier, however their acceptability will depend on other aspects of the development proposed. Sympathetic consideration may be given where a proposal meets a number of the criteria below:

- Dwellings are targeted at, and affordable to, groups identified by the Borough as being in need.
- External amenity space is provided
- A limited number of dwellings are accessed from each entry point and corridor (ideally 8 or fewer, unless controlled by a concierge or a CCTV system allowing clear facial identification).
- Security controlled access is provided where a larger number of units are accessed from one point.
- Where cluster flats are provided in response to a demonstrable demand (i.e. there are good indications that properties will not be hard to let to the targeted tenants), a limited number of flats are clustered into each dwelling (ideally 8 or fewer) (cluster flats are bedsits with a communal kitchen/eating area).
- A laundrette or communal laundry is provided (sufficient to cater for forecast resident demand at periods of peak usage) where individual dwellings cannot accommodate a washing machine - subject to keeping service and management charges at an acceptable level. The Council will take into account any existing commercial laundrettes that would be convenient for residents.

Storage and utility spaces

4.19 All accommodation should have sufficient internal storage space to meet the likely needs and requirements of potential occupiers. Dwelling layouts should make suitable provision:

- for washing machines and drying clothes;
- a storage cupboard with a minimum floor area of 0.8 sq m should be provided for 1- and 2-person dwellings;
- for each additional occupant, a minimum of 0.15 sq m storage area should be provided;

- storage for bicycles and prams should also be provided, located at the ground or lowest level of the dwelling, preferably accessed from a hall or lobby area;
- for waste and recycling bins, reference should also be made to the section '**Waste and Recycling Storage**' in CPG1 **Design**.

Daylight, sunlight and privacy

4.20 Residential developments should maximise sunlight and daylight, both within the new development and to neighbouring properties whilst minimising overshadowing or blocking of light to adjoining properties. Maximising sunlight and daylight also helps to make a building energy efficient by reducing the need for electric light and meeting some of the heating requirements through solar gain. The orientation of buildings can maximise passive solar gain to keep buildings warm in winter and cool in summer.

PASSIVE SOLAR GAIN

Design to optimise the amount of the suns energy that heats and lights a building naturally.

4.21 All habitable rooms should have access to natural daylight. Windows in rooms should be designed to take advantage of natural sunlight, safety and security, visual interest and ventilation. Developments should meet site layout requirements set out in the Building Research Establishment (BRE) Site Layout for Daylight and Sunlight – A Guide to Good Practice (1991).

4.22 Overall the internal layout design should seek to ensure the main living room and other frequently used rooms are on the south side and rooms that benefit less from sunlight (bathrooms, utility rooms) on the north side. Kitchens are better positioned on the north side to avoid excessive heat gain.

Minimum requirements:

4.23 In particular the following minimum requirements need to be met to avoid the unacceptable loss of daylight and/or sunlight resulting from a development, including new build, extensions and conversions. For example:

- Each dwelling in a development should have at least one habitable room with a window facing within 30 degrees of south in order to make the most of solar gain through passive solar energy;
- Rooms on south facing walls should always have windows, south facing windows and walls should be designed, sized and/or shaded in summer to prevent overheating. Appropriate shading might be achieved by:
  - mature deciduous trees located so as to shade the structure
  - eaves or overhangs that protect from sun that is high in the sky only

  - external shutters or blinds that can be operated by the occupant;
- External shading should be provided for western facing windows and outdoor spaces to minimise overheating in summer. Deciduous trees provide the best shade for this purpose;
- Windows on north facing walls should be sized to prevent heat loss but allow sufficient daylight;
- All habitable rooms, including basements, must have an external window with an area of at least 1/10 of the floor area of the room;
- An area of 1/20 of the floor area of the room must be able to be opened to provide natural ventilation;
- Windows to atriums will be acceptable as external windows in exceptional circumstances only;
- Passive ventilation should be favoured where possible and mechanically assisted ventilation should be silent in operation.

4.24 For further guidance reference should be made to 'The Code for Sustainable Homes' which provides technical guidance on designing for adequate internal daylighting and requires daylight levels to be calculated using the BRE assessment method. Reference should also be made to CPG3 **Sustainability**.

Privacy and security

4.25 House and flat developments should be arranged to safeguard the amenity and privacy of occupiers and neighbours.

- New development, extensions, alterations and conversions should not subject neighbours to unacceptable noise disturbance, overlooking or loss of security.
- Developments should seek to improve community safety and crime prevention. This may include:
  - designing developments so that open spaces are overlooked by windows, avoiding dark secluded areas and buildings face onto streets.
  - obtaining Secured by Design certification – please refer to the '**Designing safer environments**' section of CPG1 **Design**.

Basements

4.26 All rooms within a basement should be able to function for the purpose of which they are intended. They should have an adequate size, shape, door arrangement, and height, insulation from noise and vibration, and access to natural lighting, ventilation and privacy (similar to the standards set out above). Four key considerations are set out here.

- Natural light - to ensure that adequate natural light is provided to habitable rooms, walls or structures (including the sides of lightwells) should not obstruct windows by being closer than 3 metres. Where

this is not achievable, a sufficient proportion of the glazing should be above the point on the window(s) from which a line can be drawn at 30° above the horizontal to pass the top of obstruction. The glazed area above the point should total not less than 10% of the floor area of the room. See Figure 9.

- Forecourt parking – nearby vehicles can also restrict light to basements, and consideration should be given to any further obstruction from vehicles parked on the forecourt that may present a barrier to light serving basement windows.
- Means of escape - basements should be provided with either a door or suitably sized window allowing access to a place of safety that gives access to the external ground level, or with a protected escape route within the building leading to a final exit at ground level.
- Lightwells - stairs, ladders and gates in any railings around a lightwell that are required for means of escape should be designed to be as discreet as possible and should have regard to the character of the building and surrounding area.

4.27 Further detailed guidance on basements is contained within CPG4 **Basements**.

Noise and soundproofing

4.28 The layout and placement of rooms within the building should be carefully considered at an early stage in the design process to limit the impact of external noise on bedrooms and living rooms. The impact of noise should also be considered in the placement of private external spaces. Detailed guidance is provided in the '**Noise and vibration**' section of CPG6 **Amenity** and . The following requirements must be met.

- Internal layouts of dwellings should be designed to reduce the problem of noise disturbance between adjoining properties by using 'vertical stacking', i.e. placing living room above living room and bedrooms above bedrooms etc.
- Bedrooms should not be placed above, below or next to potentially noisy rooms, circulation areas of adjacent dwellings or noisy equipment, such as lifts.
- Windows should be located away from busy roads and railway lines/tracks to minimise noise and pollution and vibration.
- The layout of adjacent dwellings and the location of lifts, plant rooms and circulation spaces should seek to limit the transmission of noise to sound sensitive rooms within dwellings.
- Party walls and floors of flats created by conversion must be adequately soundproofed.
- All housing should be built with acoustic insulation and tested to current Building Regulations standards, but acoustic insulation should not be relied upon as the only means of limiting noise.

- Minimum levels of soundproofing are set out in the Building Regulations Part E - Resistance to the passage of sound. Levels of sound insulation above the minimum are encouraged.
- Further advice is given in the London Plan SPG on Sustainable Design and Construction

Outdoor amenity space

4.29 Outdoor residential amenity space can be provided in the form of private garden space, balconies, terraces, roof gardens or as communal amenity space. Where practical the following requirements should be met.

Private outdoor amenity space:

- All new dwellings should provide access to some form of private outdoor amenity space, e.g. balconies, roof terraces or communal gardens.
- Private gardens should be allocated to family dwellings.
- Where provided, gardens should receive adequate daylight, even in the winter.
- The access to private amenity space should be level and should be from the main living space.
- Balconies should have a depth of not less than 1.5 metres and should have level access from the home.
- Balconies and terraces should be located or designed so that they do not result in the loss of privacy to existing residential properties or any other sensitive uses.
- Balconies should preferably be located next to a dining or living space and should receive direct sunlight (they can be designed to project from main building line or be recessed).

4.30 In some instances, it is accepted that existing buildings may not be able to provide balconies or roof terraces, however, external amenity space i.e. access to communal gardens should still be provided where possible. See CPG1 **Design** for further guidance on '**Roofs, terraces and balconies**'.

Communal amenity space:

- Space should meet the requirements of the occupiers of the building and be wheelchair accessible. For example, if there are a large proportion of family units, child and young person's facilities should be included in the communal space. The council will use the Mayor of London's 'Providing children's and young people's play and informal recreation SPG' (March 2008) when calculating requirements: http://static.london.gov.uk/mayor/strategies/sds/spg-children-recreation.jsp (accessed April 2011).
- Space should be well designed so that residents have a sense of ownership of the space, which will encourage its use.

- Space should be located sensitively so that it is overlooked by surrounding development and secure for residents.
- Space should be designed to take advantage of direct sunlight.
- Space should be designed to minimise disturbance to occupiers and neighbours, e.g. by being sheltered from busy roads, by being located in the rear of the buildings, back to back, behind perimeter blocks or in courtyards.
- Landscaping and facilities provided for the space should be of a high quality and have suitable management arrangements in place.

Further information

GLA Housing Design Guide	The Mayor's London Housing Design Guide from April 2011 (August 2010) provides detailed guidance on housing design in London http://www.london.gov.uk/who-runs-london/mayor/publications/housing/london-housing-design-guide (accessed April 2011)
Lifetime Homes and Wheelchair Housing Standards	In addition to the above residential standards, most residential schemes will also need to meet specific requirements for Lifetime Homes and Wheelchair Housing Standards: • For further guidance on how to meet Camden's requirements refer to CPG on Lifetime homes and wheelchair housing. • For good practice guidance specifically on Lifetime Homes www.lifetimehomes.org.uk
Daylight and Sunlight	For good practice advice on overshadowing and providing daylight and sunlight to buildings, refer to the widely used BRE Report "Site Layout Design for Daylight and Sunlight; a guide to good practice". It provides specific guidance on: • Providing good daylighting and sunlighting within a new development • Safeguarding sunlight and daylight within existing buildings nearby • Protection of daylighting of adjoining land for future development • Passive solar site layout • Sunlighting of gardens and amenity areas
Sustainability	The Council will require all that all buildings are designed to be sustainable, thus reference should also be made to CPG3 **Sustainability**, in particular, the 'Code for Sustainable Homes' sub-section in 'Sustainability assessment tools'.

5 Lifetime Homes and Wheelchair Housing

KEY MESSAGES

- All residential development should meet the 16 criteria that form the Lifetime Homes standards.
- The standards will be applied flexibly to existing buildings, but applicants should justify failure to meet any of the criteria.
- 10% of market housing development should meet wheelchair housing standards, or should meet the 13 key Habinteg wheelchair housing criteria so that they can be easily adapted to meet wheelchair housing standards.
- 10% of affordable housing development should be designed, built and fitted out to meet Wheelchair Housing standards in full.

What does this section cover?

5.1 This section provides advice on how proposals can made be accessible to all by incorporating "lifetime home" standards and creating wheelchair accessible homes. It supplements Camden Development Policies policy DP6 – *Lifetime homes & wheelchair housing*, as well as DP29 – *Improving Access* and Camden Core Strategy policy CS6 - *Providing quality homes*.

5.2 In line with policy DP6 all new residential development will be expected to meet the following standards.

LIFETIME HOMES

All housing developments should meet lifetime homes standards. A lifetime home is an ordinary home incorporating 16 design features for accessible living. These make homes easier to occupy for the entire life cycle of a household, whether its members are young, old, healthy or ill.

WHEELCHAIR HOUSING

A minimum of 10% of new housing should either meet wheelchair housing standards, or be easily adapted to meet them. Wheelchair housing provides independence and quality of life for wheelchair users and should be tailor-made for their specific needs.

5.3 In addition, the following building regulations should be considered where appropriate:

- Part M of the Building Regulations (2004 edition) – this sets minimum requirements for building standards in public buildings and new dwellings only.
- BS 8300: 2009: Design of buildings and their approaches to meet the needs of disabled people – good practice guidance that covers non-domestic buildings and details on specific building types.

5.4 This planning guidance is applicable to all development. It applies equally to new build, refurbished, converted, extended and altered

premises. It should also be read in conjunction with the Council's 'Camden Wheelchair Housing Design Brief 2010'.

5.5 The application of Lifetime Homes and Wheelchair Housing Standards varies depending on the type of dwelling as follows (see also Development Policy DP6 and supporting paragraphs 6.7 to 6.9):

- Lifetime Homes standards apply to all developments of self-contained housing (but does not apply to hotels or student housing);
- Wheelchair Housing Standards apply to all developments providing 10 or more self-contained homes and to student housing;
- both sets of standards apply to housing in mixed-use developments as well as purely residential developments;
- both sets of standards apply to new build development, conversions, reconfigurations and changes of use; and
- the requirements will be applied flexibly to take account of the circumstances of existing buildings, particularly those that are listed. English Heritage has produced guidance on "Easy Access to Historic Buildings".

What is the guidance on Lifetime homes?

5.6 Lifetime homes are ordinary homes built incorporating 16 design features for accessible living. These features ensure a good level of accessibility from the outset, but they also allow a dwelling to be easily adapted for even higher levels of accessibility in the future should the need arise eg to cater for raising young children and declining mobility in old age.

5.7 Lifetime homes standards are not designed specifically for disabled people or wheelchair users but allow for accessibility features to be easily incorporated at a later date if needed. There are separate Wheelchair Housing standards to guide the design of homes to meet the specific needs of people who are long-term wheelchair users (see paragraph 5.15)

5.8 By planning for accessibility at the earliest stage, the Lifetime Homes features can be incorporated into the design of a dwelling without significant additional cost and can result in major cost savings to the building's occupants in the long run (for a discussion of cost benefits and savings of Lifetime Homes, refer to 'Costing Lifetime Homes' by the Joseph Rowntree Foundation.)

5.9 The table on the following pages gives key features of the 16 criteria forming the Lifetime Homes standards. These came into effect on 5 July 2010. We advise developers to refer to www.lifetimehomes.org.uk for additional and detailed guidance on how specific requirements can be met, and also for news of any future revisions.

Lifetime Homes – Features

LIFETIME HOMES CRITERIA	KEY OBJECTIVES	DETAILED CRITERIA
1. Parking (width or widening capability)	Provide, or enable by cost effective adaptation, parking that makes getting into and out of the vehicle as convenient as possible for the widest range of people (including those with reduced mobility and/or those with children). General Note: Criterion 1 is not relevant to developments that do not contain any parking provision (for specific requirements refer to **Camden Development Policy – DP18 Parking standards** and limiting the availability of car parking - which specifically discourages on-site parking).	a) 'On plot' (non-communal) parking: Where a dwelling has car parking within its individual plot (or title) boundary, at least one parking space length should be capable of enlargement to achieve a minimum width of 3300mm. b) Communal or shared parking: Where parking is provided by communal or shared bays, spaces should be provided with a width of 3300mm and in accordance with the specification given in Appendix 2 on page 65 or www.lifetimehomes.org.uk.
2. Approach to dwelling from parking (distance, gradients and widths)	Enable convenient movement between the vehicle and dwelling for the widest range of people, including those with reduced mobility and/or those carrying children or shopping.	The distance from the car parking space of Criterion 1 to the dwelling entrance (or relevant block entrance or lift core), should be kept to a minimum and be level or gently sloping. The distance from visitors parking to relevant entrances should be as short as practicable and be level or gently sloping.
3. Approach to all entrances	Enable, as far as practicable, convenient movement along other approach routes to dwellings (in addition to the principal approach from a vehicle required by Criterion 2) for the widest range of people.	The approach to all entrances should preferably be level or gently sloping, and in accordance with the specification given at www.lifetimehomes.org.uk
4. Entrances	Enable ease of use of all entrances for the widest range of people. Note: For the purpose of requirements d) and e) of this Criterion, main entrances are deemed to be: the front door to an individual dwelling, the main communal entrance door to a block of dwellings, plus any other entrance door associated with the approach route from parking required by Criterion 2.	All entrances should: a) Be illuminated b) Have level access over the threshold; and c) Have effective clear opening widths and nibs as specified given at www.lifetimehomes.org.uk d) In addition, main entrances should also: e) Have adequate weather protection* f) Have a level external landing.*
5. Communal stairs and lifts	Enable access to dwellings above the entrance level to as many people as possible.	a) Communal Stairs Principal access stairs should provide easy access in accordance with the specification given at www.lifetimehomes.org.uk, regardless of whether or not a lift is provided. b) Communal Lifts Where a dwelling is reached by a lift, it should be fully accessible in accordance with the specification given at www.lifetimehomes.org.uk Note: provision of a lift is not a Lifetime Homes requirement, but is recommended where dwellings are not entered at the same level as the main block entrance.
6. Internal doorways and hallways	Enable convenient movement in hallways and through doorways.	Movement in hallways and through doorways should be as convenient to the widest range of people, including those using mobility aids or wheelchairs, and those moving furniture or other objects. As a general principle, narrower hallways and landings will need wider doorways in their side walls. The width of doorways and hallways should conform to the specification given at www.lifetimehomes.org.uk.
7. Circulation Space	Enable convenient movement in rooms for as many people as possible.	There should be space for turning a wheelchair in dining areas and living rooms and basic circulation space for wheelchair users elsewhere.

Lifetime Homes – Features (continued)

LIFETIME HOMES CRITERIA	KEY OBJECTIVES	DETAILED CRITERIA
8. Entrance level living space	Provide accessible socialising space for visitors less able to use stairs.	A living room / living space should be provided on the entrance level of every dwelling (see Appendix 1 on page 65 or www.lifetimehomes.org.uk for definition of 'entrance level'). Note: Entrance level generally means the storey containing the entrance door to the individual dwelling. It may refer to the first storey that contains a room (habitable or non-habitable) if the entrance door leads directly to an 'easy-going' stair.
9. Potential for entrance level bed-space	Provide space for a member of the household to sleep on the entrance level if they are temporarily unable to use stairs	In dwellings with two or more storeys, with no permanent bedroom on the entrance level, there should be space on the entrance level that could be used as a convenient temporary bed-space (see Appendix 1 on page 65 or www.lifetimehomes.org.uk for definition of 'entrance level').
10. Entrance level toilet and shower drainage	Provide an accessible toilet and potential showering facilities for: a) any member of the household using the temporary entrance level bed space of Criterion 9, and: b) visitors unable to use stairs.	Where an accessible bathroom, in accordance with Criterion 14, is not provided on the entrance level of a dwelling, the entrance level should have an accessible toilet compartment, with potential for a shower to be installed – as detailed in the specification given at (see Appendix 1 on page 65 or www.lifetimehomes.org.uk for definition of 'entrance level')
11. Toilet and bathroom walls	Ensure future provision of grab rails is possible, to assist with independent use of toilet and bathroom facilities.	Walls in all bathrooms and toilet compartments should be capable of firm fixing and support for adaptations such as grab rails.
12. Stairs and potential through-floor lift in dwelling	Enable access to storeys above the entrance level for the widest range of households.	The design within a dwelling of two or more storeys should incorporate both: a) Potential for stair lift installation; and b) A suitable identified space for a through-the–floor lift from the entrance level to a storey containing a main bedroom and a bathroom satisfying Criterion 14.
13. Potential for fitting of hoists and bedroom / bathroom relationship	Assist with independent living by enabling convenient movement between bedroom and bathroom facilities for a wide range of people.	Structure above a main bedroom and bathroom ceilings should be capable of supporting ceiling hoists and the design should provide a reasonable route between this bedroom and the bathroom.
14. Bathrooms	Provide an accessible bathroom that has ease of access to its facilities from the outset and potential for simple adaptation to provide for different needs in the future.	An accessible bathroom, providing ease of access in accordance with the specification given at www.lifetimehomes.org.uk should be provided in every dwelling on the same storey as a main bedroom.
15. Glazing and window handle heights	Enable people to have a reasonable line of sight from a seated position in the living room and to use at least one window for ventilation in each room.	Windows in the principal living space (typically the living room), should allow people to see out when seated. In addition, at least one opening light in each habitable room should be approachable and usable by a wide range of people – including those with restricted movement and reach. Note: In kitchens areas or bathrooms with only one window situated behind kitchen units or bathroom fittings, the requirement for a potential clear approach space to that window need not apply. However, the window handle height/control requirement remains applicable. Any other window within the kitchen area or bathroom, not behind fittings, is required to satisfy both the approach and window handle/control height requirements.
16. Location of service controls	Locate regularly used service controls, or those needed in an emergency, so that they are usable by a wide range of household members - including those with restricted movement and limited reach.	Service controls should be within a height band of 450mm to1200mm from the floor and at least 300mm away from any internal room corner.

APPENDIX 1 - DEFINITION OF 'ENTRANCE LEVEL' FOR THE PURPOSE OF LIFETIME HOMES CRITERIA

The entrance level of a dwelling for the purposes of the Lifetime Homes Criteria is generally deemed to be the storey containing the main entrance door as defined by Criterion 4. This will usually be the ground floor of a house, or the storey containing the entrance door of a flat approached a communal hall, stair, or lift.

Where there are no rooms (habitable or non-habitable) on the storey containing the main entrance door (e.g. most flats over garages, some flats over shops, some duplexes and some townhouses), the first storey level containing a habitable or non-habitable room can be considered the 'entrance level' if this storey is reached by an 'easy going' stair with maximum risers 170mm, minimum goings 250mm, and a minimum width of 900mm measured 450mm above the pitch line.

APPENDIX 2 - COMMUNAL CAR PARKING MANAGEMENT PLANS

Where communal parking is provided, the Council may require a Parking Management Plan to ensure that adequate parking space is available for disabled people. The parking management plan should include a mechanism to ensure that the supply and demand of wider bays / blue badge bays are regularly monitored and provision reviewed, to ensure that provision equates to any change in the demand from disabled residents and visitors and that the bays are effectively enforced to stop abuse by non blue badge holders. The needs of residents who occupy a home designated for wheelchair users and any residents who hold a blue badge and occupy any other home should be addressed.

Key requirements for lifetime homes standards:

5.10 As the Building Regulations do not currently require dwellings to be built to lifetime homes standards it is necessary to check compliance at the planning application stage. Therefore planning applications for new housing are expected to include information in the design statement and access statement showing how the proposed development addresses the 16 Lifetime Homes Criteria. Information on access statements can be found in the '**Access for all**' section of CPG6 **Amenity**.

5.11 Applicants should specifically submit a schedule setting out how each of the 16 criteria will be met. Plans should particularly include sufficient detail of the following key internal space criteria, such as:

- 6 - Internal doorways and hallways
- 7 - all necessary circulation space within and between rooms
- 8 - an entrance level living space
- 9 – potential for an entrance level space that can be used as a bed-space
- 10 - entrance level toilet and shower drainage at entrance level
- 12 – stairs and potential through-floor lift in dwelling
- 14 - an accessible bathroom

5.12 In the case of conversion of an existing building or other circumstances of a development may mean it may not be possible for new homes to meet all 16 criteria. In this case, the development should still seek to meet Lifetime Homes Standards as far as possible to maximise accessibility and demonstrate to the Council's satisfaction why it is not possible to meet particular criteria.

5.13 Applicants should include a schedule within the design and access statement for their development that sets out:

- how each of the 16 Lifetime Homes criteria will be met;
- identifying any Lifetime Homes criteria that will not be met;
- demonstrating that these criteria cannot be met, or otherwise justifying failure to meet them.

5.14 The Council will expect developments involving listed buildings to incorporate accessible features. English Heritage has produced guidance on "Easy Access to Historic Buildings". This guidance document should be referred to for further advice.

What is the guidance on wheelchair housing?

5.15 In addition to requiring residential development to meet Lifetime Homes standards above, policy DP6 requires a minimum of 10% of all new housing designed to be suitable for permanent occupation by wheelchair users or be easily adapted to meet them. Wheelchair housing standards go significantly beyond Lifetime Homes standards, which do not provide for permanent wheelchair occupation.

5.16 The 10% requirement will be applied individually to each tenure within a given development scheme (ie applied to each affordability category whether market housing, social rented housing or intermediate affordable housing).

5.17 We may agree to increase the percentage of social rented wheelchair homes and decrease the percentage of intermediate affordable wheelchair homes (or vice versa) where this will better enable us to meet the needs of identified future occupiers.

For market housing:

5.18 We will encourage the provision of fully fitted out Wheelchair Housing, but will accept provision of 10% homes designed to be easily adaptable to meet the standards.

5.19 New homes that are capable of being easily adaptable should incorporate the key space criteria set out in the Habinteg Wheelchair Housing Design Guide (see Figure 10 below) and ensure that any fittings and fixtures required at a later date can be easily provided without enlarging or structurally altering the home.

For affordable housing:

5.20 The 10% wheelchair requirement should be designed, built and fitted out to meet Wheelchair Housing standards in full. These affordable homes should comply with the Camden Wheelchair Housing Design Brief 2010 produced by the Council.

5.21 As far as possible, the Council will seek to identify future occupiers of affordable wheelchair housing and seek to ensure that it is tailored to their needs.

5.22 The Council's Housing Partnerships Team should be consulted for any specific design requirements required to meet the needs of future occupiers of affordable wheelchair housing (see Further Information at the end of this guidance).

5.23 The Council may use its affordable housing fund to support the creation of fully-fitted out affordable wheelchair housing.

Habinteg Wheelchair Housing Design Guide:

5.24 All wheelchair housing should be designed in accordance with the standards set out in the nationally recognised Habinteg Wheelchair Housing Design Guide (WHDG).

5.25 The standards include guidance for main entrances, doors, hallways, storage space, bedroom space, windows, etc. Below are the 13 key space criteria relating to the internal layouts of individual dwellings. The main entrances and common parts should be designed in accordance with the relevant guidance (WHDG p30 & 31)

Figure 10. Summary of the 13 key Habinteg wheelchair housing criteria

1. Dwellings should normally be designed on one level storey. Where a dwelling is arranged in two or more floors a vertical rise lift serving all floors must be provided. (WHDG p63)
2. The entrance door to the dwelling should provide a minimum clear opening width of 800mm (when accessed head on) or 825mm (when the approach is not head on). It should be weather protected and lit and be provided with a 300mm clear space to the leading edge (pull side of the door) and a 200mm clear space on the push side. (WHDG p36)
3. The entrance hallway requires a manoeuvring space 1500 x 1800mm (enabling an occupier to open and close the door and turn into the living space) (WHDG p37 & 44)
4. A space to store and charge an electric wheelchair should be provided as an extension to the circulation space of the dwelling. Care should be taken to ensure that storage of the chair does not restrict the minimum clear effective width of any corridor. Consideration should be given to how the facility is accessed and used. To guarantee sufficient manoeuvring space an overall space of 1100 x 1700mm should be provided. (WHDG p45)
5. All halls and corridors (facilitating 90º turns) should have a clear unobstructed width of at least 1200mm and internal door clear opening widths of at least 800mm. To facilitate a 180º turn a corridor with of 1500mm is required. (WHDG p57)
6. All internal doors require a 300mm clear space to the leading edge (pull side of the door) and a 200mm clear space on the push side. (WHDG p58)
7. A 1500 x 1800mm turning circle should be provided in the kitchen. (WHDG p7)
8. In all bedrooms a 1200 x 1200mm clear space should be provided to one side of the bed, 1000mm circulation is required to the other sides and the foot of each bed. In single bedrooms access to one side of the bed is acceptable. All furniture and window controls should be reachable and usable. (WHDG p88)
9. In all bathrooms space should be provided to facilitate frontal, side and oblique transfer to the toilet. The bathrooms and toilets should normally have outward opening doors or provide a clear space of 1100mm between the door swing and any fixture or fitting. (WHDG p78)
10. All bathrooms should provide a 1500 x 1500mm square manoeuvring space, clear of all fittings (WHDG p78)
11. In all bathrooms a drainage gully and services to facilitate the installation of a level entry shower (1000 x 1000mm) should be provided. (WHDG p85)
12. A clear ceiling-track hoist route (suitably constructed and with a ready power supply) should be provided between the bathroom and the main bedroom (WHDG p80 & 15)
13. Windows should be able to opened from a seated position. Controls should be located no higher that 1000mm above finished floor level and suitable for use by people with limited manual dexterity (WHDG p99)

For the latest edition of these standards, please refer to: “Wheelchair housing design guide” edited by Stephen Thorpe and available from Habinteg Housing Association: www.habinteg.org.uk/pages/whdg.html (available from BREbookshop.com ISBN 1860818978)

Key requirements for wheelchair housing standards

5.26 Planning applications will need to show which units are wheelchair accessible and how they are wheelchair accessible or how they can be easily adapted to be suitable for wheelchair users. Full wheelchair housing standards should be met within affordable housing and will be negotiated within market housing on a case by case basis.

5.27 Applications for planning permission should show full details of how 10% of homes will comply with wheelchair housing standards or, in the case of market housing, design features that ensure than 10% of homes are easily adaptable to meet the standards.

5.28 Plans should identify all wheelchair housing (or homes easily adaptable to the standards) and applications should include drawings setting out how the 13 key space criteria identified in Figure 10 will be met.

5.29 Applicants should include a schedule within the design and access statement for their development that sets out:

- how each of the 13 key space criteria will be met;
- identifying any key space criteria that will not be met;
- demonstrating that these criteria cannot be met, or otherwise justifying failure to meet them.

5.30 In the case of conversion of an existing building, we will apply the 10% requirement flexibly to take into account any constraints that would prevent the inclusion of entrances and internal spaces suitable for a wheelchair user.

5.31 For further design guidance on wheelchair housing please refer to the Mayor of London's SPG: 'Accessible London – Achieving an Inclusive Environment' (April 2004) - http://static.london.gov.uk/mayor/strategies/sds/accessible_london.jsp (accessed April 2011).

Additional considerations

Requirements in other residential buildings

5.32 In general, mobility difficulties and the need to provide for wheelchair users should be considered in the design of all forms of housing. The type of provision will need to be individually tailored to suit the nature of the facility and the likely needs of future occupiers.

5.33 In relation to student housing there is no requirement to meet Lifetime Homes standards, however, 10% of student bedrooms/ study flats (together with supporting communal spaces) are expected to meet wheelchair standards. Suitable design layouts are included in Approved Document M (known as Part M) of the Building Regulations.

Key building regulation requirements

5.34 The accessibility of accommodation should be considered whether the proposal is for new build, conversions or refurbishments.

5.35 Part M of the Building Regulations sets minimum accessibility requirements for building standards in new residential dwellings and is required in addition to Lifetime Homes and wheelchair accessible housing standards being met. They apply at the Building Regulation approval stage and, as such, are not a matter for consideration in the planning process.

5.36 BS 8300:2009 'Design of buildings and their approaches to meet the needs of disabled people – Code of Practice' (BSI) provides good practice guidance for various types of non-domestic buildings.

5.37 For further information on part M of the Building Regulations or BS 8300:2009 please contact the Council's Building Control Service or refer to the regulations on the Department for Communities and Local Government's website: www.communities.gov.uk/planningandbuilding/buildingregulations/

Securing lifetime homes and wheelchair housing through conditions and legal agreements

5.38 Homes need to satisfy specific layout and space criteria in order to meet Lifetime Homes and Wheelchair Housing Standards. If homes are not designed to meet these criteria from the outset, it may not be possible to accommodate the necessary spaces within the envelope of the dwelling as proposed. Consequently, if submitted applications do not show dwellings that meet Lifetime Homes and Wheelchair Housing Standards, they cannot be secured by condition.

5.39 Conditions may be used exceptionally in connection with Lifetime Homes Standards where:

- constraints of an existing building will prevent layout and space criteria from being met
- key layout and space criteria can clearly be met by the proposed housing, but other Lifetime Homes criteria have not demonstrably been met by submissions with the planning application.
  In each case, a condition may be used to secure submission of additional details of how specific Lifetime Homes criteria will be met before the development is implemented.

5.40 Development policy DP6 requires the provision of the 10% affordable wheelchair housing to be designed, built and fitted out to meet wheelchair housing standards in full. It will always be secured through a planning obligation (also known as a section 106 agreement or legal agreement). In most cases, the terms will specify:

- all wheelchair housing in the development

- which wheelchair housing will be social rented and which will be intermediate affordable housing
- arrangements to ensure that affordable wheelchair housing is fully fitted out to the agreed specifications, including payment of a bond where appropriate
- arrangements to ensure that affordable wheelchair housing is completed and fully fitted out to an acceptable timescale.

5.41 In some cases the terms may also specify:

- arrangements for submission of revised or additional plans or schedules where key space criteria have not demonstrably been met by submissions with the planning application;
- arrangements to ensure that affordable wheelchair housing can be viewed by potential occupiers before it is fitted out;
- arrangements to ensure that affordable wheelchair housing is available to wheelchair users in the future.

5.42 Provision of 10% wheelchair housing (or easily adaptable market housing) in market schemes is required but often future occupiers will be unknown until after the homes have been fitted out - under Development policy DP6 it may be exceptionally secured through a planning obligation where submissions with the planning application do not demonstrate that 10% of market homes meet the key space criteria. In such cases, the terms will specify:

- arrangements for submission of revised or additional plans or schedules showing that 10% of market homes meet key space criteria;
- arrangements to ensure that wheelchair housing is completed to the agreed specifications.

Further information

Lifetime Homes www.lifetimehomes.org.uk
Mayor's guidance at http://www.london.gov.uk/strategy-policy/accessible-london-achieving-inclusive-environment (see Mayor's Priorities - Planning - Accessible London: Achieving an Inclusive Environment - July 2011): SPG 'Accessible London: Achieving an Inclusive Environment' (April 2004) 'Lifetime Homes – case study examples' (September 2006) Best Practice Guidance 'Wheelchair Accessible Housing' (September 2007)
Housing Supplementary Planning Guidance (Mayor of London, November 2012) http://www.london.gov.uk/who-runs-london/mayor/publications/planning/housing-supplementary-planning-guidance (see Mayor's Priorities - Planning – Supplementary Planning Guidance)
London Housing Design Guide (Mayor of London, August 2010) www.london.gov.uk/who-runs-london/mayor/publications/housing/london-housing-design-guide (accessed April 2011)
Building Regulations 2010 Approved Document M - Access to and Use of Buildings (known as Part M)
British Standard BS 8300:2009+A1: 2010 Design of buildings and their approaches to meet the needs of disabled people – Code of Practice (BSI)
British Standard BS 9999:2008 Code of Practice for Fire Safety in the Design, Management and Use of Buildings (BSI)
Camden Council Housing Adult and Social Care 'Camden Wheelchair Housing Design Brief 2013' http://www.camden.gov.uk/ccm/content/housing/housing-policy-and-strategies/camden-wheelchair-design-guide/camden-wheelchair-design-guide.en

Camden Planning Guidance

Sustainability

CPG 3

London Borough of Camden

July 2015

Camden

CPG1 Sustainability

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this Camden Planning Guidance to support the policies in our Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions.

1.2 The Council adopted CPG3 Sustainability on 6 April 2011 following statutory consultation. This document has been subject to two updates:

- 4 September 2013 to clarify the guidance in Section 9 related to the Code for Sustainable Homes, and
- 17 July 2015 to update a number of sustainable design standards and targets.

Details on these updates and the consultation process are available at camden.gov.uk/cpg.

1.3 The Camden Planning Guidance covers a range of topics as well as sustainability (such as design, housing, amenity and planning obligations) and so all of the sections should be read in conjunction, and within the context of Camden's LDF.

What is this sustainability guidance for?

1.4 The Council is committed to reducing Camden's carbon emissions. This will be achieved by implementing large scale projects such as installing decentralised energy networks alongside smaller scale measures, such as improving the insulation and energy performance of existing buildings.

1.5 This guidance provides information on ways to achieve carbon reductions and more sustainable developments. It also highlights the Council's requirements and guidelines which support the relevant Local Development Framework (LDF) policies:

- CS13 - *Tackling climate change through promoting higher environmental standards*
- DP22 - *Promoting sustainable design and construction*
- DP23 - *Water*

What does the guidance cover?

- Energy statements
- The energy hierarchy
  - Energy efficiency – in new and existing buildings
  - Decentralised energy and combined heat and power (CHP)
  - Renewable energy
- Water efficiency
- Sustainable use of materials
- Sustainability assessment tools - BREEAM
- Green roofs, brown roofs and green walls
- Flooding
- Climate change adaptation
- Biodiversity
- Urban food growing

2 The energy hierarchy

KEY MESSAGES

- All developments are to be design to reduce carbon dioxide emissions
- Energy strategies are to be designed following the steps set out by the energy hierarchy

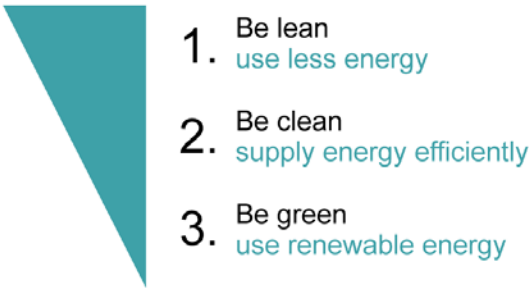
2.1 Buildings in Camden account for 88% of Camden's overall carbon dioxide emissions. These emissions result from the energy used within buildings. Therefore the Council encourages all buildings to be as energy efficient as possible. Our approach is to implement the energy hierarchy as set out in policy CS13 of the Core Strategy. The energy hierarchy is a sequence of steps that, if taken in order, will minimise the energy consumption in a building.

2.2 This section provides an overall introduction to the energy hierarchy and energy statements. This section sets out:

- The energy hierarchy
- How to apply the energy hierarchy
- When an energy statement is required
- What to include in an energy statement

2.3 The next four sections provide more detailed guidance on each of the 3 steps in the hierarchy.

The 3 steps of the energy hierarchy are:



2.4 All developments are expected to reduce their carbon dioxide emissions by following the steps in the energy hierarchy to reduce energy consumption.

2.5 Developments involving 5 or more dwellings and/or 500sq m (gross internal) floorspace or more are required to submit an energy statement which demonstrates how carbon dioxide emissions will be reduced in line with the energy hierarchy (see below for more details on what to include in an energy statement).

Gross internal area

The area within the perimeter of the outside walls of a building as measured from the inside surface of the exterior walls, with no deduction for hallways, stairs, closets, thickness of walls, columns, or other interior features.

What to include in an energy statement?

2.6 An energy statement is to set out how a development has been designed to follow the steps in the energy hierarchy. It should demonstrate how the proposed measures are appropriate and viable to the context of the development.

Baseline energy demand and carbon dioxide emissions

Calculate the baseline energy demand of the development and the corresponding carbon dioxide emissions arising from the development. You should clearly show the methodology used. See below for more guidance on how to calculate the baseline demand and carbon dioxide emissions.

Reduce the demand for energy

Describe the design measures which are proposed to maximise the energy efficiency of the development. See sections 2 and 3 for guidance on how to ensure your development is as energy efficient as possible.

Supply energy efficiently

Describe how your development has considered further reducing carbon dioxide emissions by sourcing energy efficiently e.g. through the use of decentralised energy, such as combined heat and power systems. See section 4 for guidance on decentralised energy network and combined heat and power.

Calculate the energy use and the corresponding carbon emissions from the development having applied the first two stages of the energy hierarchy.

Use renewable energy

Describe how your development has considered using renewable energy technologies to further reduce carbon dioxide emissions. See section 5 for more guidance on renewable energy.

Calculate the remaining energy use and the corresponding carbon emissions from the development having applied all three stages of the energy hierarchy.

Conclusion

A concluding section should be provided outlining the contribution of each set of measures, technology or combination of technologies towards meeting the relevant targets set out in this guidance and providing recommendations as to which approach is most suitable for the site. Where it has not been possible to reach the targets, a clear explanation should be provided.

2.7 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. 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.

Calculating the baseline energy demand and carbon dioxide emissions

2.8 You should produce a single energy statement for the entire development. The baseline energy demand should include an assessment of all the energy consumed in the operation of the development, including where there will be more than one occupier, use or building. This should include regulated energy or 'fixed' consumption (covered by building regulations) e.g. fixed lighting, heating and hot water systems, ventilation/cooling etc and non-regulated energy sources from 'plug-in' sources (not covered by building regulations) e.g. cooking, electrical appliances, centralised IT (server room) systems, communications equipment. Major developments should use modelling SAP/SBEM (Standard Assessment Procedure/Simplified Building Energy Model) to calculate this data. Benchmark data is only acceptable for minor developments.

2.9 The energy statement should clearly identify the total baseline energy demand and the carbon dioxide emissions of the development prior to the inclusion of any measures to reduce carbon dioxide emissions beyond the minimum requirements of current Building Regulations. The statement should clearly demonstrate the energy demand and carbon dioxide emissions of the development regulated by the Building Regulations as well as the additional energy demand and resulting carbon dioxide emissions. Reductions in each type of energy use should be demonstrated and the resulting total energy demand and carbon dioxide emissions.

2.10 Baseline carbon dioxide emissions should be calculated for energy use using Part L of the Building Regulations for domestic and non-domestic developments. Total development emissions should take into account all emissions sources.

Further information

Camden Core Strategy	Policy CS13 - *Tackling climate change through promoting higher environmental standards* – sets out Camden's overarching approach to environmental sustainability.
Camden Development Policies	Policy DP22 - *Promoting sustainable design and construction* – sets out Camden's detailed requirements for developments to comply with.
Mayor of London	The London Plan Supplementary Planning Guidance, Sustainable Design and Construction: – sets out the Mayor's requirements for environmental sustainability.
GLA Energy Team Guidance on Planning Energy Assessments October 2010	Sets out how the GLA want Energy Assessments accompanying planning applications to be set out and what information is to be provided www.london.gov.uk/sites/default/files/guidance-energy-assessments-28-sep-10.pdf
Building Regulations	Approved Documents Part L - Conservation of Fuel and Power. This section of the Building Regulations deals specifically with the energy efficiency of buildings. The latest version of the Regulations can be found on the Planning Portal website www.planningportal.gov.uk

3 Energy efficiency: new buildings

KEY MESSAGES

All new developments are to be designed to minimise carbon dioxide emissions

The most cost-effective ways to minimise energy demand are through good design and high levels of insulation and air tightness.

This guidance covers:

- Stage 1 of the energy hierarchy; and
- How to ensure new buildings are as energy efficient as possible.

3.1 Stage 1 involves ensuring that the design of a development includes a range of low carbon techniques that will reduce its energy consumption.

3.2 Stages 2 and 3 of the energy hierarchy – Decentralised energy networks and combined heat and power and renewable energy are dealt with in sections 4 and 5 of this document.

3.3 Core Strategy policy CS13 – *Tackling climate change through promoting higher environmental standards* encourages developments to meet the highest feasible environmental standards that are financially viable during construction and occupation.

WHAT WILL THE COUNCIL EXPECT?

All new developments are to be designed to minimise carbon dioxide emissions by being as energy efficient as is feasible and viable

Energy efficient design techniques

3.4 Energy efficient design requires an integrated approach to solar gain, access to daylight, insulation, thermal materials, ventilation, heating and control systems. It is important you always consider these aspects in relation to each other when designing a scheme.

3.5 This section provides detailed guidance on all the ways you can design your building to be more energy efficient. It is split into four sections:

- Natural systems;
- Thermal performance;
- Mechanical systems; and
- Other energy efficient technology.

Natural systems

3.6 Designing natural systems into new buildings can make the most of naturally occurring energy, such as the heat and light from the sun.

Making the most of sunlight

- Consider locating principal rooms that require warmth and daylight on the south side of buildings to benefit from the sun's heat. Within 30 degrees of south is ideal.
- Consider any overshadowing from adjoining or of adjoining buildings and spaces that will reduce the amount of solar gain.
- Consider the possibility of including renewable energy technologies, for example by including a flat or south facing roof for solar panels.

Making the most of daylight

- Maximise the amount daylight while minimising the need for artificial lighting.
- Carefully design windows to maximise the amount of sunlight entering rooms to meet the needs of the intended use.
- Daylight is dependent on the amount of open, un-obscured sky available outside a window, the amount of sunshine and the amount of light reflected from surrounding surfaces.
- The size, angle and shape of openings together with room height depth and decoration determine the distribution of daylight.

3.7 More information on daylight and sunlight can be found in CPG6 Amenity.

Preventing overheating

3.8 Some developments may experience too much sunlight in the summer, therefore you should achieve a balance between benefitting from solar gain and preventing over heating. To prevent over heating:

- Locate any spaces that need to be kept cool or that generate heat on the north side of developments.
- Use smaller windows on the south elevation and larger windows on the north.
- Use shading measures, including balconies, louvers, internal or external blinds, shutters, trees and vegetation. Any shading needs to be carefully designed to take into account the angle of the sun and the optimum daylight and solar gain.
- Include high performance glazing e.g. triple glazed windows, specially treated or tinted glass.
- Make use of overshadowing from other buildings.
- Include green and brown roofs and green walls which help to regulate temperature. See section 9 of this guidance on brown roofs, green roofs and green walls for more information.

Natural ventilation

- Natural ventilation includes openable windows, the 'stack effect' system where pressure differences are used to draw air through a building (see Figure 1) and, double layers, where one layer has

openable windows where air can flow freely. These systems allow air to be drawn through a building and can operate in tall buildings. Careful design of the space is required as air flows are impeded by walls and partitioning.

- Room layouts, shallow floor plans and high floor to ceiling heights all help the natural ventilation of buildings

Natural cooling

- Can be created by shading, the evaporation effect from trees and other vegetation including green roofs and walls which naturally cool the environment. See section 9 for more guidance on green roofs.

WHAT INFORMATION DOES THE COUNCIL REQUIRE?

- A full model of the building should be carried out to ensure the building design optimises solar gain and daylight without resulting in overheating for developments comprising 5 dwellings or more or 500sq m or more of any floorspace
- Consider maximising the use of natural systems within buildings before any mechanical services are considered

Thermal performance

3.9 The thermal performance of a building relates to the amount of heat that is retained inside and the amount that is lost to the outside air. Ensuring a high thermal performance is one of the most effective ways to ensure your development is energy efficient.

Insulation

3.10 A high level of insulation is the most effective way to ensure new buildings are energy efficient. Use insulation with low overall heat transfer coefficient (U-value). See the Energy Savings Trust's Insulation materials chart for details on the thermal performance of various materials.

> **U-value**
>
> The rate at which heat transfers through a building material. The lower the U-value, the better the insulator.

3.11 Consider how the insulation is attached to the building structure or walls. If a joint is badly insulated or if the material is penetrated by materials that conduct heat such as metal nails, it could cause cold patches and reduce the efficiency of the insulation. Ensure special attention is given to these potential heat loss areas to prevent cold bridging and potential points of condensation.

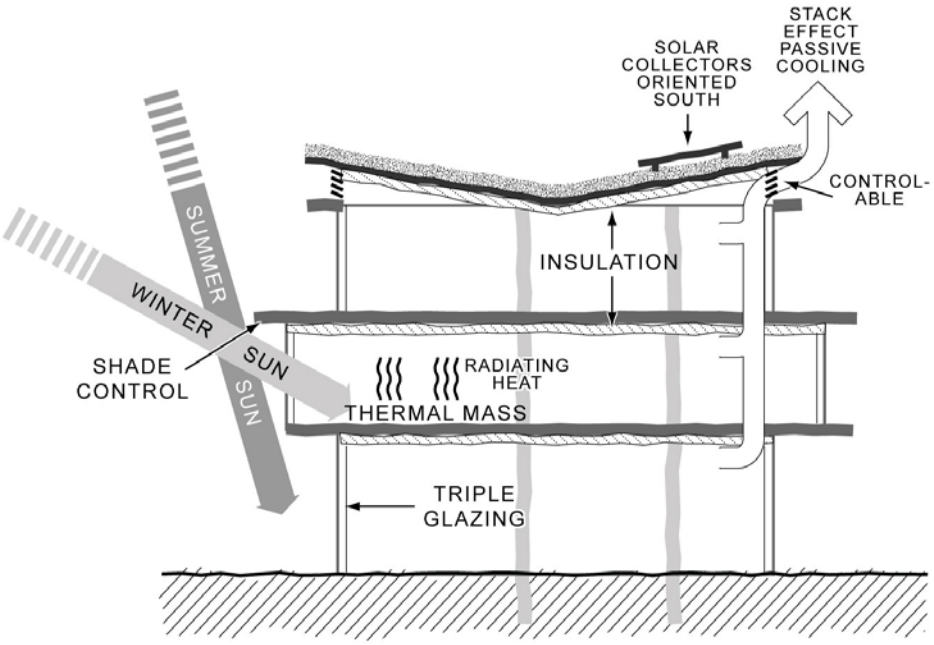
> **Cold bridging**
>
> Cold bridging occurs on a surface where one material looses heat faster than other, for example, through a concrete frame or a metal nail.

Materials with thermal properties

3.12 Materials with a high thermal mass e.g. concrete absorb and retain heat produced by the sun. These materials can be used to regulate indoor temperatures, especially to keep inside spaces cool during the day. Where heat is generated from within a building, exposed areas of thermal mass within the building can be used to transmit heat out of a building as the outdoor temperature drops.

3.13 Figure 11 below shows how heat from the sun can be absorbed by the thermal mass material and be released over time to help keep the building warm and insulated

Figure 1. Natural system principles



Thermal buffers

3.14 Porches, atriums, conservatories, lobbies and sheltered courtyards are useful ‘thermal buffers’. You can design these features to prevent excessive heat loss from doors and windows by providing a transition between the cold outside and the warm inside of a building.

3.15 Insulation is central to low energy construction but it must be installed without any gaps to ensure a building is air tight to reduce heat loss. In some buildings around half of all heat losses are due to air leakage throughout the building materials.

3.16 To achieve air tightness, buildings must be designed with a continuous seal around the internal materials to eliminate unwanted draughts. Once the seals are in place, they ensure that the insulation can function to its optimum performance, saving energy and drastically reducing carbon emissions for the lifetime of the building.

Air tightness

Air tightness is the control of air leakage, i.e. the elimination of unwanted draughts and holes through the external materials of the building. It is measured by the rate at which air passes through a building (m3/m2/h)

3.17 Particularly air tight buildings may need to include a specialised ventilation system to ensure that naturally pre-heated fresh air is circulated through all the rooms without losing heat. See the section on Mechanical systems below for more information on Mechanical Ventilation with Heat Recovery (MVHR).

Mechanical systems

3.18 Mechanical systems are generally required by the Building Regulations to enable buildings to be occupied. These systems vary from simply extraction fans in kitchens and bathrooms to whole office cooling systems. The Council will expect applicants to consider the following when choosing mechanical systems:

Efficient heating

- Use heating systems that run using gas as they are generally more carbon efficient than systems which use electricity. Gas systems can also be designed so that they can be connected to a decentralised heating network.
- Locating plant e.g. pipes, flues, machinery, close to where the heat is required ensures a lower level of energy for pumping.
- A community heating scheme, where appropriate e.g. Combined Heat and Power (see section 4 of this guidance on Decentralised energy and combined heat and power for more information)
- Avoiding electric heating systems unless there is no access to a gas connection, or where heating is required for very short periods in isolated locations

WHAT INFORMATION DOES THE COUNCIL REQUIRE?

- Any development proposing electric heating (including heat pumps) will need to demonstrate the carbon efficiency of the proposed heating system. Specifications of the electric heating system and calculations will need to be provided to demonstrate that the proposed electric heating system would result in lower carbon dioxide emissions than an efficiency gas fuelled heating system.

Efficient ventilation and cooling

- Mechanical Ventilation with Heat Recovery (MVHR) conserves energy by recovering heat from stale warm air leaving a building and transferring the heat to the cooler incoming air.
- Water based cooling systems reduce the need for air conditioning by running cold water through pipes in the floor and/or ceiling to cool the air.

- Ground source cooling.
- Evaporation cooling which cools air through the simple evaporation of water.
- Exposed concrete slabs.
- The natural 'stack effect' which draws cool air from lower levels whilst hot air is released.

3.19 For some uses such as laboratories, where sterile conditions are essential, natural ventilation will not be required. These rooms should be located to minimise the heating or cooling required and close to the plant to limit the energy required by fans and pumps.

WHAT INFORMATION DOES COUNCIL REQUIRE?

- Where traditional mechanical cooling e.g. air conditioning units are proposed applicants must demonstrate that energy efficient ventilation and cooling methods have been considered first, and that they have been assessed for their carbon efficiency.
- NB: Air source heat pumps will be considered to provide air conditioning in the summer unless it can be demonstrated that the model chosen is not capable of providing cooling.

Other energy efficient technology

- In the average home, lighting accounts for around 20% of the electricity bill. In some developments it can be one of the highest energy consumers and can generate large amounts of heat that is wasted.
- High efficiency lighting with controlled sensors e.g. timers, movement sensors and photo sensors, which adjust the brightness of the light depending on the natural light level.
- Zoned lighting, heating and cooling with individual control.
- Specifying appliances which are A+ rated.
- Efficient mechanical services system or a building management system – computer systems which control and monitor a building's mechanical and electrical equipment. Their main aim is to control the internal environment, but in doing so can also reduce the energy consumption of a building.
- Using heat recovery systems.
- Energy monitoring, metering and controls should be used to inform and facilitate changes in user behaviour.

Heat recovery system

A heat recovery system uses heat leaving a building or generated as waste from mechanical operations to pre-heat fresh air entering a building

What is considered best practice?

3.20 Policy 5.2 *Minimising carbon dioxide emissions* of the Draft Replacement London Plan introduces a carbon dioxide reduction target for new development to make a 35% improvement on the current 2013 Building Regulations:

- 2010 – 2013 25 per cent
- 2013 – 2016 35 per cent
- 2016 – 2031 Zero carbon

3.21 The following standards focus on improving a building's fabric to achieve best practice U-values over and above current Building Regulations. The Council considers that the standards below are feasible in all but exceptional circumstances to meet the new London Plan targets. There are other ways to reduce the energy efficiency of a building as set out in the first part of this section.

3.22 The table below generally relates to residential developments, however the building fabric standards are also applicable to commercial developments. For all developments a balance will need to be reached between the need to retain heat, the heat generated within a development and the need to remove excess heat.

Standards

External wall	0.20
Roof	0.13
Floor	0.20
Windows	1.50 British Fenestration Rating Council band B or better
Doors	1.00 (solid) 1.50 (glazed)
Air tightness	3.00 (m3/h.m2 at 50 Pa)
Proportion of energy efficient lighting	100%
BREEAM	Developments will be expected to achieve 60% of the un-weighted credits in the Energy category of their BREEAM assessment. (See section 8 on sustainability assessment tools for more details relating to BREEAM.

Thermal insulation measured in U-Values (W/m2.K)

What is carbon offsetting?

3.23 Where the London Plan carbon reduction target in policy 5.2 cannot be met onsite, we may accept the provision of measures elsewhere in the borough or may require a s106 financial contribution to Camden's carbon offset fund which will be used to secure the delivery of carbon

reduction measures elsewhere, in connection with projects identified in the Council's Environmental Sustainability Plan 'Green Action for Change'. A contribution may be in the in the form of an integral element of the development, "in-kind" provision on or off site or a financial contribution secured through a s106 agreement (in accordance with CIL regulations).What does zero-carbon mean?

3.24 The government has set out a timetable for residential development to be zero carbon by 2016, public buildings by 2018 and non-residential development to be 'zero carbon' by 2019. The Council has reflected these ambitions in Development Policy DP22 – *Promoting sustainable design and construction* by using a stepped approach to the requirements for achieving higher levels of the Code for Sustainable Homes. Buildings built or refurbished today will be competing with low and 'zero-carbon' buildings in the near future. For commercial buildings this could have a particular impact on their future letability and value as new commercial buildings are anticipated to be zero carbon from 2019.

3.25 To determine how developments should meet the 'zero carbon' standard the Zero Carbon Hub has developed an energy efficiency standard for all new homes (currently awaiting government approval). For more information see the Zero Carbon Hub website www.zerocarbonhub.org

What does PassivHaus mean?

3.26 PassivHaus is a specific design and construction standard from Germany that can result in a 90% reduction in energy demand and usage. It can be applied to both commercial and residential buildings. Core Strategy policy CS13 - *Tackling climate change through promoting higher environmental standards* notes that PassivHaus is an example of energy efficiency principles.

3.27 To be PassivHaus buildings must meet the following criteria:

- the total energy demand for space heating and cooling is less than 15 kWh/m2/yr of the treated floor area;
- the total primary energy use for all appliances, domestic and hot water and space heating and cooling is less than 120 kWh/m2/yr

3.28 PassivHaus' are designed using a special software package called the PassivHaus Planning Package (PHPP) and regional climate data.

3.29 The Council will be supportive of schemes that aim to PassivHaus standards, subject to other policy and design considerations. More information can be found on the PassivHaus website - www.passivhaus.org.uk

Further information

The London Plan	Sustainable Design and Construction: Supplementary Planning Guidance, Mayor of London provides detailed guidance on the energy hierarchy.
The Energy Saving Trust	Provides detailed guidance on the specification of new homes to reduce energy consumption. The Energy Saving Trust has developed a range of guidance and technical documents to help meet the energy performance requirements of the Code for Sustainable Homes and assess a range of materials and technologies for their thermal and carbon dioxide emissions levels. A wide range of best practise documents and guidance can be found at www.energysavingtrust.org.uk
The Town and Country Planning Association (TCPA)	Has produced a guide titled 'sustainable energy by design'. Section 4.1 of that document focuses on the design and development process, and shows how sustainable energy can be incorporated into new development in line with the energy hierarchy. www.tcpa.org.uk
Building Regulations	Approved Documents – Part L - Conservation of Fuel and Power. This section of the Building Regulations deals specifically with the energy efficiency of buildings. The latest version of the Regulations can be found on the Planning Portal website: www.planningportal.gov.uk
The Zero Carbon Hub	Has a lead responsibility for delivering homes to zero carbon standards by 2016. It has produced guidance on energy efficiency standards for new homes. www.zerocarbonhub.org

4 Energy efficiency: existing buildings

KEY MESSAGES

As a guide, at least 10% of the project cost should be spent on environmental improvements

Potential measures are bespoke to each property

Sensitive improvements can be made to historic buildings to reduce carbon dioxide emissions

4.1 Many of the sections in this guidance focus on reducing the environmental impact of new buildings, however Camden's existing buildings account for almost 90% of the borough's carbon dioxide emissions. Therefore it is essential that these buildings make a contribution towards the borough's reduction in carbon dioxide emissions.

4.2 This section provides more information on how existing buildings can be more energy efficient. It builds on the previous section, which covered Stage 1 of the energy hierarchy and improving energy efficiency in new buildings.

4.3 Camden Core Strategy Policy CS13, paragraph 13.9 expects development or alterations to existing buildings to include proportionate measures to be taken to improve their environmental sustainability, where possible.

WHAT DOES THE COUNCIL EXPECT?

- All buildings, whether being updated or refurbished, are expected to reduce their carbon emissions by making improvements to the existing building. Work involving a change of use or an extension to an existing property is included. As a guide, at least 10% of the project cost should be spent on the improvements.
- Where retro-fitting measures are not identified at application stage we will most likely secure the implementation of environmental improvements by way of condition. Appendix 1 sets out a checklist of retro fit improvements for applicants.
- Development involving a change of use or a conversion of 5 or more dwellings or 500sq m of any floorspace, will be expected to achieve 60% of the un-weighted credits in the Energy category in their BREEAM assessment. (See the section on Sustainability assessment tools for more details).
- Special consideration will be given to buildings that are protected e.g. listed buildings to ensure that their historic and architectural features are preserved.

How can I make an existing building more energy efficient?

4.4 There are many opportunities for reducing the energy we use in our homes. The design and the materials used can make a significant contribution. Simple measures, such as closing curtains at dusk, can help stop heat loss. Installing condensing boilers, heating controls and energy saving light bulbs and appliances reduce energy use and carbon dioxide emissions significantly. Reduced energy use also means lower energy bills.

4.5 When dealing with historic buildings a sensitive approach needs to be taken. Guidance on this is provided later within this section.

Draught proofing

4.6 There is a range of effective draft proofing measures you can use to help insulate your home:

- Fix brush seals to exterior doors and letterboxes, and tape to ill-fitting doors;
- Put reflector panels behind radiators to reflect heat into the room; and
- Use shutters for windows and/or thicker curtains that do not drape over radiators.

Energy efficient lighting

4.7 In most homes lighting accounts for 20% of the electricity bill. It is easy to cut waste by simply turning off lights and adjusting blinds and curtains to let in more natural light. When lighting a room, always use energy saving light bulbs.

Windows

4.8 Windows let light and heat into your home, but they can also let a lot of heat out when temperatures are colder outside than inside. If you are replacing windows or building an extension, thermally efficient glazed windows will provide more effective insulation than older windows. Double glazed panels can now be fitted into some original wooden frames, without the need to replace the whole frame. This helps preserve the historic character of the building.

4.9 The use of PVCu windows is not considered to be acceptable in historic buildings, conservation areas and listed buildings as this material detracts from their historic significance and the architectural qualities of historic buildings and places. See below for more information on listed buildings and conservation areas.

4.10 There is a range of simple measures which can improve the energy efficiency of windows. These include:

- General repair and maintenance – which can substantially improve the energy efficiency of windows, as much of the heat lost through windows is through leaks and cracks.
- Installation of draught seals – which can help to further eliminate cold draughts and leaks.
- Secondary glazing – adding a second sheet of glass or plastic to a window frame can improve sound-proofing as well as energy efficiency. If carefully designed it can be unobtrusive and appropriate in a listed property or one within a conservation area.
- Secondary protection - e.g. shutters or heavy curtains, although these are predominantly a night-time option.

Insulation

- Loft insulation - Your home may already have some loft insulation, but if the material is thin it will not be saving as much energy and money as it could. Fitting proper loft insulation is the most cost-effective way of saving energy. As a guide, your loft insulation should be around 250mm thick to be effective.
- Floor insulation - If you have any gaps between your floorboards and skirting boards, you can reduce heat loss by sealing them with a regular tube sealant, like the silicon sealant used around the bath. It is also very useful to insulate underneath the floorboards at ground floor level.
- Cavity wall insulation involves filling the gap between the bricks with insulating material. It can reduce heat loss by up to 60%. Most homes built after 1930 will have a cavity that could be insulated
- Solid wall insulation (internal or external) – buildings constructed before 1930 almost always have sold wall construction. The only way to insulate solid walls is to add insulation to the inside or outside of the wall. External insulation involves adding a decorative weather-proof insulating treatment to the outside of your wall while internal insulation involves attaching insulating plaster board laminates or wooden battens in-filled with insulation to the inside of the wall. Generally 100mm of insulation is required to be effective. Solid wall insulation, whether internal or external, will require relocation of the services attached to the wall e.g. radiators, electrical sockets, drainpipes.

Heating and hot water

- New boiler - Replacing an old boiler (more than 10 years old) with a high efficiency condensing boiler and heating controls to provide heating and hot water could significantly cut energy consumption.
- New/upgraded central heating – If you install a new boiler the rest of your central heating system may need upgrading, for example large, old radiators could be replaced with smaller, more efficient radiators that are better suited to the new boiler

- Upgrading heating controls - You can install heating controls that allow you to control the temperature in different parts of your building. These can be included as an electronic timer control for your boiler, room thermostats for your main living area and thermostatic valves on all your radiators.
- Insulating hot water pipes and your hot water tank will retain hot water for longer, and save money on heating it.

4.11 See the Council's website for further information for householders on various retro-fitting measures and whether permission is required.

Generating your own energy

4.12 Buildings can also reduce their energy consumption by generating their own energy in the form of heat or electricity using low carbon and renewable technologies which use little or no energy. See section 6 of this guidance on renewable energy for more advice on the technologies that are available and appropriate in Camden.

CASE STUDY

Renovated Victorian Eco-home: A semi-detached Victorian house in one of Camden's conservation areas was transformed in 2007, reducing its carbon footprint by 60%. Works undertaken to improve energy efficiency included:

- internal solid wall insulation;
- a new fully insulated roof;
- underfloor insulation;
- double glazing; and
- draught proofing.

Heat is provided by an efficient condensing boiler complemented by solar hot water panels on the rear extension; power to the panels' water pumps is provided by solar panels. Other improvements include an upgraded ventilation system with heat recovery, water saving features (e.g. rainwater harvesting for garden irrigation, dual flush toilets), low energy lighting and energy monitoring.

For further information on this property and improvements to other properties of a similar age see www.sd-commission.org.uk

What if my building is historic, Listed or in a conservation area?

4.13 Historic buildings have special features that need to be conserved and therefore need to be treated sensitively. This section explains how energy efficiency improvements can be achieved without causing harm to the historic environment.

4.14 Reflecting the special qualities of historic buildings, additional consents may be required for statutorily designated buildings (listed buildings, or those in conservation areas). The Council's website has more detailed guidance on what types of permission are required. The Council will aim to balance the conservation of fuel and power against the need to conserve the fabric of the building.

4.15 Historic buildings can perform well in terms of energy efficiency. When looking to install high energy efficiency measures, however, it is essential to ensure that works do not compromise the character and significance of the building or area.

4.16 In order to identify the most appropriate measures, we recommend taking the following approach, which takes into account measures best suited to individual buildings and households (i.e. taking human behaviour into consideration as well as the building envelope and services):

- Assess the heritage values of the building;
- Assess the condition of the building fabric and building services;
- Assess the effectiveness and value for money of measures to improve energy performance;
- Assess their impact on heritage values; and
- Assess the technical risks.

4.17 A range of thermal efficiency measures can then be implemented, which avoid harm to the historic environment. Ranked according to their impact on heritage and the technical risks, these include:

1. Ensure that the building is in a good state of repair
2. Minor interventions - upgrade the easier and non-contentious elements:
   - insulate roof spaces and suspended floors;
   - provide flue dampers - (close in winter, open in summer);
   - use curtains, blinds and window shutters;
   - provide energy efficient lighting and appliances
   - draught-seal doors and windows;
   - provide hot water tank and pipe insulation.
3. Moderate interventions - upgrade vulnerable elements:
   - install secondary (or double) glazing (if practicable);
4. Upgrade building services and give advice to building users on managing them efficiently:
   - install high-efficiency boiler and heating controls;
   - install smart metering;
   - install solar panels, where not visible from the street or public spaces.

5. Major interventions - upgrade more difficult and contentious elements (where impact on heritage values and level of technical risk shown to be acceptable)
   - provide solid wall insulation.

4.18 When considering refurbishment, it is the owner's responsibility to ensure that any work does not cause unlawful or unnecessary damage to the building.

4.19 The Energy Savings Trust and English Heritage have published detailed guidance on refurbishing and improving the efficiency of historic buildings. See the Further Information section below for details of where to find these guides.

4.20 Before carrying out any work, find out if your property is listed, in a conservation area or subject to any other planning restrictions such as an Article 4 Direction. Then check if any of the proposed works require consent – such as listed building consent, planning permission or conservation area consent. See CPG1 Design for more information on Camden's historic buildings. The Council's website also provides detailed information on these matters.

Article 4 Direction

Removes the permitted development rights awarded to properties by legislation and means a planning application has to be made for minor works that usually do not need permission.

Further information

Energy efficiency in existing buildings:

The Energy Saving Trust	A national agency promoting energy efficiency in the domestic sector. For information on home energy efficiency measures including grants, visit their website: www.energysavingtrust.org.uk The Energy Saving Trust also provides technical guidance on energy efficiency in the Publications and Case Studies section of their website. www.est.org.uk/housingbuildings/publications Recommended Best Practice in Housing technical guidance documents: • CE120 - Energy Efficient Loft Extensions • CE122 - Energy Efficient Domestic Extensions
GreenSpec	Provides details of products and how they can be used to improve the efficiency of your home or building www.greenspec.co.uk
The Planning Portal	Provides information on what alterations you can make to your home without requiring planning permission www.planningportal.gov.uk

Energy efficiency in historic buildings:

Historic England	Historic England, the UK government's adviser on the historic environment, has produced the following guidance: • A Guide to Energy Conservation in Traditional Buildings, which looks at a range of improvements that can be made to reduce the heat lost through a building's walls, windows, floor and roof. This guide is one of a series looking at reducing energy consumption in traditionally constructed homes. https://www.historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/ • Meeting building regulations Part L in existing buildings. The purpose of the guidance is to help prevent conflicts between the requirements of the regulations and the conservation of historic and traditionally constructed buildings. https://www.historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/ • saving energy in historic buildings at www.climatechangeandyourhome.org.uk which includes very detailed information about a wide range of improvements, e.g. insulating solid walls.
The Energy Saving Trust	Provides technical guidance on energy efficiency in the Publications and Case Studies section of their website. www.est.org.uk/housingbuildings/publications This includes their Recommended Best Practice in Housing technical guidance documents: CE138 - Energy Efficient Historic Homes
The Victorian Society	Has information on their website on greening Victorian homes - www.victoriansociety.org.uk/advice/greening
Building Conservation	Provides a directory of useful contacts, grant sources and websites www.buildingconservation.com
The Sustainable Development Commission	Provides case studies of existing homes that have improved their energy efficiency, including the example detailed in this section. www.sd-commission.org.uk

Appendix 1: Checklist for retro-fitting measures

Applies to all:

- changes of use
- conversions
- extensions over 30sq m

Please note that not all the measures will be appropriate for all buildings and some measures will require planning permission e.g. alterations to the front of a property

Measure	Specification	Evidence
Draught proofing		
Reflective radiator panels		
Overhauling/upgrading windows		
New boiler		
LED lighting		
Meters, timers, sensors, controls on heating or lighting		
Mechanical Ventilation with Heat Recovery		
Insulation		
Hot water tank & pipes		
Roof		
Walls Internal		
Walls External		
Floor		
Renewable energy technology		
Solar PV panels		
Solar thermal (hot water) panels		
Ground source heat pumps		
Double glazed windows / Secondary glazing		
Combined heat and power unit		
Green or brown roof		
Rainwater harvesting		
Other measures		
Join the Camden Climate Change Alliance (commercial only)		
Off-setting contribution		

5 Decentralised energy networks and combined heat and power

KEY MESSAGES

Decentralised energy could provide 20% of Camden's heating demand by 2020.

Combined heat and power plants can reduce carbon dioxide emissions by 30-40% compared to a conventional gas boiler.

Where feasible and viable your development will be required to connect to a decentralised energy network or include CHP.

5.1 This section relates to stage 2 of the energy hierarchy. Stage 2 aims to ensure that developments have done all they can to obtain an efficient supply of energy.

THE ENERGY HIERARCHY:

1. use less energy
2. supply energy efficiently
3. use renewable energy

5.2 Core Strategy policy CS13 and section 1 of this guidance require carbon dioxide emissions from developments to be minimised by following all the steps of the energy hierarchy. Development Policy DP22 and sections 2 and 3 of this guidance set out how the Council expects less energy to be used by developments through their design and operation.

5.3 The Mayor of London has set a target that 25 per cent of the heat and power used in London is to be generated through the use of localised decentralised energy systems by 2025. In order to achieve this target the Mayor prioritises the development of decentralised heating and cooling networks at the development and area wide level, as well as larger scale heat transmission networks.

5.4 We will expect developments to connect to a decentralised energy network and use the heat unless developers can demonstrate it is not technically feasible or financially viable.

5.5 This guidance explains how heating, cooling and power systems should be selected in order to minimise carbon dioxide emissions. It provides details of what combined heat and power is and what decentralised energy networks are including when and where they should be delivered. The guidance is set out as follows:

- What are decentralised energy networks?
- What is combined heat and power?
- In what sequence should the provision of these measures be considered?
- Which developments should investigate providing these measures?

- What is the size threshold to test feasibility and viability?
- What is the distance threshold to test feasibility and viability?
- Where are decentralised energy networks located?
- How do we expect viability to be tested?
- What is the financial contribution?
- What needs to be considered to enable installation of combined heat and power?

What are decentralised energy networks?

5.6 Decentralised energy networks generate and supply electricity, heating or cooling close to where it is used. The energy can be generated in the same building or a relatively short distance from where it is used and transmitted through pipes (generally as hot or cold water) or along cables. Decentralised energy is more carbon dioxide efficient than traditional energy sources due to the shorter distances the energy has to travel to where it is used. This results in less heat, coolness or electricity loss, which occurs as the energy travels along a pipe or cable. Heat, coolness or power for the decentralised energy network can be generated by various technologies including traditional boilers, combined heat and power and renewable energy technologies (See section 6 of this guidance for information on renewable energy technologies).

5.7 The provision of decentralised energy networks in an already built up area like Camden is difficult due to the need to install pipes to transfer heat. However, it is also a particularly suitable approach in Camden to reduce carbon dioxide emissions as the networks, located under roads would have minimal impacts on the conservation areas which cover much of the borough and on listed buildings.

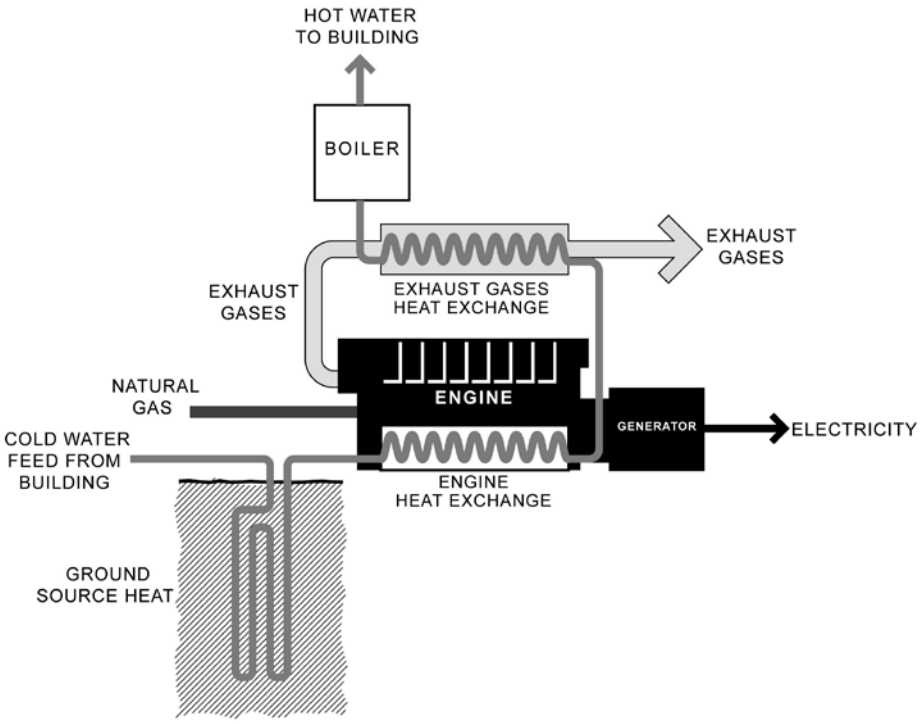
What is combined heat and power?

5.8 Combined heat power (CHP) includes various technologies that turn fuel such as gas or biofuel into electricity. The process of producing electricity generates heat which is captured and used to heat water. The hot water is then transported around the building or to another building by pipes. The capture and use of the heat means this method of generating electricity produces less carbon dioxide emissions than traditional power stations. Combined heat and power plants can reduce carbon dioxide emissions by 30-40% compared to a conventional gas boiler. Figure 2 below provides a diagrammatical explanation of how combined heat and power plants work.

Biofuel

Liquid or gas source of energy derived from organic matter that can be reproduced in a short period of time

Figure 2. Combined Heat and Power Schematic



5.9 Combined cooling, heating and power (CCHP) is where the heat generated by CHP is turned into coolness. Coolness is produced by passing the heat through an absorption chiller. The combined production of electricity and heat and coolness that are used is also known as trigeneration. The use of chillers to produce cooling is generally inefficient, however as part of a decentralised energy system it may be efficient, with regards to emissions in carbon dioxide where there is surplus heat in the summer.

Absorption chiller

Is a machine that uses chemicals to reduce the temperature of one liquid within the machine compared to another liquid in the machine.

What is the relationship between decentralised energy and combined heat and power?

5.10 The previous paragraph above notes that heat, coolness or power for a decentralised energy network can be generated by various technologies. However, using a combined heat and power plant to generate both the electricity and heat results in greater savings in carbon dioxide emissions as the heat is being captured and distributed for use, whereas in traditional power stations it is released. Other technologies that could supply heat with low carbon emissions to a decentralised energy network include boilers that operate on biofuels or that use waste materials. However, these technologies may not be acceptable in

Camden as they emit higher levels of pollution into the air. To find out about the Council's requirements to protect air quality see CPG6 Amenity.

What are developments expected to do?

5.11 Once a development has been designed to be as energy efficient as possible (Energy hierarchy - Stage 1), developments will be required to consider the following steps, in the order listed, to ensure energy from an efficient source is used, where possible:

1. investigating the potential for connecting into an existing or planned decentralised energy scheme and using heat
2. installing a Combined (Cooling) Heat and Power Plant (CHP or CCHP), including exporting heat, where appropriate
3. providing a contribution for the expansion of decentralised energy networks
4. strategic sites are to allow sufficient accessible space for plant equipment to support a decentralised energy network
5. designing the development to enable its connection to a decentralised energy network in the future

> **Strategic sites**
>
> Those identified in the Site Allocations document as being required to provide an energy centre to connect or expand energy networks

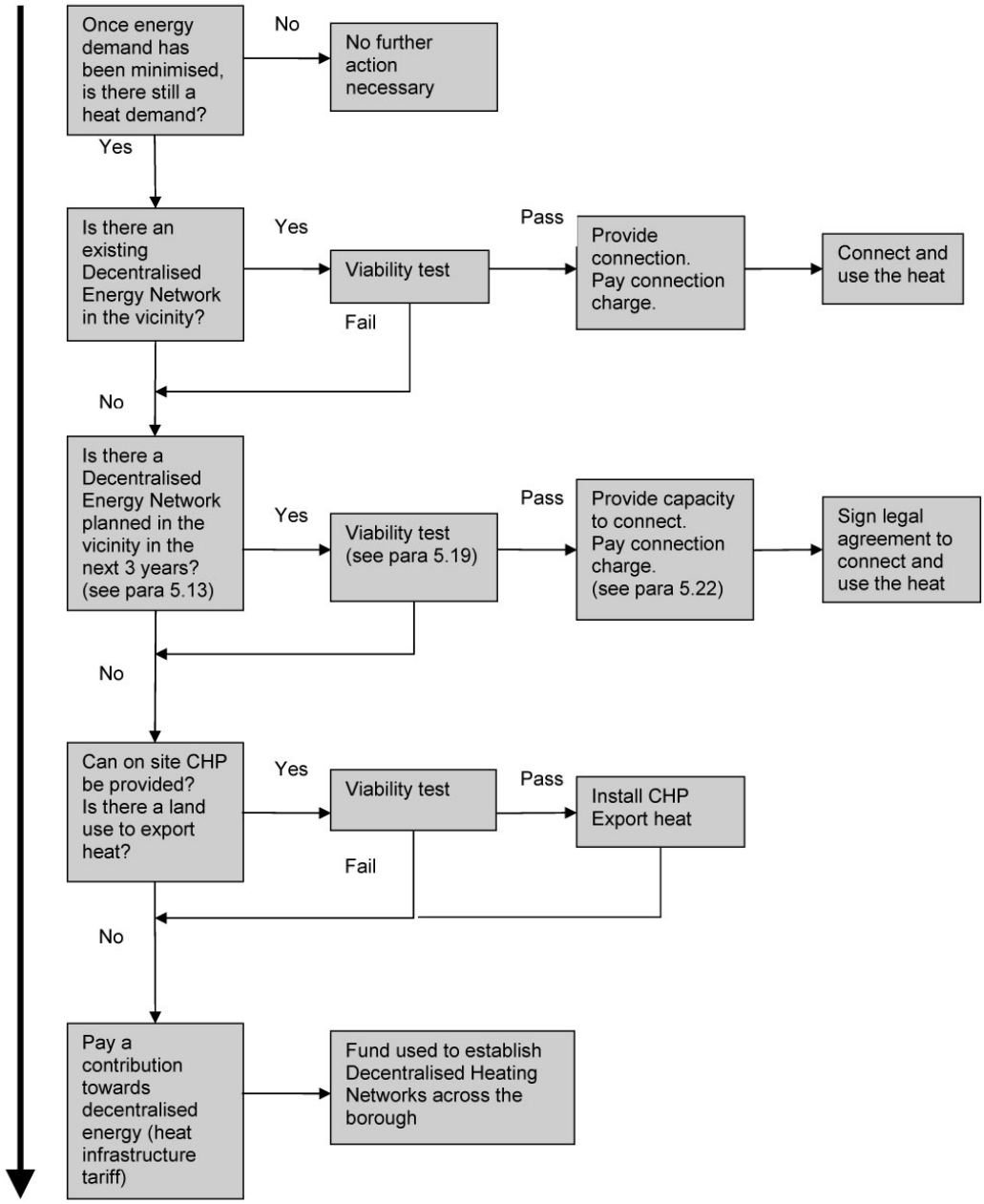
5.12 You should use the flow chart below to determine whether your development will be expected to connect to a decentralised energy network, install a combined heat and power plant or make a contribution towards a decentralised energy network.

5.13 In line with the flow chart:

- The connection of your development to a decentralised energy network is the Council's priority where it is feasible and viable to do so;
- Where there is no connection and or no agreement to connect your development within 3 years to a decentralised energy network, on-site CHP will be expected where the heating demand makes it feasible;
- Where there is a willing user for the heat, schemes will be expected to export heat to at least a similar heat demand, where feasible and viable; and

5.14 Where the development containing the combined heat and power plant has a large electricity demand, a larger amount of heat may be expected to be exported to enable the maximum viable electricity production to be generated on-site.

Figure 3. Decentralised Energy Flowchart



Investigating the potential for connecting into an existing or planned decentralised energy scheme

Is my development suitable?

5.15 There is no threshold to guide whether your development is suitable to connect to a decentralised energy network or to include combined heat and power. In general, it will depend on the heat demand of your development and its proximity to a decentralised heating network as well as the feasibility and viability of connecting or including the plant.

5.16 As a guide, developments and areas with the following characteristics will be suitable for decentralised and CHP systems:

- High heating demand;
- Mixed energy demands – a range of electricity and heating demands throughout the day; and
- Located close to an existing or emerging decentralised energy network. The location of existing and proposed/emerging networks can be found on map 4 of the Core Strategy or on the London Heat Map www.londonheatmap.org.uk

Is my development close to an existing or proposed network?

5.17 Developments which fall within proposed within 1km of an existing decentralised energy network, or one that is likely to be operational within 3 years of occupation of the development, should assess the feasibility of connecting to the network. See figure 4 below for a map of existing and emerging networks. Further information on the networks can be found in Camden's or other provider's decentralised energy strategies. A connection should be made unless it can be clearly demonstrated that it would not be viable. Where no connection is made, a financial contribution will be sought. See paragraph 5.28 for more information on financial contributions.

5.18 Developments which are proposed within 500m of a potential network (see figure 5 below) which have no timetable for delivery should ensure that the development is capable of connecting to a network in the future. A financial contribution will be sought to fund the future expansion of the network, unless on-site CHP is feasible and included as part of the development.

Where are the decentralised energy networks?

The location of existing and proposed/emerging networks can be seen on figures 4 and 5 below, map 4 of the Core Strategy or on the London Heat Map: www.londonheatmap.org.uk

Figure 4. Developments within 1km radius of an existing or emerging network.

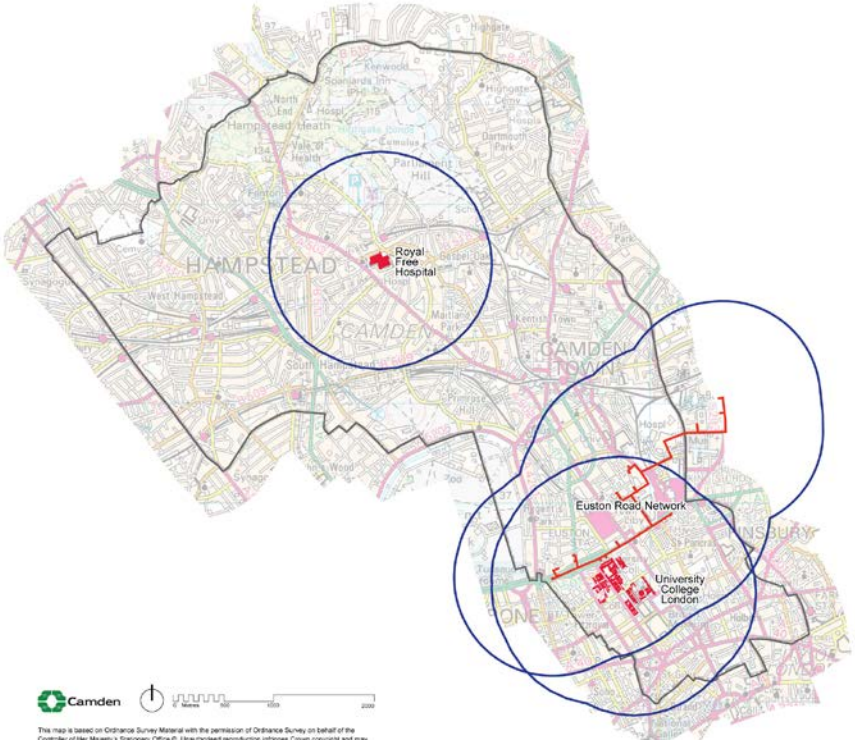
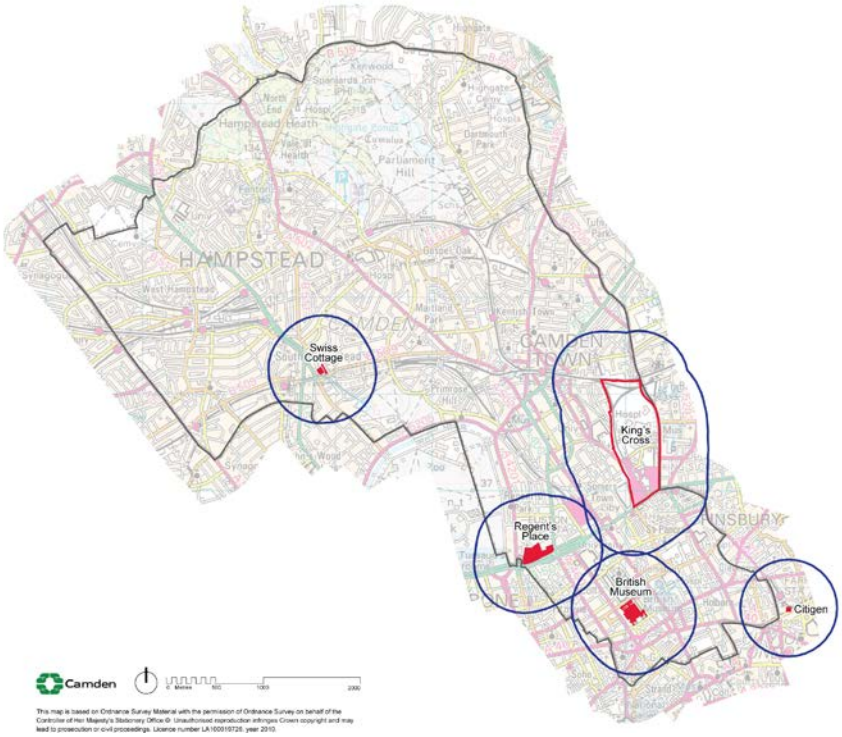


Figure 5. Developments within 500m radius of a potential network



Should my development include a community heating systems

Where there is more than one occupier, use or building a community heating network will be expected.

5.19 A community heating system is a heating network that provides heat to more than one dwelling or building. A site wide or community heating system enables the whole development to convert to a low carbon fuel source in the future or connect to a decentralised heating network. For larger schemes, this approach also enables the heating demands across the site to be balanced throughout the day. You will have to provide individual heat meters and heating controls to each property.

5.20 Heat can be generated at different pressures and temperatures. Your development's heating system will also need to be designed to be compatible with the decentralised energy network it will connect to.

Viability and feasibility

5.21 Your development will be expected to connect to a decentralised energy network and use/export the heat unless you can demonstrate that it is not technically feasible or financially viable.

5.22 Considerations of feasibility and viability include, but are not limited to:

- Size of the development;
- Distance to existing network pipes;
- Physical barriers, e.g. roads or railways;
- Other developments in the vicinity that may also be required to connect to the network;
- Other buildings in the area that are willing to connect/take heat;
- Other building in the area in the same ownership or occupation as the lead development that have a heating load;
- Cost of connection;
- Any grants available;
- Any specific technical compatibility issues; and
- The business/expansion plan of the network operator.

When demonstrating the feasibility and viability of not connecting to a decentralised energy network or including a combined heat and power plant developers will be required to address the relevant considerations above.

Connecting to a decentralised energy network - things to consider

5.23 To ensure connection is technically feasible the heating system has to be designed to be compatible with the temperature and pressure of the heat in the decentralised energy network. This will generally require a water based or 'wet' heating system at a certain temperature and pressure.

Where a development is not connecting immediately to a network the following measures need to be included in your scheme:

- space in the plant room for a heat exchanger, any other plant and pipe and electricity connections; and
- pipes from the plant room to the property boundary where the decentralised energy pipe is most likely to be located.

A **heat exchanger** is a device that transfers heat from one source to another to either cool or heat an object or system.

Installing combined heat and power - things to consider

5.24 There are various types of CHP engines, including gas turbines, gas engines, steam turbines or engines that run on biofuels. Heat can be produced at different pressures and temperatures. It is essential that the design of the building's heating network considers the type of heat and pressure proposed. Where the CHP is to link to, or has the potential to link into, an existing wider network it is essential that the proposed temperature and pressure are compatible with the existing network.

5.25 Where several schemes with or without CHP are to be connected through a decentralised energy network it is essential that the heat system of the buildings are compatible. This can sometimes be achieved through a heat exchanger.

5.26 Where large developments are proposed that are not near a proposed decentralised energy network, a scheme should ensure a variety of land uses to ensure a mixed heat load that would make CHP viable, subject to other policy requirements.

5.27 For existing buildings, it will be important to ensure that the potential impact on the historic fabric and archaeology has been fully considered. Please refer to CPG1 Design, the section on heritage in particular, for more information.

Financial contributions

5.28 In line with the flow diagram above, if your scheme does not connect to a decentralised energy network or have a secure agreement to do so within 3 years, and does not include combined heat and power, a financial contribution may be required to enable expansion of the network and future connection. The financial contribution should be in line with the following table (or as updated in CPG8 Planning obligations):

Size of development	**Residential (per dwelling) or Per 300sq m of non-residential floorspace**
Over 20 stories	£2,800
8-20	£2,500
5-7	£2,800
3-4	£4,100
2-3	£5,300
Single dwelling houses or single storey commercial developments	£8,600

Source: Community energy: Urban planning for a low carbon future.

How will the requirements of this guidance be secured?

5.29 Where appropriate Section 106 agreements will be used to secure:

- the installation of CHP/CCHP and the generation and use of energy
- details that ensure the plant and its operation is carbon dioxide efficient with regards to operating hours, compatibility with the need (amount and timing) for heat, and requirements for a heat store
- details that ensure the design of the heating system is compatible with any nearby decentralised energy network
- the export of heat, cooling and/or electricity
- development use heat, cooling and or electricity from a decentralised energy network, including by entering into a long term energy contract
- sufficient space is provided for future plant, heat exchanges, connection points to either generate, export and take heat, cooling and/or electricity
- a financial contribution towards future decentralised energy networks

Further information

Information on combined heat and power:

Combined heat and power association	www.chpa.co.uk
DECC microsite	http://chp.decc.gov.uk/cms/

Information on how to plan for decentralised energy:

Powering ahead. Delivering low carbon energy in London	http://legacy.london.gov.uk/mayor/publications/2009/docs/powering-ahead141009.pdf
Cutting the Capital's Carbon Footprint – Delivering decentralised energy	http://www.londonfirst.co.uk/documents/Cutting_the_Capital's_Carbon_Footprint_FULL_Low_res_FINAL.pdf
Community energy. Urban planning for a low carbon future	http://www.tcpa.org.uk/data/files/ceg.pdf

Existing decentralised energy networks in or near Camden:

- Citigen - http://www.eon-uk.com/generation/citigen.aspx
- Bloomsbury heat and power
- Gower street heat and power
- King's Cross Central – managed by Metropolitan
- Royal Free Hospital to Gospel Oak – managed by the NHS/Mitie
- Euston Corridor Phase 1 – Somers Town/Kings Cross – Camden owned

How Camden can reduce its carbon dioxide emissions by 40%:

www.camden.gov.uk/ccm/cms-service/download/asset/?asset_id=2460603

6 Renewable energy

KEY MESSAGES

There are a variety of renewable energy technologies that can be installed to supplement a development's energy needs

Developments are to target a 20% reduction in carbon dioxide emissions from on-site renewable energy technologies.

6.1 This guidance covers Stage 3 of the energy hierarchy. Stage 3 involves considering how renewable energy technologies can be used to further reduce the carbon dioxide emissions of a development. You will find information in this section on the types of renewable energy technologies that are available and when they are most appropriate. Stages 1 and 2 of the energy hierarchy – energy efficiency and decentralised energy & CHP – are dealt with in sections 2, 3 and 4.

6.2 Core Strategy policy CS13 - *Tackling climate change through promoting higher environmental standards* encourages developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. Paragraph 13.11 states that developments will be expected to achieve a 20% reduction in carbon dioxide emissions from on-site renewable energy generation unless it can be demonstrated that such provision is not feasible. The 20% reduction should only be attempted once stages 1 and 2 of the energy hierarchy have been applied.

WHAT DOES THE COUNCIL EXPECT?

All developments are to target at least a 20% reduction in carbon dioxide emissions through the installation of on-site renewable energy technologies. Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.

When assessing the feasibility and viability of renewable energy technology, the Council will consider the overall cost of all the measures proposed and resulting carbon savings to ensure that the most cost-effective carbon reduction technologies are implemented in line with the energy hierarchy.

Renewable energy technologies

Solar/Thermal Hot Water Panels

What is it?

A system made of flat plate collectors or evacuated tubes which allow water to flow through and be heated by the sun's rays.


Solar hot water tubes


Solar hot water plates

What does it do?

Uses the sun's heat to warm water - up to 85 degrees Celsius

What issues should I consider?

- Flat plate systems are cheaper. Evacuated tube systems are more efficient so need less space.
- Generally used for hot water where approximately 4sq m of solar panel per household is sufficient with 80 litres of hot water storage.
- Aim to minimise pipe lengths as this reduces heat losses.
- Not ideal with combined heat and power as it can reduce the efficiency of the CHP system.

Where might this technology be appropriate?

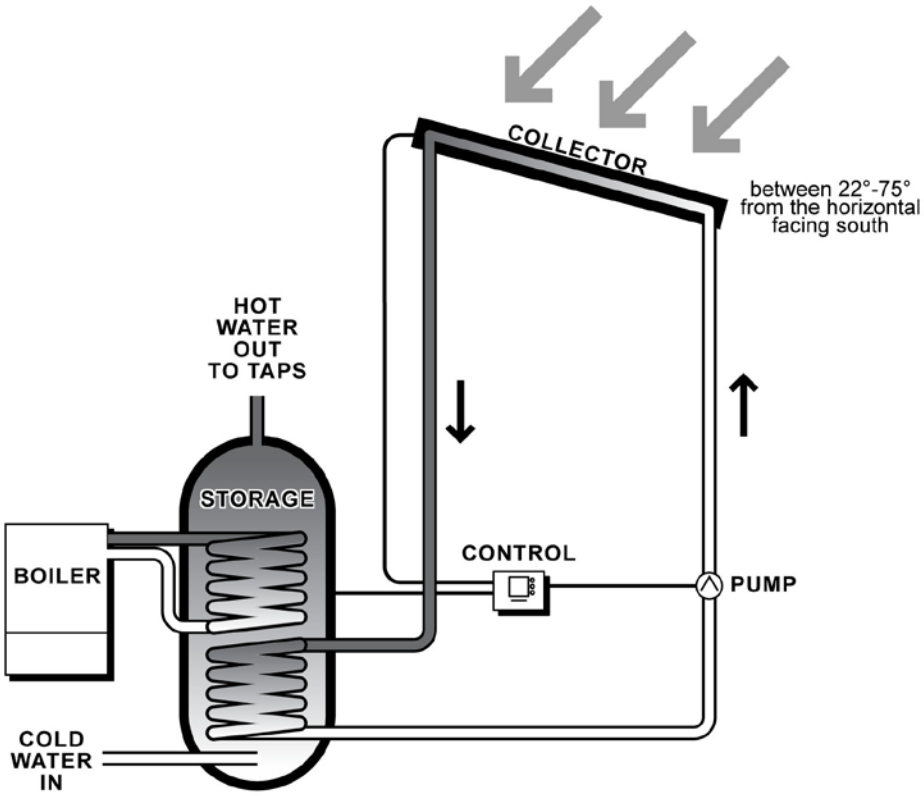
- Suitable for developments with all year hot water demands.
- South facing at 30-40 degrees is ideal, but as the panels do not rely on direct sunlight they can still be efficient at other angles.
- Can be fitted to existing buildings, but need to consider additional weight of the panels and compatibility of heating/hot water system

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- Where space allows, panels are to meet 100% of the site's summer hot water needs, which equates to 50-60% of the annual demand.
- Applicants are to confirm the number and size of panels or the overall square meters to be installed

- The accompanying heating system such as the top up boiler must be compatible. For example, it must include a storage tank and be able to use pre-heated water.
- Larger schemes should use a central system
- A meter is to be installed on the system for monitoring

Figure 6. Solar Hot Water Heating Schematic



Photovoltaic (PVs)

What is it?

Photovoltaic cells are panels you can attach to your roof or walls. Each cell is made from one or two layers of semiconducting material, usually silicon. There are a number of different types available e.g. panels, tiles cladding and other bespoke finishes.


Solar PV roof tiles


Solar PV panels

How does it work?

When light shines on the PV cell it creates an electric field across the layers. The stronger the sunshine, the more electricity is produced.

What issues should I consider?

- PV works best in full sunlight.
- Consider movement of shadows during the day and over the year. Overshadowing can impact the overall performance of the PV array.
- The best commercial efficiency is 22%.
- In general 1sq m of conducting material such as crystalline array will provide an output of 90-110 kWh per year.

Where might this technology be appropriate?

- On a roof or wall that faces within 90 degrees of south, and isn't overshadowed by trees or buildings. If the surface is in shadow for parts of the day, your system will generate less energy.
- On top of a green or brown roof is ideal because the cooler temperature created locally by the vegetation improves the efficiency of the solar panel.
- Can be fitted to existing buildings, but need to consider additional weight of the panels.

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- Preference is for PVs to be flush to the roof or wall, but considerations will include the efficiency of the panel/s and whether they are visible
- Applicants are to confirm the number and size of panels or the overall square meters to be installed
- A meter is to be installed on the system for monitoring

Ground Source Heat Pumps (GSHP) or geothermal

What is it?

A network of underground pipes, which circulate a mixture of water and chemicals (to prevent freezing) through a loop and a heat exchanger.

How does it work?

The heat from the ground is absorbed by the liquid that is pumped through the buried pipes. A heat exchanger in the heat pump extracts the heat from the liquid and transfers it the water in the building's heating system which can be used for central heating and hot water. In the summer, when the ground is cooler than the air, the system can be reversed to provide cooling.

What issues should I consider?

- There are horizontal and vertical systems.
- Horizontal systems, also known as loop systems use trenches
- Vertical systems use boreholes which require a ground survey and a drilling license from the Environment Agency
- There are a range of permits and consents that might be required
- Generally provides heat at lower temperatures (30-50 degrees Celsius) than normal gas boilers.
- Buildings need to be well insulated for a GSHP to be effective
- The pump requires electricity to run so this technology will not be renewable or energy efficient in all developments.

Where might this technology be appropriate?

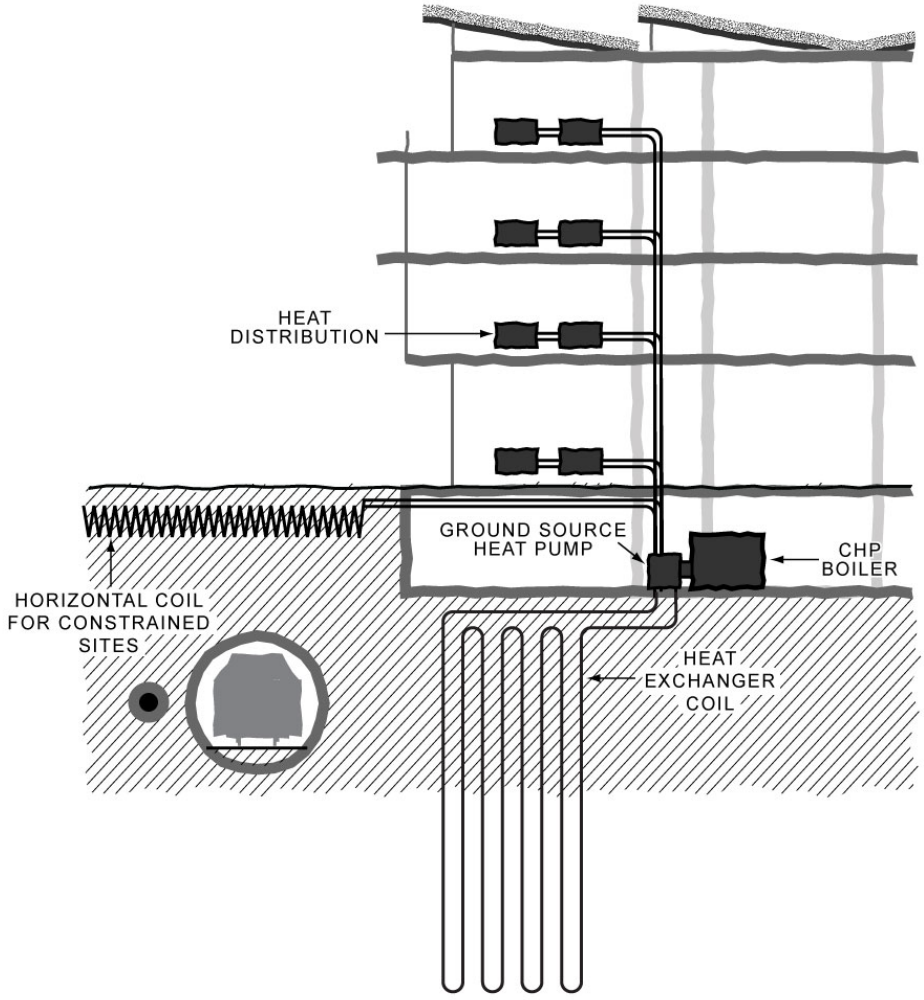
- The lower temperatures mean that GSHPs are well suited for underfloor heating
- Ideal for buildings which need heating in winter and cooling in summer

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- Evidence is to be provided to demonstrate that the local geology can accommodate the necessary excavation
- Consider how much electricity is required to work the pump versus the energy savings of providing heat or cooling. The carbon content of the electricity required to run the pump could be higher than the gas need to run a traditional gas boiler. The ratio of heat or cooling produced to the energy used to produce the heat is called the coefficient of performance (COP). For example, a heat pump which uses 1kW of electricity to produce 4kW of usable energy has a COP of 4 and is therefore 400% efficient. GSHPs need to have a COP of 4 or more to be considered renewable.

- When considering the carbon efficiency of a heat pump system the Council will take into account research and evidence of past performance of heat pumps and the seasonable performance.
- A meter on the system for monitoring

Figure 7. Ground Source Heat Pump Schematic



Air source heat pumps (ASHP)

What is it?

A heat pump that extracts heat from the outside air to heat the interior of a building or to heat hot water. It can also extract the heat from inside a building to provide cooling.

How does it work?

Air to water heat pumps operate on a similar principle to an ordinary refrigerator. Heat from the atmosphere is extracted by an outdoor unit and is absorbed by a refrigerant solution which is then compressed to a high temperature. The heat generated is used by the indoor unit to create hot water for a traditional heating and hot water system.

Air to air heat pumps work in a similar way, but instead of generating hot water, the heat from the compressed refrigerant solution is turned into hot air by an indoor unit which is used to heat the building.

What issues should I consider?

- ASHPs need electricity to run
- Can be less efficient than GSHPs as air temperature is more variable, i.e. colder in the winter when more heat needs to be extracted from the air.
- Consider the noise and vibration impact.
- Consider the visual impact.

Where might this technology be appropriate?

- Where there is no gas connection.
- Where the heating demand is isolated and for a short period of time.
- Can produce cool air as well as heat, so could be suitable in buildings which may otherwise require air conditioning

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- Consider how much electricity is required to work the pump versus the energy savings of providing heat or cooling. We will expect carbon calculations to show that that their use for heating is more efficient than gas. Otherwise they will not be acceptable. The calculations will be based on the co-efficient of performance (COP) and the carbon content of electricity and gas. ASHPs need to have a COP of more than 4 to be more efficient than a conventional heating system.
- When considering the carbon efficiency of a heat pump system the Council will take into account research and evidence of past performance of heat pumps and the seasonable performance.
- Noise assessment and mitigation report to be submitted
- A meter on the system for monitoring

Biomass heating and power

What is it?

A boiler which generates heat for central heating as well as hot water or a system which generates heat and electricity, known as a Combined Heat and Power (CHP) system.

How does it work?

Produces heat or heat and electricity by burning organic materials (such as wood, straw, energy crops or liquid biofuels). Natural gas can also be used, however, this will be considered to be a 'low carbon technology' rather than renewable, as gas is a fossil fuel.

What issues should I consider?

- The suitability of this technology will depend on the:
- local air quality
- need for air quality mitigation measures
- source and carbon intensity of processing the fuel
- emissions generated from transporting the fuel
- the impact on air quality – biomass boilers releases higher levels of nitrogen oxides (NOx) and particulates than conventional gas fired boilers or CHP systems
- There are a range of permits and consents that might be required
- Space is needed for power plant and fuel store
- Servicing arrangements for fuel delivery and transfer
- Possibility of sharing the system with other developments or consider establishing of a Community Combined Heat and Power scheme (CCHP)

Where might this technology be appropriate?

Biomass fed CHP systems are generally only proven on very large scale.

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- Boilers must be accredited as 'exempt appliance' under the Clean Air Act 1999
- Technical information relating to the biomass boiler/CHP will be required
- All biomass boilers and CHP will require an air quality assessment, including location and height of flues, details of emissions and how the emissions can be mitigated

- Biomass boilers and CHP are required to be designed, operated and maintained in accordance with best practise measures to minimise emissions to air. (Please refer to the section on Air Quality in the CPG6 Amenity for more detailed information)
- Evidence of potential fuel suppliers – a local fuel source is preferable
- Fuel is to be carbon neutral. Preparation of fuels must be treated and handled appropriately to ensure there are zero carbon emissions e.g. natural drying process not one that uses energy
- A meter on the system for monitoring

Wind turbines

What is it?

Blades or turbines which are rotated by the power of the wind.


Vertical axis turbine


Horizontal axis turbines

How does it work?

The wind turns the blades of the turbine to produce electricity. Horizontal or vertical axis turbines are available

What issues should I consider?

- Require a certain level of wind to make them feasible which is often difficult in London where there large obstacles such as buildings and trees which distort the flow of wind.
- If poorly located could use more energy than they generate.
- Need to be orientated towards the prevailing wind.
- Noise, vibration and flicker.

Flicker:

Rotating wind turbine blades can cast moving shadows when the sun is in a low position behind the turbine

Where might this technology be appropriate?

Could be suitable for low density developments or those with large amounts of open space e.g. schools and playing fields.

WHAT DOES THE COUNCIL EXPECT FOR THIS TECHNOLOGY?

- An assessment of the impact on neighbouring properties, particularly flicker, noise and vibrations
- A wind study and feasibility report.
- A meter on the system for monitoring

What is the feed-in tariff?

6.3 The feed-in tariff is a scheme where energy suppliers make regular payments to householders and communities who generate their own electricity from renewable or low carbon sources. The scheme guarantees a minimum payment for all electricity generated by the system, as well as a separate payment for the electricity exported to grid. These payments are in addition to the bill savings made by using the electricity generated on-site.

6.4 When considering the viability of the installation of technologies, the financial benefits of the feed-in tariff must be considered.

Further information

The London Energy Partnership	Has produced a toolkit which explains how renewable energy can be integrated into new developments: London Renewables Toolkit - Integrating renewable energy into new developments: Toolkit for planners, developers and consultants Available from the London Energy Partnership website www.lep.org.uk
REAL Renewable Energy Action for London	A web resource run by Creative Environmental Networks which provides information on installing renewable energy for home owners, architects and developers. www.cen.org.uk/REAL
Environmental Protection UK and LACORS	Have produced guidance on biomass and air quality. The guidance provides background material on the issues involved, and details procedures for assessing and managing the effects of biomass on air quality – specifically nitrogen dioxide (NO2) and particulates (PM10 and PM2.5). There are a number of guidance leaflet available on their website: • 'Biomass and Air Quality Guidance for Local Authorities' 'Biomass and Air Quality, Developers' Information Leaflet' www.environmental-protection.org.uk/biomass
The Mayor of London	Mayor's Air Quality Strategy includes emissions standards for new biomass and CHP equipment which will be implemented by the GLA www.london.gov.uk/publication/mayors-air-quality-strategy

7 Water efficiency

KEY MESSAGES

At least 50% of water consumed in homes and workplaces does not need to be of drinkable quality re-using water

All developments are to be water efficient

Developments over 10 units or 1000sq m should include grey water recycling

7.1 Core Strategy Policy CS13 protects the borough's existing water infrastructure to ensure we have an adequate water supply as well as adequate water storage and foul water capacity. Development Policy DP23 expects all developments to be designed to be water efficient and to minimise the need for further water infrastructure.

7.2 This section outlines what measures the council will expect to ensure developments reduce the consumption of water and reduce the amount of water that is disposed of.

WHAT DOES THE COUNCIL EXPECT?

The Council expects all developments to be designed to be water efficient by minimising water use and maximising the re-use of water. This includes new and existing buildings.

Minimising water use

7.3 The simplest way of doing this is through installing efficient water fittings and plumbing, such as

- dual flush toilets;
- low flow taps and shower heads; and
- low water consuming washing machines and dishwashers.

7.4 Your development will need to use a range of these measures to reduce their water consumption. Specifications should be practical for the intended occupier to ensure that fittings are not simply replaced.

7.5 Your development should include meters which are visible to occupants, as this has been shown to result in reductions in water use.

7.6 We will assess the performance of water minimisation measures used against the water category in BREEAM (see section 8 on sustainability assessments for more information).

Maximising the re-use of water

7.7 At least 50% of water consumed in homes and workplaces does not need to be of drinkable quality. For example, rain water can be water used for flushing toilets, washing laundry and watering plants and gardens.

Collecting rain water

7.8 This involves collecting rainwater from a building's roof, as well as its surroundings, and storing it in a tank. Once filtered of leaves and larger objects, the water can be re-used for toilet flushing, laundry and watering plants. If used outside, the rain water harvesting system can take the form of a simple water butt. If used within the building it will need to be supplied through pipes and taps that are separate from the standard mains water supply.

1.13 *Water butt*

WHAT WILL THE COUNCIL EXPECT?

The Council will require buildings with gardens or landscaped areas that require regular maintenance to be fitted with water butts.

Green/brown roofs and collecting rain water

7.9 Green/brown roofs can be designed to include rain water collection. However, more consideration needs to be given to the materials and pipe work that will go underneath the green/brown roof structure. Green/brown roofs with rainwater harvesting may also need to use extra filters to ensure the water can be re-used. See section 10 for more information on green/brown roofs.

Re-using water

7.10 'Grey water' (water that has already been used in hand basins, baths and showers) can be stored, filtered and disinfected, and then reused, for toilet flushing, garden watering or laundry. It is also possible to recycle 'black water' (water used for toilet flushing and washing up) although this is more resource intensive. Both 'grey water' and 'black water' systems will require regular maintenance to ensure their ongoing quality and effectiveness. A separate standard mains supply will also always be needed in addition to provide drinking water.

The Council will require developments over 10 units or 1000sq m and/or intense water use developments, such as hotels, hostels, student housing etc to include a grey water harvesting system, unless the applicant demonstrates to the Council's satisfaction that this is not feasible.

7.11 When considering the feasibility of grey water systems applicants should consider

- The cost of the system;
- Cost savings for owner/occupier over a 10 year period;
- Projected grey water generation;
- Projected demand for use of grey water; and

- Water savings as a result of the grey water system.

Further information

The Environment Agency produces a range of guidance about how to conserve and reduce water consumption.

- Conserving Water in Buildings: Fact Sheets, Environment Agency,
- Greywater: An information guide, Environment Agency, 2008
- Harvesting rainwater for domestic uses, Environment Agency, 2008

They are all available on the EA website:
www.environmentagency.gov.uk

8 Sustainable use of materials

KEY MESSAGES

Reduce waste by firstly re-using your building, where this is not possible you should implement the waste hierarchy

The waste hierarchy prioritises the reduction, re-use and recycling of materials

Source your materials responsibly and ensure they are safe to health.

8.1 This guidance relates to Core Strategy policy CS13 - T*ackling climate change through promoting higher environmental standards* in design and construction. It encourages developments to be sustainable: through the choice of appropriate materials which will assist in minimising energy needs both during construction and occupation periods and by making efficient use of resources.

8.2 It also relates to Development Policy DP22 - *Promoting sustainable design and construction which* encourages developments to conserve energy and resources through the use of recycled and renewable buildings materials.

8.3 This guidance shows how you can minimise the use of resources through your choice of materials to limit the environmental impact of developments. You can achieve this by focusing on the sustainable (re)use of existing materials as far as possible before considering introducing new materials. There are 5 key measures:

1. Managing existing resources;
2. Specifying materials using the Building Research Establishment's Green Guide to Specification;
3. Ensuring that materials are responsibly sourced;
4. Minimising the harmful effects of some materials on human health; and
5. Ensuring that specified materials are robust and sensitive to the building type and age.

Managing existing resources

8.4 Most development sites have existing materials which can be re-used, recycled or obtained from nearby development sites. You should always look for options to sensitively re-use, refurbish, repair and convert buildings, rather than wholesale demolition (see Camden Development Policies paragraph 22.4). This will reduce the amount of resources used and will help reduce construction waste.

8.5 Where the retention of a building or part of a building is not possible, you should aim to tackle the quantity of waste produced - from the demolition phase through to the construction phase – through the use of the waste hierarchy.

WHAT WILL THE COUNCIL EXPECT?

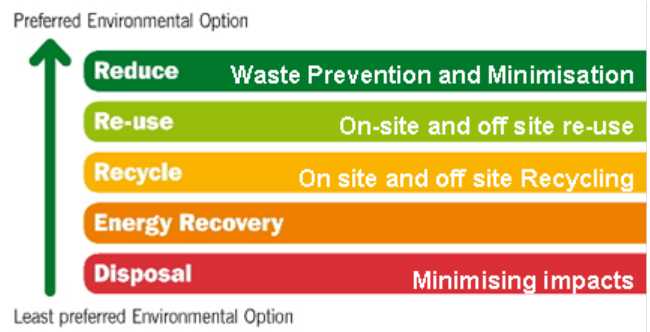
All developments should aim for at least 10% of the total value of materials used to be derived from recycled and reused sources. This should relate to the WRAP Quick Wins assessments or equivalent as (highlighted in the waste hierarchy information section below). Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.

Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

The Waste Hierarchy

8.6 The 'waste hierarchy' ranks the different ways in which waste can be treated so that it limits the amount of resources used and waste generated. You are to justify the use of (existing) resources and materials in your development through the implementation of the waste hierarchy below to minimise waste generated during the demolition and construction process.

Figure 8. The waste hierarchy



8.7 In line with the waste hierarchy, during the construction phase, our preferred approach is:

1. the use of reclaimed materials;
2. the use of materials with higher levels of recycled content; and
3. the use of new materials.

8.8 Similarly, in demolition you should:

1. prioritise the on site reuse of demolition materials;
2. recycle materials on site recycling, then off site recycling; and
3. the least preferred option - disposal to landfill.

Reduce

8.9 Reducing waste is the preferred option and at the top of the waste hierarchy – this means the Council prefers you prevent waste being produced in the first place rather than recycle or dispose waste that is

produced. You should focus on opportunities for waste reduction from the outset, at the earliest stages of design, as well as through better methods of purchasing and ways of working, for example by ordering the right amount of materials for the job.

8.10 Where demolition is necessary, you and your contractors are encouraged to:

- safely remove the most valuable or more contaminating materials and fittings for later re-use or processing before work commences.
- optimise the reuse and recycling of demolition materials - the Council strongly encourages the use of the Demolition Protocol where substantial demolition is proposed (over 1000 square meters). In general the protocol is a 'demolition waste audit' - a process that describes the percentage of the materials present on a site which can be reused/recycled (either in the development site or one nearby). For further detailed guidance on the Demolition Protocol (2003), refer to: Institute of Civil Engineers (ICE) and London Remade: www.londonremade.com
- You are to demonstrate that the most significant opportunities to increase the value of materials derived from recycled and reused content have been considered. A good way of achieving this aim at no additional construction cost is to use the Waste and Resources Action Programme (WRAP) by selecting the top ten WRAP Quick Wins or equivalent, and implement the good practice guidance highlighted: www.wrap.org.uk
- Building contractors are legally required to produce Site Waste Management Plans (SWMP) for all projects with an estimated construction cost of over £300,000. A Site Waste Management Plan provides a framework for managing waste in line with the hierarchy by identifying types and quantities of materials for re-use/recycling to reduce the amount of waste produced by construction projects. For further guidance see the WRAP NetWaste tool which has a site waste management plan function: www.wrap.org.uk
- The WRAP Quick Wins assessment can form part of a development's Site Waste Management Plan.
- Designing for deconstruction (rather than demolition) is strongly encouraged. Deconstruction is the dismantling of a structure in the reverse order in which it was constructed, which means that the materials that were put on last are removed first.
- From the outset, new buildings should be designed with the prospect of future deconstruction being implementable. This process will facilitate the segregation and extraction of materials that could be carefully removed intact during redevelopment, and then re-used/recycled wherever possible.
- You are encouraged to incorporate a 'material salvage phase', in which construction and surplus materials are recovered from the site. Additionally, materials should be segregated into categories, e.g.

timber waste, metal waste, concrete waste and general waste – to aid re-use or recycling.

8.11 Only once all the 'Reduce' options have been considered, should you consider the other waste options.

Re-use

8.12 Re-using materials (either onsite/off-site) is defined as putting resources/materials to an alternative use so that they are not wasted and disposed of. This can be done during the design, procurement and construction phases of a development by, for example:

- identifying and segregating materials already on site for re-use in the new development, such as:
  - bricks, concrete
  - internal features – historic fireplaces, timber floorboards, doors
  - metal frames, plastics, granite
  - sub-soil, top soil;
- using the BRE Smart Waste www.smartwaste.co.uk management plan tool. This is an on line template contractors can use to input data on the amount and type of waste and have it sorted by the management tool;
- making materials not reused on site available for reuse elsewhere. Consider the exchange/sale/donation of construction site materials to waste recovery businesses, such as: BRE Materials Information Exchange (www.bre.co.uk); Waste Alert North London's Waste Exchange service (www.wastewatch.org.uk , etc. These specialists can sort the waste materials into various types and then find businesses that can reuse/recycle them.

Recycling

8.13 Recycling materials (either onsite/off-site), is the preferable solution only when waste minimisation 'reduce' or reuse are not feasible. The recycling of materials enables them to be made into something new). Every opportunity should be taken to recycle materials, this can be done by, for example:

- identifying and segregating materials for recycling, such as:
  - metals and high value materials
  - timber, plasterboard, packaging
  - concrete crushed and re-used for concrete aggregate;
- using the BRE Smart Waste www.smartwaste.co.uk , mentioned above
- considering 'take-back' schemes with suppliers for materials and packaging. This where suppliers take back any materials not used as well as any packaging the materials are delivered in

- making materials not reused on site available for reuse elsewhere, as discussed above.

Disposal

8.14 Disposal is the least preferred waste management approach. Developers should only consider disposal of materials and waste after all of the above approaches have been carried out. Disposal generally involves burying the materials in a landfill or burning it at high temperatures in an incinerator. Where disposal is the only option for the materials developers should:

- identify materials that are contaminated and cannot be reused and arrange for their safe and legal disposal by the authorised waste management;
- remove all toxic and hazardous materials from a development site in accordance with any relevant legislation, unless they are integral to the structure or a feature to be retained, and any harm to environmental or public health should be mitigated;
- limit waste disposal to minimise the amount of land fill tax that needs to be paid.

Using the BRE Green Guide to Specification

8.15 You are encouraged to use the BRE Green Guide which provides guidance on how to make the best environmental choices when selecting construction materials and building components. The Green Guide ranks, materials and components on an A+ to E rating scale – where A+ represents the best environmental performance / least environmental impact, and E the worst environmental performance / most environmental impact.

8.16 In new-build and development projects with either - 500sq m of any floorspace or more or 5 dwellings or more - you should seek to achieve an area weighted average of A+ to B for the major building elements (roof, external walls, floor finishes, internal partitions and windows) in accordance with the BRE Green Guide to Specification. For further guidance see the sections on BREEAM assessments in section 9 of this guidance which sets out standards for developments to meet in the Materials category. For further guidance on BRE Green Guide to Specification: www.bre.co.uk

Responsible Sourcing

8.17 You should specify materials from suppliers who participate in responsible sourcing schemes such as the BRE BES 6001:2008 Responsible Sourcing Standard. All timber specified should be sourced from schemes supported by the Central Point of Expertise for Timber Procurement such as Forest Stewardship Council (FSC) accreditation (which ensures that the harvest of timber and non-timber products maintains the forest's ecology and its long-term viability). The use of

responsible sourcing can contribute towards attaining the BREEAM credits but a clear audit trail will need to be provided to gain these credits. For further guidance on responsible sourcing of materials: http://www.bre.co.uk/

'Healthy' materials

8.18 The Council recommends the use of environmentally sensitive building (non-toxic) materials and avoiding the use of materials or products that produce VOC (volatile organic compounds and formaldehyde) which can affect human health. For current controls on VOC's see the link below. The use of 'healthy' material options can contribute towards attaining the BREEAM credits but a clear audit trail will need to be provided to gain these credits.

Historic materials

8.19 In projects that involve the refurbishment of heritage buildings (those built before 1919) or those in conservation areas, materials should be specified in line with the following hierarchy:

- Reclaimed materials should be matching and appropriate to the building type/area (original construction time/period) and sufficiently robust in their performance not to compromise building function;
- Materials with a low environmental impact as determined by the BRE Green Guide to Specification subject to approval from Conservation Officers and provided those materials do not compromise the performance (thermal, structural or otherwise) of the existing building; and
- When selecting insulation materials for older buildings, preference should be given to natural fibre based materials that prevent moisture retention in the building fabric.

How will the Council secure the sustainable use of materials?

Design and Access Statement

8.20 As part of the Design and Access Statement for your development, you will be expected to describe how the development has considered materials and resources. This statement should provide an explanation of the opportunities for the selection and sourcing of sustainable materials that have been considered in the proposal, and the reasons for the sourcing choices made. Your statement should also detail which existing materials on the site are to be re-used as part of your development or made available for re-use elsewhere.

Construction Management Plan (CMP)

8.21 A Construction Management Plan will be required to support many developments and will help manage on site impact arising from demolition and construction processes. The types of schemes where a CMP will usually be appropriate include:

- major developments;
- basement developments;
- developments involving listed buildings or adjacent to listed buildings; and
- For a full list see Development Policy DP26 - *Managing the impact of development on occupiers and neighbours*, paragraph 26.10 and the relevant sections on Construction management plans in CPG4 Basements and Lightwells, CPG6 Amenity, and CPG8 Planning Obligations.

A set of minimum standards and a template Construction Management plan is available on the Council's website.

Site Waste Management Plan (SWMP)

8.22 Where a 'site waste management plan' (SWMP) is required (in projects with an estimated construction cost of over £300,000) it should include a pre-demolition audit of materials completed by a qualified professional and submitted with an application, in accordance with the Demolition Protocol. The audit must show what materials can and will be reused. If a full audit cannot be provided with the application, it should be submitted to and approved by the Council prior to commencement of works on site. Therefore the Construction Management Plan (where required) will have to reflect that space will be required to sort, store and perhaps crush/recycle materials as part of the SWMP. This link into the WRAP NetWaste tool has a site waste management plan function: www.wrap.org.uk/construction/tools_and_guidance/net_waste_tool

Planning obligations and Section 106

8.23 Meeting the requirements for sustainable design and construction is often achieved in the detailed design or construction phases. Normally, requirements for environmental design will be dealt with using conditions, but in some circumstances a Section 106 agreement may be required to secure an environmental assessment of the proposed development carried out by an impartial assessment body or a sustainability plan to provide and maintain the highest environmental standards of development.

8.24 If a proposal generates a requirement for a management plan such as a SWMP or CMP (as discussed above) but cannot be implemented through the approved design or satisfactorily secured through conditions, they may be secured as part of a Section 106 Agreement. The requirements will be relevant, proportionate and related to the specific nature and potential impacts of the development proposed. The associated costs to the Council of any post-planning decision assessments, verification, or monitoring in relation to these and other related sustainability and energy plans shall be met by the developer.

Further information

Sustainable Design and Construction	The London Plan Supplementary Planning Guidance, Mayor of London www.london.gov.uk
BREEAM	BRE Environmental Assessment Method www.breeam.org
BRE Smart Waste	An on-line site waste management plan tool. It's a template contractors can use to input data. www.smartwaste.co.uk
Materials	For Materials Information Exchange and Architectural salvage and surplus building materials: • Architrader - www.architrader.com • SALVO - www.salvomie.co.uk/ • Waste Exchange - www.wasteexchange.net To find out how you can use more recycled and reclaimed products and building materials see www.ecoconstruction.org. There is a searchable database of available products on this website with information about the manufacturing processes of the products and their compositions, as well as contact details of suppliers. Design for deconstruction – principles of design to facilitate reuse and recycling, B Addis (2003) CIRIA Best Practice Guidance C607.
Volatile Organic Compounds	For current controls on avoiding VOCs and using healthy materials, see: British Standard (BS) regulates UFFI quality, limits the product's use and limits ingress of formaldehyde vapour into buildings (BS: 5617, 5618 (1985)). A BS Institution standard (BS 5669 part I (1989), BS 1142 (1989)) regulates the formaldehyde content, together with test methods that must be used to assess formaldehyde levels in particle boards and fibreboards.

9 Sustainability assessment tools

KEY MESSAGES

Arrangements following the Government's Housing Standards Review and withdrawal of the Code for Sustainable HomesThe creation of 5 or more dwellings from an existing building will need to be designed in line with BREEAM Domestic Refurbishment

500sq m or more of non-residential floorspace will need to be designed in line with BREEAM

9.1 A way to ensure buildings are sustainable is to use a standardised environmental assessment tool to measure the overall performance of buildings against set criteria. Buildings that achieve high ratings use less energy, consume less water and have lower running costs than those designed to building regulations alone.

9.2 Paragraph 13.8 of Core Strategy policy CS13 - *Tackling climate change through promoting higher environmental standards* notes that BREEAM is a helpful assessment tool for general sustainability.

9.3 This section explains:

- when you need to carry out a BREEAM assessment
- arrangements following the Housing Standards ReviewThe standards which need to be met for each type of development. These are more detailed targets for Energy, Water and Materials than those in the Development Policy DP22 - *Promoting sustainable design and construction.*
- The information required at each stage of the assessment

When do you need to carry out a sustainability assessment?

Development type	What does this include?	Threshold for assessment	Appropriate assessment tool
Residential - Existing	Refurbishments, conversions and changes of use	5 dwellings or more 500sq m of floorspace or more	BREEAM Domestic Refurbishment
Non-residential	Includes offices, retail, industrial, education health	500sq m of floorspace or more	BREEAM
Mixed use schemes	If your scheme includes both residential and non-residential uses that total 500sq m of floorspace or more we will require a BREEAM assessment for the non-residential parts.		

9.4 This table sets out when the Council will require a sustainability assessment for all the types of development and which assessment tool to use.

9.5 The assessment tools are updated periodically and therefore the most recent version of the assessment tool is to be used.

Code for Sustainable Homes – housing standards review transitional arrangements and approach

9.6 The Code for Sustainable Homes has now been withdrawn and the Ministerial Statement dated 25 March 2015 sets out the Government's national policy on the setting of technical standards for new dwellings.

9.7 The Council will continue to require new residential development to submit a sustainability statement demonstrating how the development mitigates against the causes of climate change and adapts to climate change, in line with existing policies contained in Camden's Core Strategy CS13 Tackling climate change through promoting higher environmental standards and Development Policies document DP22 Sustainable design and construction.

9.8 Proposals should demonstrate how sustainable design and construction principles, including the relevant measures noted in the table on page 104 of the Development Policies Document have been incorporated into the design and proposed implementation. Acceptable new residential schemes will be required to ensure that the measures stated in the Sustainability Statement are secured and implemented.

9.9 New residential development will be required to demonstrate that the development is capable of achieving a maximum internal water use of 105 litres per person/day, with an additional 5 litres person/day for external water use.

9.10 The Council is still able to apply policies which require compliance with energy performance standards until the Planning and Energy Act 2008 has been amended The Code Level 4 equivalent in carbon dioxide emissions reduction below part L Building Regulations 2013 is 20%. New residential dwellings will be required to demonstrate how this has been met by following the energy hierarchy in an energy statement. Policy CS13 also requires that all developments (existing and new build) achieve a 20% reduction in on-site carbon dioxide emissions through renewable technologies, unless demonstrated that such provision is not feasible.

Zero Carbon

Zero carbon refers to buildings that are so energy efficient they do not release any carbon emissions. The Government is currently aiming to ensure that all new homes are zero carbon by 2016. For more information visit www.zerocarbonhub.org

You are strongly encouraged to meet the following standards in accordance with Development Policy DP22 - *Promoting sustainable design and construction*:

BREEAM

9.11 BREEAM stands for Building Research Establishment Environmental Assessment Method. It is a tool to measure the sustainability of non-domestic buildings. There are specific assessments for various building types such as offices, retail, industrial, education and multi-residential. For developments that are not covered by one of the specific BREEAM assessment tools, this often applies to mixed use schemes, a tailored assessment can be created using the BREEAM Bespoke method

9.12 BREEAM assessments are generally made up of nine categories covering:

- Energy
- Health and Well-being
- Land use and Ecology
- Management
- Materials
- Pollution
- Transport
- Waste
- Water

9.13 Each of the categories above contain criteria which need to be met in order to gain credits. The higher the rating, the greater the number of specific credits needed. Some of the criteria have weighted credits which are used to reflect how important certain elements are, such as energy efficiency. All the credits are added together to produce the overall score. The development is then rated on a scale from PASS, to GOOD, VERY GOOD, EXCELLENT and ending with OUTSTANDING

You are strongly encouraged to meet the following standards in accordance with Development Policy DP22 - *Promoting sustainable design and construction*:

Time period	Minimum rating	Minimum standard for categories (% of un-weighted credits)
2010-2015	'very good'	Energy 60% Water 60% Materials 40%
2016+	'excellent'	

BREEAM Domestic Refurbishment

9.14 BREEAM Domestic Refurbishment is used to assess the sustainability of existing of housing where refurbishment, conversion or a change of use is proposed. It uses the same principles as BREEAM with categories, criteria and credits.

You are strongly encouraged to meet the following standards in accordance with Development Policy DP22 - *Promoting sustainable design and construction*:

Time period	Minimum rating	Minimum standard for categories (% of un-weighted credits)
2010-2012	'very good'	Energy 60% Water 60% Materials 40%
2013+	'excellent'	

What are the relevant stages?

Pre-assessment

9.15 The pre-assessment stage involves an initial review of the development to determine how sustainable it will be. It provides you with an early indication of the overall score your development will achieve by using the plans and drawings to estimate the number of credits that are likely to be achieved for each category. The results of the pre-assessment identify changes that need to be made to your scheme before construction begins to ensure it is as sustainable as possible. The pre-assessment stage also helps to identify if there are any experts, such as ecologists, that you need to invite to become involved in the development.

9.16 The results of your pre-assessment will form the basis of the condition or Section 106 planning obligation for the final development, so accuracy is crucial. In some circumstances it may be appropriate to over estimate the credits needed to achieve the final rating as some credits can be lost during the final design stages.

AT THIS STAGE THE COUNCIL WILL EXPECT:

- The submission of a pre-assessment report at the planning application stage. The report should summarise the design strategy for achieving your chosen level of BREEAM and include details of the credits proposed to be achieved.

- The pre-assessment report is to be carried out by a licensed assessor. The name of the assessor and their licence number should be clearly stated on the report.

Design stage assessment

9.17 The aim of the design stage assessment is to review the detailed design specifications of your development. More detailed site specific information is generally available at this stage, in comparison to the pre-assessment stage, which allows the assessor to make a more precise estimate of the BREEAM rating. Some elements of the assessment will need to be refined once construction has begun, because some materials and appliances are not specified until after or during construction. However, the assessor will ensure that any design and/or specification changes are reflected in the final Design Stage Assessment.

9.18 Once the assessor has completed the assessment it is submitted to the BRE for review and certification. The BRE will then issue a BREEAM Design Stage certificate indicating what level of sustainability the development has achieved.

AT THIS STAGE THE COUNCIL WILL EXPECT:

- Submission of an early design stage assessment to the Council prior to beginning construction of the development. This is needed to discharge the relevant condition or Section 106 planning obligation
- Ensure the assessor submits the final Design Stage Assessment to BRE for certification
- Submission of a copy of the Design Stage certificate to the Council

Post-construction assessment

9.19 The post-construction assessment reviews the design stage assessment and compares it with the completed development to ensure that all the specified credits have been achieved. It is carried out once your development has been completed and is ready for occupation. Once the assessment has been completed, it needs to be submitted to BRE for certification.

AT THIS STAGE THE COUNCIL WILL EXPECT:

- A post-construction assessment to be carried out as soon as possible after completion
- Submission of a copy of the post-construction certificate to the Council
- Submission of a copy of the Design Stage certificate to the Council, if not already submitted

9.20 There is often a delay between the completion of a development and the receipt of a post-construction certificate. Therefore the Council will allow occupation prior to the receipt of the final certificate. This approach will

be monitored to ensure that the design stage certificate is consistent with the final post-construction report and certificate.

Further information

BRE (Building Research Establishment)	Provides detailed information on sustainability assessments, how to find an assessor, example assessments and how to submit your assessment: www.bre.co.uk
BREEAM	Provides detailed information on all the different types of BREEAM assessments that are available, how to use them, how to find an assessor, what all the different stages are and other useful guidance: www.breeam.org
Zero Carbon Hub	This organisation is working with the Government to implement the target towards ensuring all new homes are zero carbon. Their website provides information on what zero carbon is, how it can be achieved and case studies: www.zerocarbonhub.org

10 Brown roofs, green roofs and green walls

KEY MESSAGES

All developments should incorporate green and brown roofs

The appropriate roof or wall will depend on the development, the location and other specific factors

Specific information needs to be submitted with applications for green/brown roofs and walls

10.1 As development densities increase, brown roofs, green roofs and green walls can provide valuable amenity space, create habitats and store or slow down the rate of rain water run-off, helping to reduce the risk of flooding.

10.2 Green and brown roofs can help to reduce temperatures in urban environments. This is particularly valuable in Camden where we suffer from increased temperatures in Central London (known as the urban heat island effect).

10.3 Development Policy DP22 states that schemes must incorporate green or brown roofs and green walls wherever suitable. Due to the number of environmental benefits provided by green and brown roofs and green walls, where they have not be designed into a development the Council will require developers to justify why the provision of a green or brown roof or green wall is not possible or suitable.

WHAT WILL THE COUNCIL EXPECT?

The Council will expect all developments to incorporate brown roofs, green roofs and green walls unless it is demonstrated this is not possible or appropriate. This includes new and existing buildings. Special consideration will be given to historic buildings to ensure historic and architectural features are preserved.

What are green and brown roofs?

10.4 Green and brown roofs are roofs that are specially designed and constructed to be waterproof and covered with material to encourage wildlife and to help plants grow. They can be left without planting - 'brown' or planted with a range of vegetation - 'green' depending on the depth or the soil or substrate.

Substrate

Substrate is a layer of material which supports the roots and sustains the growth of vegetation.

There are three main types of green and brown roof:

1. Intensive roofs
2. Semi intensive roofs
3. Extensive roofs.

The general features of these roofs are shown below:

	Extensive	**Semi Intensive**	**Intensive**
Use	Ecological Landscape	Garden/Ecological Landscape	Garden/Park
Type of vegetation	Mosses, Herbs, Grasses	Grasses-Herbs-Shrubs	Lawn, Perennials, Shrubs & Trees
Depth of Substrate	60-200mm	120-250mm	140-400mm
Weight	60-150 kg/m2	120-200 kg/m2	180-500 kg/m2
Maintenance requirement	Low	Periodic	High

Intensive roofs

10.5 Intensive roofs provide the widest range of uses such as for accessible amenity space or to create ecological habitats. They are known as 'intensive' due to the high level of design, soil or substrate depth and maintenance that they require. They can also be used to manage water by including systems that process wastewater or store surplus rain water. They can also be designed specifically for food production.

Semi Intensive roofs

10.6 Semi Intensive Roofs can provide a degree of access and the potential for the creation of habitat. Similar water management functions can be integrated into their design as outlined above.

Extensive roofs

10.7 Extensive Roofs are generally light weight, with a thin layer of substrate and vegetations. They can be further sub divided into 3 types:

1. Sedum Roofs:

These either take the form of Sedum mats or plug planted Sedum into a porous crushed brick material. Sedum roofs are relatively light weight and demand low levels of maintenance. They can be more readily fitted on to existing roofs.

Sedum

Sedum is a type of vegetation. They are generally short plants with shallow roots and thick leaves.

2. Brown roofs for biodiversity:

Brown roofs should create habitats mimicking local brownfield sites by using materials such as crushed brick or concrete reclaimed from the site. However, these materials are very heavy and cannot hold water for irrigation. Therefore it is preferable to use materials of known quality and water holding capacity. The brown roof is then planted with an appropriate wild flower mix or left to colonise naturally with areas of dead wood or perches for birds.

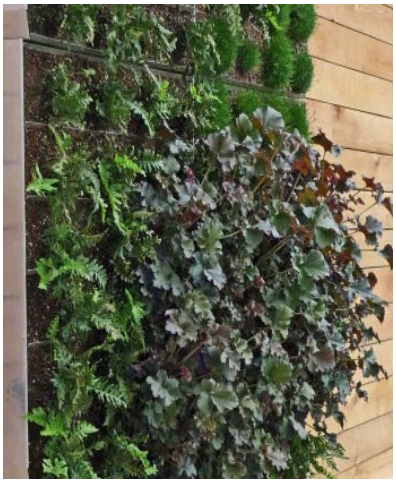
3. Green roofs for biodiversity:

Green roofs are usually formed by planting a wild flower mix on an appropriate layer of material. There are various techniques for the creation of this type of roof.

What are green walls?

10.8 Green Walls are walls or structures attached to walls where plants have been planted. Plants can be planted directly into a material within the wall or can be planted in the ground or a pot and encouraged to climb up a structure so that the wall is covered with vegetation.

Green walls provide a number of benefits:



- They provide useful habitat for invertebrates which in themselves provide a food source for birds and bats. Dense foliage provides nesting sites for a number of birds such as robin, wren and blackbirds
- evergreen, climbing plants provide insulation and can reduce wind chill during winter months
- climbing plants provide shade which can help to cool a building in summer, particularly when grown on south and western facing walls.
- climbing plants can also be effective in trapping airborne pollutants
- provide visual interest adding colour and texture to the wall surface

Green wall can be split into 3 main types:

4. Self clinging climbers such as Ivy, Russian Vine and Virginia Creeper. These plants are able to grow directly onto the wall surface.
5. Climbers which need support e.g. Honeysuckle and Jasmine. Supports are usually provided by trellis structures, wires etc. Well designed trellis or cable structures can become design features in themselves.

6. Vertical Systems (also known as Living Walls, Vertical Gardens). These walls are called 'systems' as they are made up of modular panels designed to support plant growth and require a feeding and watering system. The modules themselves are supported on or within a steel framework. Watering systems and a plant nutrient supply is incorporated into these systems requiring ongoing maintenance. The planted panels can be designed with a variety of plants depending on the aesthetic and habitat requirements of a project.

What to consider when choosing green roof or brown roof or green wall

10.9 Selecting the appropriate type of green/brown roof or wall type will depend on a number of factors including:

- the type of building
- cost
- maintenance
- weight of the roof or wall
- provision of amenity space
- provide visual interest to surrounding building occupants
- habitat creation
- reduction of rain water run off
- reduction of heating and cooling energy usage of a building
- water conservation and recycling
- space for food production (see section 14 of this guidance on urban food production).

What will the Council consider when assessing applications?

10.10 All developments should aim to incorporate green or brown roofs and green walls. Careful consideration needs to be given to the design of the roofs and any blank walls to enable the incorporation of these features and the need to access these areas for maintenance.

10.11 The Council will expect green or brown roofs and green walls to be provided in areas with low levels of vegetation, such as town centres and Central London, which are both more likely to feel the effects of climate change and developments where occupiers will be susceptible to overheating such as schools and offices. (See Camden Core Strategy policy CS15 - *Protecting and improving our parks and open spaces and encouraging biodiversity*).

10.12 The assessment of planning applications incorporating green/brown roofs and green walls will be made based on appropriateness for the site, the degree to which the chosen design objectives are met by the proposal and sustainable maintenance. Where green roofs are to be accessible for amenity purposes potential overlooking and loss of

privacy to adjoining properties will also be assessed (See the Overlooking, privacy and outlook section of the CPG6 Amenity)

10.13 The most appropriate green or brown roof and green wall should be incorporated into a development. We will consider the following factors when determining the most appropriate form of roof and wall:

- the loss of any biodiversity habitat on the site and the surrounding area;
- the existing need for habitat on the site and surrounding area;
- whether the site is overlooked;
- whether the site is an area that has historically suffered from surface water flooding;
- the amount of external heat generated by the development;
- whether the roof is to be accessible;
- the location of mechanical plant;
- the inclusion of areas of blank wall;
- access to walls and roofs;
- where being retro-fitted, the weight of the new roof or wall; and
- the amount of irrigation and maintenance required.

WHAT INFORMATION WILL THE COUNCIL EXPECT?

- a statement of the design objectives for the green or brown roof or green wall
- details of its construction and the materials used, including a section at a scale of 1:20
- planting details, including details of the planting technique, plant varieties and planting sizes and densities.
- a management plan detailed how the structure and planting will be maintained

Further information

The Environment Agency	The EA has a green roof toolkit that can be used to help you determine what solution is best for your development www.environment-agency.gov.uk/business/sectors/91967.aspx
"Living Roofs: Promoting green roofs, roof terraces and roof gardens across London"	GLA document which highlights the significant role that the roof space on buildings have to play in providing amenity space, increased biodiversity and improved building performance in terms of energy conservation and SUDS.
LivingRoofs.org	Provides detailed information on all the types of green and brown roofs as well as case studies, articles and research. www.LivingRoofs.org
National Centre of Excellence for green roofs	This website has a wide range of information on green roofs, including best practice, guidance, research and case studies. www.greenroofcentre.co.uk

11 Flooding

KEY MESSAGES

All developments are required to prevent or mitigate against flooding

All developments are expected to manage drainage and surface water

There is a hierarchy you should follow when designing a sustainable drainage system

11.1 Camden has few permeable surfaces and a very high population density. As a result it is deemed to have a high risk of surface water flooding, which is likely to be increased by further growth and intensification of the built environment as well as the increasing risk of heavy rainfall due to climate change. Surface water flooding is caused when the existing water infrastructure (drains and sewers) cannot cope with heavy rainfall.

11.2 Map 5 in the Camden Core Strategy (and Map 2 in Development Policies) shows the parts of the borough that have experienced surface water flooding in the past and identifies the areas which are at risk of surface water flooding in the future. The location of development can impact the way that water flows around and underneath new and existing structures. Therefore all developments need to consider the risk of flooding. Especially developments within the identified areas, which must be designed to prevent causing additional pressure on adjoining sites and the sewer system.

11.3 Legislation has been introduced in the Floods and Water Management Act setting up a potential additional approval system for drainage plans. No further details are currently available on the specific requirements to support the Act.

WHAT DOES THE COUNCIL EXPECT?

Developments must not increase the risk of flooding, and are required to put in place mitigation measures where there is known to be a risk of flooding.

Within the areas shown on Core Strategy Map 5 (Development Policies Map 2) we will expect water infrastructure to be designed to cope with a 1 in 100 year storm event in order to limit the flooding of, and damage to, property.

All sites in Camden over one hectare or 10,000sq m require a Flood Risk Assessment in line with the National Planning Policy Framework. The assessment should be site specific and concentrate on the management of surface water run-off, and / or ground water where applicable, and should address the amount of impermeable surfaces resulting from the development and the potential for increased flood risk both on site and elsewhere within the catchment. These must be prepared by a suitably qualified professional and should be submitted with a planning application.

How to reduce the risk of flooding

Surface water

11.4 Every urban surface should be considered as a rainfall collector, allowing water to pass through to a drainage layer below or flow to a soakage area so that water volumes do not build up to cause problems downstream. Therefore, the design of drainage is very important. Poorly designed and maintained drainage can lead to surface water flooding caused by heavy rainfall. It needs to be able to cope with the heaviest of rainfall expected over the buildings lifetime (this is around 60 years for commercial development and 100 years for residential development) and also help reduce and slow the amount of run-off leaving a site.

11.5 The best way to deal with heavy rainfall and a traditional pipe drainage system is to introduce new areas for water to soak into the ground. Sustainable Drainage Systems (SUDS) provide a way to manage surface water in a way which mimics the natural environment. SUDS help reduce the amount of surface water leaving a site and can slow down the rate water flows. It also helps improve water quality by filtering out contaminants. SUDS can provide broader benefits, including the capture and re-use of water by linking into a rainwater or grey water harvesting system. They can also provide green, landscaped areas offering recreation and habitat for wildlife.

WHAT DOES THE COUNCIL EXPECT?

All developments are expected to manage drainage and surface water on-site or as close to the site as possible, using Sustainable Drainage Systems (SUDS) and the hierarchy set out below.

The Council will expect plans and application documents to describe how water will be managed within the development, including an explanation of the proposed SUDS, the reasons why certain SUDS have been ruled out and detailed information on materials and landscaping.

The Council will expect developments to achieve a greenfield surface water run-off rate once SUDS have been installed. As a minimum, surface water run-off rates should be reduced by 50% across the development.

The SUDS hierarchy

11.6 Surface water should be managed as close to its source as possible. The following hierarchy should be followed when considering which SUDS techniques to use.store rainwater for later use - use rainwater tanks or water butts to collect rain/storm water so that it can be re-used. See section 6 of this guidance for more information on grey water and rainwater harvesting systems. This will

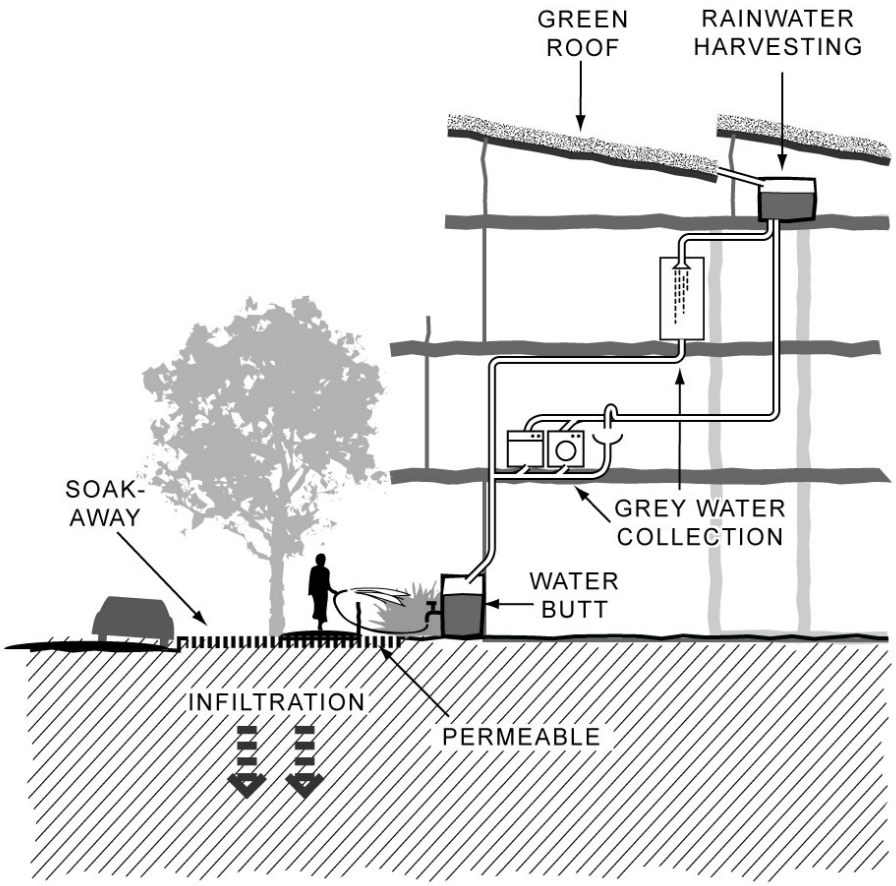
help to stop flash flooding during periods of heavy rainfall.

1. Use infiltration techniques - porous and permeable surfaces which allow water to soak (infiltrate) directly into the subsoil, rather than flowing over the top. This method is particularly appropriate on London Clay (in the North of the borough) where infiltration is slow. A layer of material needs to be laid between the clay and the uppermost surface to act as a storage/drainage channel. The use of permeable surfaces in urban SUDS design is critical because space is at a premium in Camden and permeable pavements and surfaces are one technique which does not require any additional land to function effectively.
2. Collect and store (also known as attenuation) rainwater in ponds or open water features for gradual release - SUDS can be designed to hold storm water in ponds or specially designed wetland areas so that it can then be released more slowly into the ground or sewer. This is generally suitable for larger sites and those up stream of areas at risk of flooding)
3. Collect and store rainwater in tanks or sealed water features for gradual release - where sites are constrained, with no natural landscaping or open areas, tanks can be installed which store water so that it can then be released more slowly into the ground or existing sewer.
4. discharge rainwater direct to a watercourse
5. discharge rainwater to a surface water sewer/drain
6. discharge rainwater to the combined sewer

11.7 All the above can be incorporated into the landscaping on a site or development. For example green open space, verges and green roofs can be designed to filter and store rainwater, thus reducing pressure on drainage systems during heavy rainfall. Trees also reduce surface water runoff. For more information, please see section 10 of this guidance on brown roofs, green roofs and green walls and section 5 on Landscape design and trees in CPG1 Design for more information.

11.8 Figure 10 below shows all the different types of SUDS, from rain water harvesting, green roofs, porous surfaces, vegetation to ponds, reed beds and rivers.

Figure 9. Sustainable Urban Drainage System



Ground water

11.9 The geology in the northern parts of the borough is gravel and silt on top of a layer of clay. Water can travel through the gravel and silt, but the rate of infiltration slows when it reaches the clay layer. This results in an area where ground water is likely to collect. This geology has resulted in the formation of springs, wells and the chain of ponds on Hampstead Heath. The flow of water through the ground is important in order to maintain the local wells and ponds. It is essential that development, especially subterranean development, does not stop or significantly alter the direction of this underground flow of water.

11.10 Ground water must be considered when development involves below ground excavation and construction. New underground structures can alter the flow of groundwater as it needs to change its course to flow around the new structure. This can cause water to collect or pool upstream which may result in flooding of nearby areas or buildings.

11.11 More information on geology and hydrology in the borough can be found in the Camden Hydrological and Geological Study 2010. We also have further guidance on basement development in CPG4 Basements and lightwells.

Basements

11.12 The Council will require all applications for basement and underground developments to be accompanied by an assessment of the scheme's impact on drainage, flooding, groundwater conditions and structural stability, as appropriate.

11.13 The Council will also require a site-specific flood risk assessment with applications for basements on streets identified as being 'at risk' from surface water flooding, unless it can be demonstrated that the scale of the scheme is such that there is no, or minimal, impact on drainage conditions. See map Core Strategy Map 5 (also DP Map 2). We also have further guidance on basement development in CPG4 Basements.

11.14 In line with Development Policy DP27, the Council will not allow habitable rooms and other sensitive uses for self contained basement flats and other underground structures in areas at risk of flooding.

How to reduce the impact of flooding

11.15 Developments should be designed so that they can cope with flooding. This can be done by carefully considering design and layout, for example by locating the most vulnerable uses in lower risk parts of the development, ensuring buildings do not block key flood routes and by raising floor levels.

11.16 Flood proofing measures can also be designed into developments to reduce flood damage. The Environment Agency has prepared advice on how you can plan to reduce flood damage and reduce the amount of flood water that enters your building. See the Further Information section below for details.

Further information

Environment Agency	Provides a range of guidance on SUDS, including planning advice www.environment-agency.gov.uk Guidance on how to reduce flood damage www.environment-agency.gov.uk/homeandleisure/floods/105963.aspx Guidance on how to keep flood water out of a building www.environment-agency.gov.uk/homeandleisure/floods/106769.aspx
CIRIA	Provide a range of advice and publications on SUDS, including the SUDS Manual, Sustainable Drainage Systems – design manual for England and Wales and Sustainable Water Management in Schools www.ciria.org.uk/suds
Interpave -	Provide technical guidance on the construction of permeable concrete block paving www.interpave.org
Living roofs	Provides information on the role of green roofs in SUDS www.livingroofs.org
LB Camden Strategic Flood Risk Assessment	Carried out to inform the preparation of Boroughs Local Plan. The SFRA presents the most up to date flood risk information in the borough. http://www.camden.gov.uk/ccm/cms-service/download/asset?asset_id=3245094

12 Adapting to climate change

KEY MESSAGE

All development should consider how it can be occupied in the future when the weather will be different

The early design stage is the most effective time to incorporate relevant design and technological measures.

12.1 In Camden the changing climate is likely to mean we will experience warmer, wetter winters with more intense rainfall and local flooding events. It will also bring hotter drier summers which will potentially increase the number of days we experience especially poor air quality. Hotter summers will also increase the demand for our open space, water and the use of electricity for mechanical cooling e.g. air conditioning.

12.2 Sections 1 to 11 have concentrated on climate change mitigation measures which are aimed at minimising the impact of human activity on the climate (e.g. by minimising carbon emissions). However, it is also important to think about how we will adapt to a changing climate, so this section is about responding to the unavoidable changes in climate that are already occurring. Adaptation recognises both risks and opportunities arising from climate change and the need to plan for them now.

12.3 Policy CS13 expects developments to be designed to consider the anticipated changes to the climate, especially developments vulnerable to heat and in those locations susceptible to surface water flooding.

12.4 Policy DP22 requires development to be resilient to climate change by ensuring schemes include appropriate adaptation measures.

WHAT WILL THE COUNCIL EXPECT?

All development is expected to consider the impact of climate change and be designed to cope with the anticipated conditions.

How to adapt to warmer temperatures

12.5 Plants and vegetation - Plants can have evaporative cooling effects. Improving the boroughs network of green spaces, parks, trees, and green roofs and walls will have a significant cooling effect.

12.6 Shading - Planting, shading and special glazing, such as triple glazing with filters that remove some of the suns harmful UV rays, can be used to reduce the heat from the sun. European style shaded squares and seating areas can also be used to provide cover during intense periods of heat / sunshine. Large, shade providing trees also provide cool, shady areas during summer.

Insulation

12.7 Materials should be selected to prevent penetration of heat, including the use of reflective building materials as well as green roofs and walls. Appropriate levels of glazing, which facilitates natural daylighting but prevents excessive overheating should also be considered.

Water cooling

12.8 Innovative use can be made of water for cooling, including by using ground or surface water. See sections 3 and 4 on energy efficiency and section 6 on renewable energy for more information.

Natural Ventilation

12.9 Instead of using air conditioning, buildings should be designed to enable natural ventilation and the removal of heat using fresh air. The use of plant equipment that expels hot air increasing the local outdoor air temperature.

Thermal materials

12.10 Materials with high thermal storage or mass capacity, particularly where it is exposed, can be used to absorb heat during hot periods so that it can dissipate in cooler periods, usually using ventilation.

Orientation

12.11 Buildings should be orientated as far as possible to reduce excessive solar gain and facilitate natural ventilation.

'Cool' surfaces

12.12 Certain materials on roadways or large parking areas can increase surface reflectivity (though it is important to avoid glare problems) or increase rainfall permeability to encourage the cooling effect of evaporation. Porous cool pavements offer the additional benefit of rainwater infiltration at times of heavy rain. Networks of 'cool roofs' made of light coloured materials can reduce solar heat gain and the need for mechanical cooling.

How to adapt to heavier rainfall

Sustainable Drainage Systems (SUDS)

12.13 SUDS reduce the quantity of water leaving a site, limiting both the volume and rate of runoff during heavy rainfall and storms. They do this by using mechanisms to capture, filter and store rainwater on site (See section 11 on Flooding for more information on SUDS).

Green space

12.14 Green open space, verges and green roofs can be designed to filter and store rainwater, thus reducing pressure on drainage systems during heavy rainfall. Trees also reduce surface water runoff.

How to adapt to drier summers

Plants and vegetation

12.15 Selecting drought resistant or low water use plants will greatly reduce water demands associated with landscape. This is sometimes known as xeriscaping.

Water efficient fixtures and fittings

12.16 These can significantly reduce demand for water and will become increasingly important for high density developments. (See the section on Water conservation and flooding for more information on minimising water consumption).

Re-using water

12.17 Collecting rainwater from roofs and other surfaces for reuse (for example in flushing toilets or irrigation) or recycling greywater from sinks or showers reduces water use. By reducing the amount of water entering the drains, water reuse also reduces the risk of surface water flooding.

How to adapt to changing ground conditions

12.18 During longer, hotter summers shrinkable clay soils are likely to dry out, making buildings and service pipes vulnerable to cracking. Wetter winters will contribute to risks of ‘heave’ where ground swells.

- Plants and trees - Trees can prevent shrinking and heave as they retain moisture in the soil.
- Structural stability - Stronger retaining walls and fences with good drainage or use of vegetation can prevent surface erosion. Careful choice and placement of trees should avoid building subsidence where soils swell after heavy rainfall and shrink in hot, dry conditions.
- SUDS – Use of SUDS techniques, such as surfaces which allow water to flow through and ponds, which increase infiltration of water into the ground, can reduce subsidence caused by drying out of soils (See section 11 on Flooding for more information on SUDS).
- Foundation design - Foundations should be designed to be strong enough and extend downward below the zone that may be affected by seasonal variations in moisture content. Other measures include underpinning with concrete supports that extend under existing foundations into more stable soils and infilling of foundations.

Climate change and the historic environment

12.19 Many historic buildings have withstood climatic changes in the past, but we need to make sure they are protected from the impacts of a changing climate in the future. Many of the adaptation measures above can be used in the historic environment. However, the character of historic features and the potential for their damage and loss should always be taken into account when adaptation measures are being planned and executed.

12.20 These climate-change proposals should avoid harm to historic character and fabric, as assessed against the Planning (Listed Buildings and Conservation Areas) Act 1990 and PPS5. Please see English Heritage's Climate Change and the Historic Environment (2008) for further detail on climate change issues.

12.21 See section 4 on Energy efficiency: existing buildings of this guidance and section 2 on Heritage in CPG1 Design for more guidance on Camden's historic environment.

Further information

London Climate Change Partnership	Provides a checklist to help establish how developments can best adapt to climate change
"Adapting to Climate Change: A Checklist for Development"	www.climatesoutheast.org.uk
Chartered Institution of Building Services Engineers	Provides guidance on how to change and adapt buildings to be more sustainable and adapt to future climatic conditions. Their website has a number of guidance notes including: CIBSE TM36 – "Climate Change and the Indoor Environment: Impacts and Adaptation" www.cibse.org
UK Climate Impacts Programme	Helps organisations to adapt to climate change www.ukcip.org.uk

13 Biodiversity

KEY MESSAGES

Proposals should demonstrate:

- how biodiversity considerations have been incorporated into the development;
- if any mitigation measures will be included; and
- what positive measures for enhancing biodiversity are planned.

13.1 Development can harm biodiversity directly by destroying or fragmenting habitat, or indirectly by altering local conditions for species. Conversely, sensitively designed developments can increase connectivity between urban habitat patches, and contribute to landscape scale conservation and enhancement of biodiversity.

13.2 Biodiversity is integral to the planning process and we will expect it to be fully incorporated into the design and construction stages. In principle, all development activity should have minimal impacts on biodiversity and enhance it wherever possible.

13.3 It is essential that the development process, from demolition to construction, is undertaken in an appropriate manner to avoid harm to biodiversity. This guidance sets out:

- What species are protected;
- What are our priority species and habitats;
- How to protect biodiversity in the development process;
- Habitat provision, enhancement, creation and restoration; and
- Management and monitoring.

When does this guidance apply?

13.4 This guidance applies to all development sites. Sites already designated or adjacent to sites designated for their biodiversity value or that form part of a green corridor should receive special attention proportionate to the weight afforded by these designations. These include sites which are identified in the LDF and designated as:

- Sites of Special Scientific Interest (SSSI),
- Sites of Nature Conservation Importance (SNCI) and
- Local Nature Reserves (LNR)
- Habitat corridors and Habitat Corridor – missing links

13.5 Sites of Metropolitan Importance for nature conservation and the Blue Ribbon Network are identified by the Mayor of London. An indicative map is contained in the London Plan.

13.6 It is also important to conserve and improve land outside designated areas as these areas support biodiversity networks through connecting, stepping stone and buffering qualities. Opportunities to improve biodiversity must be considered in all developments.

What species are protected?

13.7 Certain species are protected under UK or European Legislation. Natural England provides a list of protected species as well as legislative and policy guidance relating to protected species and the planning system: www.naturalengland.org.uk/ourwork/planningtransportlocalgov/spatialplanning/default.aspx

13.8 National advice for protected species www.naturalengland.org.uk/ourwork/planningtransportlocalgov/spatialplanning/standingadvice/default.aspx

13.9 The protection given to species under UK and EU legislation is irrespective of the planning system. It is the applicant's responsibility to ensure that any activity on a site (regardless of the need for planning consent) complies with the appropriate wildlife legislation.

13.10 Applicants should note that Paragraph 98 of ODPM Circular 06/2005 states that 'The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'.

13.11 Paragraph 99 states 'It is essential that the presence or otherwise of a protected species, and the extent that they may be affected by the proposed development is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision'.

13.12 Certain development activities within the vicinity of protected species and their habitats require a licence from Natural England. Developers are strongly advised to contact the Natural England Wildlife Management and Licensing Service to discuss any protected species issues.

What are the priority habitats and species?

The Natural Environment and Rural Communities Act 2006

13.13 Section 40 of the Natural Environment and Rural Communities Act 2006 imposes a duty on public bodies "to have regard" to the conservation of biodiversity in England, when carrying out their normal functions. Under Section 41 of the same Act the Secretary of State has published a list of species of flora and fauna and habitats considered to be of principal importance in the conservation of biodiversity. Whilst we will give specific consideration to the species and habitats on this list when planning for biodiversity and assessing planning applications, we will also take seriously our duty to conserve all biodiversity. The full list can

be found on the Natural England web-site www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx

The Camden Biodiversity Action Plan

13.14 The Camden Biodiversity Action Plan (BAP) provides a framework for improving biodiversity. There are species and habitats identified as priorities in national, regional or borough Biodiversity Action Plans that although may not have legal protection, are still a material consideration in planning, and we will take into account in the planning process.

13.15 The Camden's BAP contains a number of targets and actions that we will consider in the protection and enhancement of biodiversity in Camden.

Where to find the Biodiversity Action Plans:

- UK Biodiversity Action Plan Priority Habitat Descriptions www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf#TO
- The London Biodiversity Action Plan www.lbp.org.uk/londonhabspp.html
- Camden Biodiversity Action Plan www.ukbap-reporting.org.uk/plans/lbap.asp

How will we protect biodiversity in the development process?

13.16 We will use a 'five-point approach' to planning decisions for biodiversity, based on the five following principles – information, avoidance, mitigation, compensation and new benefits. (based on Royal Town Planning Institute Good Practice Guide - 'Planning for Biodiversity')

Camden's 'five-point approach' to planning decisions for biodiversity

1. Information – We will require appropriate information at the outset on habitats and species and the impact of development on them;
2. Avoidance – Developments should avoid adverse effects to wildlife and habitats as far as reasonably possible;
3. Mitigation - Where avoidance is not possible, biodiversity impacts should be reduced as far as reasonably possible. We may use conditions or planning obligations/agreements to achieve this;
4. Compensation - Appropriate replacement and compensation will be required, where, exceptionally development that is harmful to biodiversity is permitted;
5. New benefits - In all cases, opportunities should be taken to enhance on-site biodiversity, or within the locality or borough, to provide new benefits for wildlife, for example, by habitat creation or enhancement.

Before the design stage

13.17 Developments are to consider the quality of the existing biodiversity and the potential for enhancement as any site or building may have important biodiversity or contain nature conservation features. This should be done by carrying out a habitat and ecology survey.

Requirement for ecological surveys

13.18 Ecological surveys carried out in accordance with this guidance are expected to be submitted upfront with any planning application, and will be used to assess the impact of the development on biodiversity, within the site, the locality, or where appropriate, on the regional or national resource. The paragraph below provides details of the recommended level of information to be provided.

When in the development process is a survey to be done?

13.19 Ecological surveys are to be carried out prior to the design stage. Information for the development site and wider area is to be obtained from, but not limited to:

- London Environmental Records Centre
- appropriate statutory or non-statutory conservation organisations e.g. London Bat Group

13.20 A habitat survey is to identify important habitat features, including BAP Priority Habitats. Whilst the presumption is not to lose any areas of BAP priority habitat in particular, other habitats are also valuable. The scale and detail of the surveys should be in proportion to the size of the proposed development and likelihood of protected species using the site. The aim is to characterise important habitats and species, the presence of any protected species, and the extent that they may be affected by the proposed development. This information is to also inform the design and form of the development.

What developments need to carry out a survey?

13.21 For Protected Species - Table 1 in the Appendices sets out when a survey and assessment is required. For Designated sites and priority habitats - Table 2 in the Appendices sets out when a survey and assessment is required.

What needs to be included in a survey?

13.22 The level of scope and detail required is outlined in the Appendices. Optimal times to carry out surveys are provided in Figure 1 in the Appendices.

Who should carry out the survey?

13.23 Protected species such as bats, may be found throughout Camden in buildings, or in structures and using features for foraging or commuting,

and it may not appear immediately obvious that a protected species may be found on site or impacted upon by the proposed development. Developers are to employ the services of a professional ecological consultant. The Institute of Ecology and Environmental Management provides a commercial directory search of their membership directory at http://www.ieem.net/ieemdirectory.asp. The Council's Nature Conservation Section can advise on the scope of survey work required.

The design stage

13.24 This is arguably the most critical time in the development process to ensure that nature conservation opportunities and constraints are identified and taken account of. The aim should be to create ecologically orientated and sustainable development. During the design stage the biodiversity value of developments can be improved significantly if the design and management of buildings and landscaping elements is more explicitly geared towards nature.

LIGHTING

Lighting can have particular negative impacts on biodiversity. Unnecessary lighting should be avoided. Where lighting may harm biodiversity timers or specific coloured lighting will be required to minimise any disturbance.

13.25 Proposals should demonstrate how biodiversity considerations have been incorporated into the development, if any mitigation measures will be included, and what positive measures for enhancing biodiversity are planned. Where there are significant features of nature conservation value on site the Council will seek to secure, retain and enhance these features. All developments (major and minor) can contribute to a robust functioning ecosystem by providing a well-connected system of habitats, and the design stage is the perfect time to achieve this. A built structure or landscaping elements has the potential to impact on biodiversity and ecology, and developers must consider how to minimise any adverse effect upon both biodiversity and ecology. Developers must also consider how a built structure and any landscaped elements can deliver wider ecological benefits and enhancements at this stage.

13.26 Some species range a long way from their "core" habitat and there is a risk that species may be left isolated in a highly urban and fragmented landscape such as Camden with no access to suitable foraging areas or water. Developers may therefore be required to retain and enhance foraging areas or routes (e.g. for bats) or carry out other provisions that contribute towards conservation of the species on or off-site.

The construction planning phase

13.27 The nature conservation value of a site and its surrounding area will also need to be protected during the construction phase. A list of measures to ensure the nature conservation interest is protected is given below. The list is not to be considered exhaustive.

13.28 Measures to protect the nature conservation interest during the construction phase

- Timing of development to avoid disturbance to species such as birds in the breeding season;
- Use of protective fencing to preserve important ecological areas and reduce direct damage by fencing off storage areas and areas for construction huts, and carefully planning and limiting and their placement;
- Planning vehicular movements to minimise the impact on ecologically sensitive areas and reduce soil compaction;
- In ecologically sensitive areas keep disruptive elements such as light, noise and human presence to a minimum;
- Implement measures to protect water courses and ground water from pollution;
- For sites of high nature conservation value, or its adjoining sites a construction management plan to protect biodiversity during the construction phase may be requested and secured by legal agreement or planning condition prior to the commencement of works on the site.

Post-construction

13.29 Where a site has been identified has having nature conservation importance, maintenance and monitoring may be required once the development has been completed. The management and maintenance of areas of nature conservation value that are to be retained, enhanced or created on a development site are essential to ensure these areas of nature conservation attain their full potential. A long term management plan should outline the conservation objectives, the means of monitoring habitats and species, and describe the practical maintenance measures that may be needed. Implementation of the management plan is likely to be a contractor's responsibility and should be considered at the tender evaluation stage. Maintenance and monitoring may be secured by way of a legal agreement or planning condition.

13.30 Where appropriate, the Council will seek a legal agreement where on site biodiversity aims are unlikely to be met through the use of a condition attached to a planning permission.

Habitat provision, enhancement, creation and restoration

13.31 In line with policy and guidance, opportunities should be sought for the incorporation of biodiversity into developments and for habitat creation or enhancing existing habitats in any development proposal. It is not a case of one size fits all. This list is not exhaustive and developers are encouraged to follow this guidance and think creatively to fully integrate biodiversity into design.

Best practice examples of habitat provision, enhancement, creation and restoration

Design Area	Design Opportunities	Details
Roofs	Green roofs Brown roofs Roof gardens and terraces	Green roofs are intentionally vegetated roof surfaces. Typically, they can be intensive on a deep growing medium (150-400mm), or extensive on shallower growing medium (60-200mm) or any transition between the two. In all cases consideration will need to be given to type of habitat desired. Other than the traditional sedum matting, green roofs can provide a varied profile comprising mosaics of bare ground with very early pioneer communities on nutrient-poor substrates e.g. locally sourced aggregate, through to more established open grasslands with herbs, or even trees and scrub and ponds. Green roofs should not be seen as an automatic substitute for ground level landscaping. Consideration should first be given to ground level landscaping for biodiversity. Further information can be found at: http://livingroofs.org/
	Artificial roost	Artificial roosts for bats can be incorporated into conversions or within new development such as a roof void by providing suitable access. Products are available to aid bat roosting potential or access to potential roost spaces such as bat access tiles.
	Bird and Bat boxes	The type of box, its location, and surroundings will depend on the species the box is intended for. You will need to take into account ecological requirements of the target species: position, aspect, height, obstructions, cleaning and maintenance, whether a single or colonial species, and whether surroundings suitable for commuting and/or foraging. It is preferable to install boxes into the fabric of the building as this provides longevity. There are numerous bird and bat boxes specifically designed for brickwork. Example: Swift boxes installed in brickwork Swift boxes should be sited on a north, north west or west aspect out of the sun and heat which can harm the chicks. They should be installed at a height of at least 6 to 7m, preferably under the shelter of the eaves or overhanging roofs. A 5 metre drop, clear of obstructions provides clear airspace for high speed entry and egress. Several boxes

		together will assist the formation of swift colonies.
Buildings	Walls Green/living walls	Living walls are typically composed of climbing plants. They provide opportunities for wildlife such as habitat for insects and spiders, which in turn will be food for insect-eating birds and bats, and if sufficiently dense provide can provide nesting habitat for birds. They can also reduce fragmentation of habitats by forming a link between ground level landscaping and green roofs. Climbers can adhere directly to brick and stone, but where it is desirable to encourage growth away from the building facade a network of trellises and wires can be used.
	Lighting	Artificial lighting has significant impacts on animals and insects, disrupting activities such as the search for food and mating behaviour. Where lighting is necessary, take into account: type of lamp (low pressure sodium lamps or high pressure sodium preferred), aim to avoid light spillage using hoods, cowls etc., the height of lighting column should be as short as possible, light levels should be as low as possible, and timing of lighting to provide some dark periods. The Bat Conservation Trust in association with the Institution of Lighting Engineers (ILE) has produced a guidance document 'Bats and Lighting in the UK'
Outdoor Space	Sustainable Urban Drainage Systems (SUDs)	SUDs can help to slow down the runoff rate and store water on a temporary basis, reducing the impact of urbanisation on flooding, and provide a habitat for wildlife. Examples include the use of constructed wetlands, such as ponds, reed beds, planted swales, and detention basins.
	Ponds/reed beds	Ponds and reed beds can have significant wildlife value. Ponds can be constructed using concrete, butyl liners or puddled clay. It is better that they are designed using methods such as rainwater harvesting as this can be fed directly into a pond, as topping up with mains water adds nutrients to the pond and can lead to algal blooms.
Landscaping and planting.	General Planting	Retaining and planting native plants of UK or local origin will not only help to maintain the integrity of ecosystems close to the development, but will also increase biodiversity within the development itself. Planting of trees, bushes, forbs and grass

		can be used to complement natural vegetation. Only native/local provenance species to be planted on sites adjacent to or within specified distance of a SNCI and should reflect or complement the species composition of the SNCI where possible. Peat-free products only should be used in planting schemes.
	Wildflower meadows/areas of long grass	Wildflower rich grassland or meadows reflecting natural communities of local soil types can be created, or restored, in areas of greenspace. These habitats need ongoing management to maintain their biodiversity interest. It is expected that a management plan and provision for ongoing management is provided as part of any development proposal. Areas of amenity grassland of are of limited value for biodiversity.
	Tree, shrub and understorey planting.	Depending on the scale of planting proposed, this encompasses single trees to small areas of scrub, and even woodland. Where possible, it is desirable to plant native species reflecting natural communities of local soil types. If possible establish a graded canopy down from large trees to smaller, dense lower shrubs, to field and ground layer. However, the urban environment is highly modified by people and the value of non-native plants with high species associations is also recognized.
	Hedgerows	Hedgerows comprised of native species reflecting natural communities of local soil types are by far the best for wildlife. Climbers such as honeysuckle and bramble can be integrated into hedgerows. Existing native species hedgerows should be as far as possible retained, or replaced. Even low species rich hedgerows may form commuting routes for species such as bats.
	Flower planting for birds and insects	Choose plants likely to attract wildlife. Any planting scheme will need ongoing management to maintain its' biodiversity interest. It is expected that a management plan and provision for ongoing management is provided as part of any development proposal. Natural England's Gardening with Wildlife in Mind provides a searchable list of native and non-native plants that benefit wild species at http://www.plantpress.com/wildlife/home.php

	Retention of ecologically important habitats	Where there is remnant natural vegetation on site, the aim should be to maintain these areas. Loss or damage to these areas should be kept to a minimum.
	Hard surfaces	Hard surfaces should be kept to a minimum in new schemes. Permeable materials should be used. This will encourage insects and reduce run-off. Soil sealing on site should be kept to a minimum. Any runoff should be directed onto vegetated area. Run-off that is high in pollution and certain nutrients can pollute ponds and waterways, altering their biodiversity.
	Deadwood	Deadwood habitats can be integrated creatively into a development, such as monoliths with coronet cuts to provide habitat for deadwood specialists such as fungi and wood boring beetles.
	Orchards	Traditional orchards are hotspots for biodiversity supporting a wide range of wildlife. Traditional fruit and nut varieties are preferred. These features will require on-going management. It is expected that a contaminated land assessment is provided by the applicant if the produce is for consumption.
	Herbicide and pesticide use	Herbicide and pesticide use should be avoided and alternative control methods used, except when controlling invasive species.

Habitat Suitability Maps

13.32 Where the nature of the development provides opportunities for habitat creation, this should contribute to habitat creation targets in the BAP. Developers should contact the Nature Conservation Section, who will advise on the choice of habitat by reference to the Habitat Suitability Maps developed by GiGL and LBP. The role of the site in buffering or connecting neighbouring or nearby open space should also be taken into consideration as part of this process, as should the habitat composition of such open space.

13.33 In cases where the site is not covered by the Habitat Suitability Maps (i.e. not existing open space), large-scale habitat creation should reflect the landscape character of the area, as identified in Natural England's London's Natural Signatures project www.naturalengland.org.uk/regions/london/ourwork/londonnaturalsignatures.aspx

Management and monitoring

13.34 The management and maintenance of areas of nature conservation value that are to be retained, enhanced or created on a development site is essential to ensure these areas of nature conservation attain their full potential. A long term management plan should outline the conservation objectives, the means of monitoring habitats and species, and describe the practical maintenance measures that may be needed. Implementation of the management plan is likely to be a contractor's responsibility and should be considered at the planning application stage.

Compensation

13.35 Where, exceptionally, damage or loss to natural habitats is unavoidable and or inadequate mitigation proposed, compensatory measures will be required. This may involve new habitat creation or habitat enhancement, a contribution towards meeting the objectives of the Camden Biodiversity Action Plan or improvements to the Boroughs biodiversity. The Council will seek to use planning conditions and planning legal agreements to achieve this.

Further information

Natural England Wildlife Management and Licensing Service	provides advice on wildlife management and issues licences www.naturalengland.org.uk/ourwork/regulation/wildlife/default.aspx
Livingroofs.org	Independent UK Resource For information on Green Roofs www.livingroofs.org

Biodiversity Appendices

13.36 Extra information on biodiversity surveys

- In general, it is expected that all surveys and baseline ecological information collected from the site must be submitted at the planning application stage.
- A desk study and site walkover surveys must be carried out on all Major Developments to identify the ecological characteristics of a site and any significant impacts. This will also inform whether further ecological surveys are necessary to be submitted with any planning application. Surveys may be required on smaller developments where protected species or priority BAP species or habitat are likely to be present - refer to tables and information below for guidance;
- Developers are expected to carry out a protected species survey where desktop surveys show protected species in the vicinity.
- Surveys must be carried out by suitably qualified and experienced persons e.g. Member of IEEM;
- Surveys must be carried out using recognised survey methodology and following good practice guidelines i.e. in suitable weather conditions, at an appropriate time and of appropriate duration and frequency, and at the correct period of the year;
- Habitat surveys must be to an appropriate level of detail e.g. Extended Phase I Habitat Survey with Target Notes, to characterise the nature conservation interest of the site;
- The survey data should be used to inform the design and form of the development, and any recommendations for management afterwards.
- An assessment must be provided of the likely effects of development, and the magnitude of their potential impact of the development on nationally, regionally and locally important habitats and species recorded on site or in the locality;
- The assessment should identify measures to be taken to avoid impacting on those important species and habitats, either directly or indirectly, on site and in the locality, during demolition and construction operations;
- Survey data will be considered valid for a period of 1 Year after which re-surveys may be required;
- If the level of detail provided is deemed inadequate then additional surveys will be required;
- The results of site surveys must be made available to the London Environmental Records Centre (Greenspace Information for Greater London).

Local Requirement for Protected Species: Criteria and Indicative Thresholds (Trigger List) for when a Survey and Assessment is required

Proposals for Development That Will Trigger a Protected Species Survey	Species likely to be affected and for which a survey wil be required							
	Bats	Badgers	Breeding Birds	Plants	Hedgehogs	Reptiles	Amphibians	Notable Invertebrate
Proposed development which includes the modification, conversion, demolition or removal of buildings and structures (especially roof voids) involving the following: ▪ all buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water; ▪ pre-1960 detached buildings and structures within 200m of woodland and/or water; ▪ pre-1914 buildings within 400m of woodland and/or water; ▪ pre-1914 buildings with gable ends or slate roofs, regardless of location; ▪ all tunnels, mines, kilns, ice-houses, adits, military fortifications, air raid shelters, cellars and similar underground ducts and structures; ▪ all bridge structures, aqueducts and viaducts (especially over water and wet ground).	● ● ● ● ●		● ● ● ● ●					
Proposals involving lighting of churches and listed buildings Proposals involving flood lighting of green space within 50m of woodland, water, field hedgerows or lines of trees with obvious connectivity to woodland or water.	● ●		● ●				●	●
Proposals affecting woodland, or field hedgerows and/or lines of trees with obvious connectivity to woodland or water bodies.	●	●	●	●			●	●
Proposed tree work (felling or lopping) and/or development affecting: ▪ old and veteran trees that are older than 100 years; ▪ trees with obvious holes, cracks or cavities, ▪ trees with a girth greater than 1m at chest height;	● ● ●		● ● ●					● ● ●
Major proposals within 500m of a pond or Minor proposals within 100m of pond (Note: A major proposals is one that is more than 10 dwellings or more than 0.5 hectares or for non-residential development is more than 1000m^2 floor area or more than 1 hectare)	●						●	●
Proposals affecting or within 200m of rivers, streams, canals, lakes, or other aquatic habitats.	●		●	●			●	●
Proposals affecting 'derelict' land (brownfield sites), allotments and railway land.		●	●	●	●	●	●	●
Proposed development affecting any buildings, structures, feature or locations where protected species are known to be present *.	●	●	●	●	●	●	●	●
Major proposals within 500m of Hampstead Heath or Minor proposals within 100m of Hampstead Heath (Note: A major proposals is one that is more than 10 dwellings or more than 0.5 hectares or for non-residential development is more than 1000m^2 floor area or more than 1 hectare)	●		●	●	●	●	●	
Table adapted from version produced by ALGE 2007, Validation of Planning Applications *Confirmed as present by either a data search (for instance via the local environmental records centre) or as notified to the developer by the local planning authority, and/or by Natural England, the Environment Agency or other nature conservation organisation.	Bats	Badgers	Breeding Birds	Plants	Hedgehogs	Reptiles	Amphibians	Notable Invertebrates

Exceptions for when a full species survey and assessment may not be required

a) Following consultation by the applicant at the pre-application stage, the LPA has stated in writing that no protected species surveys and assessments are required.

b) If it is clear that no protected species are present, despite the guidance in the above table indicating that they are likely, the applicant should provide evidence with the planning application to demonstrate that such species are absent (e.g. this might be in the form of a letter or brief report from a suitably qualified and experienced person, or a relevant local nature conservation organisation).

c) If it is clear that the development proposal will not affect any protected species present, then only limited information needs to be submitted. This information should, however, (i) demonstrate that there will be no significant affect on any protected species present and (ii) include a statement acknowledging that the applicant is aware that it is a criminal offence to disturb or harm protected species should they subsequently be found or disturbed.

In some situations, it may be appropriate for an applicant to provide a protected species survey and report for only one or a few of the species shown in the Table above e.g. those that are likely to be affected by a particular activity. Applicants should make clear which species are included in the report and which are not because exceptions apply.

Local Requirements for Designated Sites and Priority Habitats:

Criteria (Trigger List) for When a Survey and Assessment are Required

1. Designated sites (as shown on the Council's Proposals Map)

Nationally designated sites

- Site of Special Scientific Interest (SSSI)
- National Nature Reserve (NNR)

Regionally and locally designated sites

- Local Sites (e.g. Site of Nature Conservation Importance)
- Local Nature Reserve (LNR)

2. Priority habitats (Habitats of Principal Importance for Biodiversity under S.41 of the NERC Act 2006)

- Arable Field Margins
- Ancient and/or species-rich hedgerows
- Lowland heathland
- Lowland dry acid grassland

- Lowland meadows (e.g. species-rich flower meadows)
- Lowland mixed deciduous woodland
- Lowland Beech and Yew Woodland
- Open Mosaic Habitats on Previously Developed Land
- Ponds
- Reed beds
- Traditional Orchards

3. Other biodiversity features

(as identified by the Local Biodiversity Partnership - see paragraph 84 ODPM Circular 06/2005)

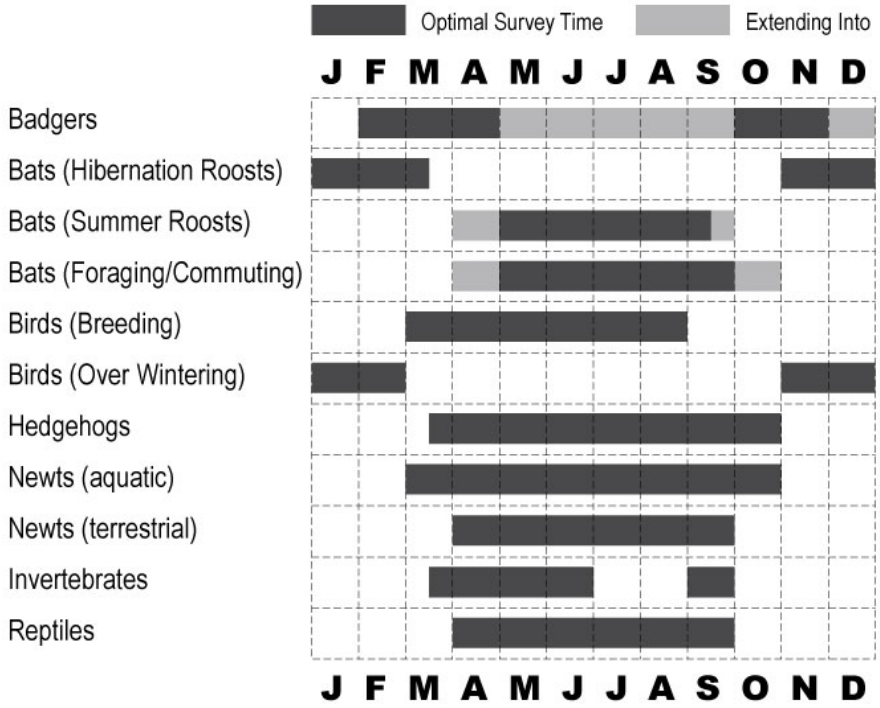
- Waterways and wetlands (e.g. canals, lakes, reservoirs, ponds, aquifer fed fluctuating water bodies)
- Woodland, Hedgerows and Trees (e.g. secondary woodland and scrub, mature/veteran Trees, deadwood habitats)
- Parks, Open Space and Private Gardens (e.g. urban green space, parks, allotments, orchards, flower-rich road verges, canal sides, wildlife gardens)
- The Built Environment (e.g. previously developed land, railsides and churchyards and cemeteries)

Exceptions When a Full Survey and Assessment May Not Be Required

International and National Sites: A survey and assessment will not be required where the applicant is able to provide copies of pre-application correspondence with Natural England, where the latter confirms in writing that they are satisfied that the proposed development will not affect any statutory sites designated for their national or international importance.

Regional and Local Sites and Priority Habitats: A survey and assessment will not be required where the applicant is able to provide copies of pre-application correspondence with the Local Planning Authority's ecologist (where employed), or ecological advisor and/or the local Wildlife Trust that they are satisfied that the proposed development will not affect any regional or local sites designated for their local nature conservation importance or any other priority habitats or listed features.

Figure 10. Ecological survey seasons



Points to note regarding surveys are as follows:

- For certain species and habitats surveys can be carried out at any time of year, but for other species, particular times of year are required to give the most reliable results, as indicated in Figure 11
- Surveys conducted outside of optimal times (Figure 11) may be unreliable. For certain species (e.g. Great Crested Newt) surveys over the winter period are unlikely to yield any useful in formation. Similarly negative results gained outside the optimal period should not be interpreted as absence of a species and further survey work maybe required during the optimal survey season. This is especially important where existing surveys and records show the species has been found previously on site or in the surrounding area. An application may not be valid until survey information is gathered from an optimum time of year.
- Species surveys are also very weather dependent so it may be necessary to delay a survey or to carry out more than one survey if the weather is not suitable, e.g. heavy rain is not good for surveying for otters, as it washes away their spraint (droppings). Likewise bat surveys carried out in wet or cold weather may not yield accurate results.
- Absence of evidence of a species does not necessarily mean that the species is not there, nor that its habitat is not protected (e.g. a bat roost is protected whether any bats are present or not).

- Local Biological / Environmental Records Centre may have useful existing information and records.
- Competent ecologists should carry out any surveys. Where surveys involve disturbance, capture or handling of a protected species, then only a licensed person can undertake such surveys (e.g. issued by Natural England). Surveys should follow published national or local methodologies. Further details may be found in the Local Authority's SPD for Biodiversity or on the following web sites:
- IEEM at: www.ieem.org.uk/Publications.htm - Guidelines for Survey Methodology
- Natural England: http://www.naturalengland.org.uk/publications/default.htm

14 Local food growing

KEY MESSAGES

We encourage food to be grown wherever possible and suitable

Rooftops and shared spaces such as gardens and parks provide opportunities for food growing

14.1 Local food growing in Camden encompasses a range of activities including back garden food growing, roof top gardening allotment cultivation, community gardening projects, bee keeping, planting orchards and fruit trees on public land, city farms, urban fringe farms and market gardens.

14.2 Cultivating land and growing food can help to improve the health of residents because it requires physical activity and promotes healthy eating. It can also help to improve air quality as people travel smaller distances to access fresh produce.

14.3 The Council encourages food growing where ever it is possible and suitable. This includes at ground level, on roofs in the form of green roofs and as part of green walls.

14.4 The Council is involved in a number of food growing initiatives. These are outlined in the Council's Food Growing Strategy.

Where is food growing appropriate?

14.5 The incorporation of infrastructure for growing food is particularly appropriate to the design of housing, developments providing food retail

and restaurant outlets, hospitals and schools either on roof tops or within surrounding space.

14.6 Roof tops provide a particular resource in respect of local food growing. Roof gardens for food growing offer the same benefits as other types of green roofs. Storm water and grey water recycling can be incorporated into the management and maintenance of these roofs. They also provide a means of direct recycling of a buildings food waste when composting systems are incorporated into their design. Roof tops for greenhouses and aquaponic systems – where plants are grown without soil, also provide a similar range of opportunities to integrate recycling water and food waste systems into the design they can incorporate recycled heat waste from buildings. Providing the infrastructure for food production on roof tops will depend on the relative priority of other objectives and benefits associated with green roofs. See section 9 in this guidance for more information on green roofs.

14.7 We will expect development proposals consider the opportunities for food growing. If food growing is appropriate, the necessary infrastructure should be successfully incorporated the into building and site design

14.8 The Council may use Section 106 agreements to secure space for food growing where appropriate. Contributions may also be sought where there are opportunities to fund local food growing initiatives.

Where are the food growing projects in Camden?

CASE STUDIES

A vineyard has been planted for commercial purposes by Alara Foods on wasteland close to its warehouses near Kings Cross. The company has also planted a Forest Garden behind its warehouses and installed three beehives.

Acorn House restaurant, in the Kings Cross area, has developed a roof garden growing herbs, vegetables and fruits to supply the restaurant with fresh seasonal produce.

Further information

Healthy and sustainable food strategy	Good Food for Camden: the healthy and sustainable food strategy (2009-2012). It aims to: • improve health and reduce health inequalities • achieve environmental sustainability • enhance community engagement • build the local economy • support cultural diversity
Capital Growth	Capital Growth offers practical advice and support to communities that want to grown their own food, including getting access to land, and runs the Edible Estates competition to find the best community food growing projects on London's housing estates. www.capitalgrowth.org
Other	Images of multifunctional urban design and planning data associated with incorporating hydroponic green houses on the roof tops of residential and industrial buildings can be seen at www.brightfarmsystems.com There are many local and international examples of the different types of urban food production that can be seen via the Sustain and City Farmer websites: www.sustainweb.org www.cityfarmer.org An example of roof tops allotments incorporated into the design of an apartment block can be seen at www.onebrighton.co.uk

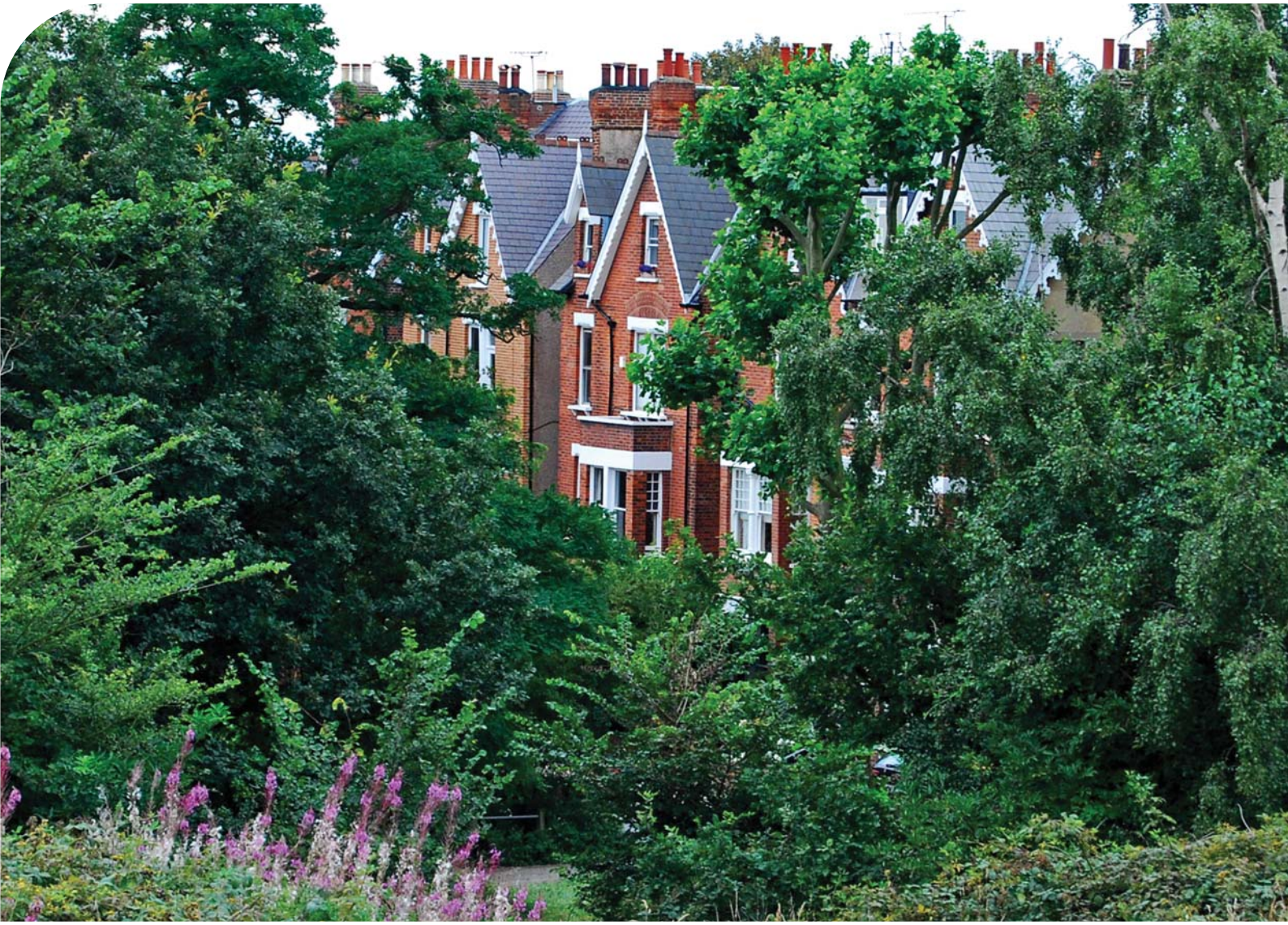
Index

Camden Planning Guidance

Amenity

CPG 6

London Borough of Camden



Camden

CPG6 Amenity

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this guidance to support the policies in our Local Development Framework (LDF). It is therefore consistent with the Camden Core Strategy and Development Policies, and is a formal Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. This guidance will replace Camden Planning Guidance 2006, updating advice where appropriate and providing new guidance on matters introduced or strengthened in the LDF.

1.2 Camden Planning Guidance covers a range of topics (such as design, housing, sustainability and planning obligations) and all of sections should be read in conjunction with, and within the context of, Camden's other LDF documents.

Amenity in Camden

1.3 A key objective of the Camden Core Strategy is to sustainably manage growth so that it avoids harmful effects on the amenity of existing and future occupiers and to nearby properties.

What does this guidance cover?

1.4 This guidance provides information on all types of amenity issues within the borough and includes the following sections:

1. Air quality
2. Contaminated land
3. Noise and vibration
4. Artificial light
5. Daylight and sunlight
6. Overlooking, privacy and outlook
7. Construction management plans
8. Access for all
9. Wind and micro-climate
10. Open space, outdoor sport and recreation facilities

1.5 This guidance supports the following Local Development Framework policies:

Camden Core Strategy

- CS5 - Managing the impact of growth and development
- CS15 - Protecting and improving our parks and open spaces & encouraging biodiversity
- CS16 - Improving Camden's health and well-being

Camden Development Policies

- DP26 - Managing the impact of development on occupiers and neighbours
- DP28 - Noise and vibration
- DP31 - Provision of, and improvements to, public open space and outdoor sport and recreation facilities
- DP32 - Air quality and Camden's Clear Zones

6 Daylight and sunlight

KEY MESSAGES:

- We expect all buildings to receive adequate daylight and sunlight.
- Daylight and sunlight reports will be required where there is potential to reduce existing levels of daylight and sunlight.
- We will base our considerations on the Average Daylight Factor and Vertical Sky Component.

6.1 Access to daylight and sunlight is important for general amenity, health and well-being, for bringing warmth into a property and to save energy from reducing the need for artificial lighting and heating. The Council will carefully assess proposals that have the potential to reduce daylight and sunlight levels for existing and future occupiers.

6.2 This guidance relates to:

- Camden Core Strategy policy CS5 - *Managing the Impact of Growth and Development*;
- Core Strategy policy CS14 - *Promoting high quality places and conserving our heritage*; and
- Policy DP26 – *Managing the impact of development on occupiers and neighbours* of the Camden Development Policies.

DP26 sets out how the Council will protect the quality of life of building occupiers and neighbours by only granting permission for development that does not cause harm to amenity.

When will a daylight/sunlight report be required?

6.3 The Council expects that all developments receive adequate daylight and sunlight to support the activities taking place in that building.

6.4 A daylight and sunlight report should assess the impact of the development following the methodology set out in the most recent version of Building Research Establishment's (BRE) "Site layout planning for daylight and sunlight: A guide to good practice". Reports may be required for both minor and major applications depending on whether a proposal has the potential to reduce daylight and sunlight levels. The impact will be affected by the location of the proposed development and its proximity to, and position in relation to, nearby windows.

WHAT DOES THE COUNCIL REQUIRE?

The Council will require a daylight and sunlight report to accompany planning applications for development that has the potential to reduce levels of daylight and sunlight on existing and future occupiers, near to and within the proposal site.

Daylight and sunlight reports should also demonstrate how you have taken into consideration the guidance contained in the BRE document on passive solar design; and have optimised solar gain. Please refer to the BRE guidance on daylight and sunlight.

6.5 While we strongly support the aims of the BRE methodology for assessing sunlight and daylight we will view the results flexibly and where appropriate we may accept alternative targets to address any special circumstances of a site. For example, to enable new development to respect the existing layout and form in some historic areas. This flexible approach is at the Council's discretion and any exception from the targets will assessed on a case by case basis.

Daylight

6.6 We will aim to minimise the impact of the loss of daylight caused by a development on the amenity of existing occupiers and ensure sufficient daylight to occupiers of new dwellings taking in account overall planning and site considerations. If your proposal will have an unreasonable impact on amenity the planning application will be refused. When assessing daylight issues, we will use the guidelines and methods contained in the BRE's *Site layout planning for daylight and sunlight: A guide to good practice*.

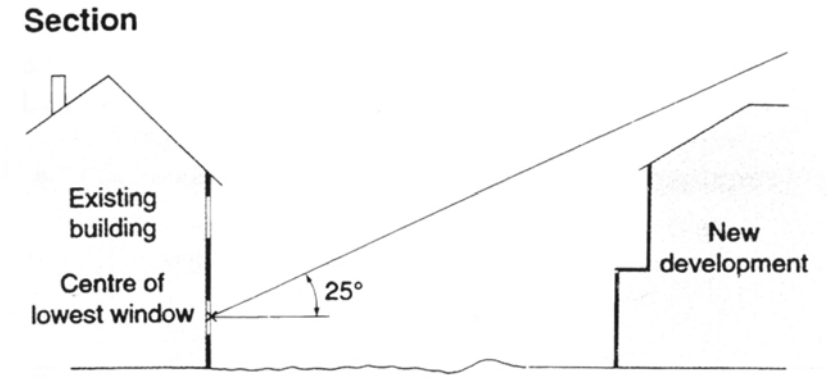
6.7 There are two quick methods that can be used to assess access to daylight:

Daylight to new development

- project a 25 degree line, starting 2m above ground level from a wall of your proposed development;
- if none of the existing surrounding buildings extend above this line, then there is potential for good daylighting to be achieved in the interior of your new development.

Daylight to existing development

- project a 25 degree line from the centre of the lowest window on the existing building;
- if the whole of your new development is lower than this line then it is unlikely to have a substantial effect on the daylight enjoyed by occupants in the existing building.



Source: BRE, Site layout planning for daylight and sunlight: A guide to good practice.

6.8 For either test, if buildings extend above the 25 degree line a more detailed test needs to be carried out to fully assess either the loss of daylight in existing buildings or the level of daylight achievable in the new development. The two most common measurements of daylight of the more detailed test are the Vertical Sky Component (VSC) and the Average Daylight Factor (ADF).

Vertical Sky Component
The amount of light striking the face of a window

6.9 The Vertical Sky Component is expressed as a ratio of the maximum value of daylight achievable for a completely unobstructed vertical wall. The maximum value is almost 40%. This is because daylight hitting a window can only come from one direction immediately halving the available light. The value is limited further by the angle of the sun. This is why if the VSC is greater than 27% enough sunlight should be reaching the existing window. Any reduction below this level should be kept to minimum.

6.10 Windows to some existing rooms may already fail to achieve this target under existing conditions. In these circumstances it is possible to accept a reduction to the existing level of daylight to no less than 80% of its former value. Any greater reduction than this is likely to have a noticeable affect on amenity. If this occurs then applications may be refused.

Average Daylight Factor
Average Daylight Factor is a measure of the level daylight in a room. It can be used to establish whether a room will have a predominantly daylit appearance. It provides light levels below which a room should not fall even if electric lighting is provided.

6.11 The Average Daylight Factor can be used as a measure to determine whether a room will receive adequate daylight (expressed as a percentage). The ADV takes into account the:

- net glazed area of windows;

- the total area of the room surfaces (ceiling, floor, walls, and windows);
- the average reflectance; and
- the angle of visible sky.

6.12 If a predominately daylit appearance is required, then the daylight factor should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. This figure should be as high as possible to enable occupiers to rely on as much natural light and not use artificial lighting, but as a minimum for dwellings the figures should be 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

6.13 These minimum figures may not be applicable when measuring the impact of new buildings on existing dwellings as the simple preservation of minimum ADFs will not necessarily be seen as an indication of acceptability, especially if the VSC demonstrates a significant worsening in daylight levels. For existing dwellings the Council will consider the overall loss of daylight as opposed to the minimum acceptable levels of daylight. As the BRE guidance suggests, the readings will be interpreted flexibly as their aim is to support rather than constrain natural lighting. However, daylight is only one of the many factors in site layout design. Therefore, when applying these standards in Camden, we will take into consideration other site factors and constraints.

6.14 The calculation of the VSC and the ADF is complex. For full details on how these calculations are carried out you should refer to the most up to date version the BRE's "Site layout planning for daylight and sunlight: A guide to good practice". For more complex and larger developments we will expect a daylight study to be submitted with the planning application showing the windows that will be affected and provide before development and post development figures for VSC and ADF.

6.15 Other methods can be used to measure daylight and these can be incorporated in daylight and sunlight reports, where necessary, as a supplement to VSC and ADF measurements, such as the No Sky Line (NSL) test contained within BRE guidance.

Sunlight

6.16 The design of your development should aim to maximise the amount of sunlight into rooms without overheating the space and to minimise overshadowing.

WHAT DOES THE COUNCIL EXPECT?

New developments should be designed to provide at least one window to a habitable space facing within 90 degrees of south, where practical.

This window should receive at least 25% of Annual Probable Sunlight Hours, including at least 5% of Annual Probable Sunlight Hours between 21 September and 21 March, where possible.

Annual Probable Sunlight Hours
The annual amount of sunlight a window receives in an average year.

6.17 The BRE's "Site layout planning for daylight and sunlight: A guide to good practice" provides guidance on access to sunlight in relation to:

- site layout, building orientation and overshadowing for new buildings;
- protecting sunlight to existing buildings, and
- new and existing gardens and open spaces.

6.18 Design for access to sunlight will be specific to the orientation of your site, and the specific design and uses within your proposed development. You should follow the detailed design requirements recommended in the "Sunlighting" section of the BRE document. The Council recognises that not all of the guidance contained within the BRE document, particularly orientation, can be adhered to in all developments due to the dense and constrained urban nature of Camden.

Other considerations

Right to Light

6.19 The right to light is a legal right which one property may acquire over the land of another. If a structure is erected which reduces the light to an unobstructed property to below sufficient levels this right is infringed. A right to light can come into existence if it has been enjoyed uninterrupted for 20 years or more, granted by deed, or registered under the Rights of Light Act 1959. Planning permission does not override a legal right to light, however where a right to light is claimed, this is a matter of property law, rather than planning law. The Council will have no role or interest in any private dispute arising and it will be for the owner or occupier affected to seek a legal remedy.

Supporting documents

6.20 For further information on daylight and sunlight please refer to:

Building Research Establishment (BRE). Site layout planning for daylight and sunlight: A guide to good practice.

Copies of this are available directly from BRE.

BRE Bookshop, 151 Roseberry Avenue, London, EC1R 4GB
020 7505 6622
brebookshop@emap.com
www.constructionplus.co.uk

7 Overlooking, privacy and outlook

KEY MESSAGES:

- Development are to be designed to protect the privacy of existing dwellings;
- Mitigation measures are to be included when overlooking is unavoidable;
- Outlook from new developments should be designed to be pleasant;
- Public spaces benefit from overlooking as natural surveillance.

7.1 This section aims to ensure that when designing your development you successfully consider the potential impact on the privacy and outlook of neighbouring properties.

7.2 This guidance relates to Core Strategy policy CS5 Managing the Impact of Growth and Development and Core Strategy policy CS14 Promoting high quality places and conserving our heritage.

7.3 Policy *DP26 – Managing the impact of development on occupiers and neighbours* of the Camden Development Policies outlines how the Council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity.

Overlooking and privacy

7.4 Development should be designed to protect the privacy of both new and existing dwellings to a reasonable degree. Spaces that are overlooked lack privacy. Therefore, new buildings, extensions, roof terraces, balconies and the location of new windows should be carefully designed to avoid overlooking. The degree of overlooking depends on the distance and the horizontal and vertical angles of view. The most sensitive areas to overlooking are:

- Living rooms;
- Bedrooms;
- Kitchens; and
- The part of a garden nearest to the house.

WHAT IS GOOD PRACTICE?

To ensure privacy, there should normally be a minimum distance of 18m between the windows of habitable rooms of different units that directly face each other. This minimum requirement will be the distance between the two closest points on each building (including balconies).

7.5 Where this standard cannot be met we may require you to incorporate some of the following design measures into your scheme to ensure

overlooking is reduced to an acceptable level. Design measures to reduce the potential for overlooking and the loss of privacy include:

- Careful consideration of the location of your development, including the position of rooms;
- Careful consideration of the location, orientation and size of windows depending on the uses of the rooms;
- Use of obscure glazing;
- Screening by walls or fencing; and
- Screening by other structures or landscaping.

7.6 Where landscaping is used as a method of screening, arrangements for ongoing maintenance should be put in place and this may be secured by a planning condition.

7.7 Public spaces and communal areas will benefit from a degree of overlooking due to the increased level of surveillance it can provide.

Outlook

7.8 Outlook is the visual amenity enjoyed by occupants when looking out of their windows or from their garden. How pleasant an outlook is depends on what is being viewed. For example, an outlook onto amenity space is more pleasant than an outlook across a servicing yard. You should design developments so that the occupiers have a pleasant outlook. You should screen any unpleasant features with permanent landscaping.

7.9 When designing your development you should also ensure the proximity, size or cumulative effect of any structures do not have an overbearing and/or dominating effect that is detrimental to the enjoyment of their properties by adjoining residential occupiers. You should carefully consider the location of bin or cycle stores if they are in close proximity to windows or spaces used by occupiers.

7.10 You should take particular care if your development adjoins properties with a single aspect over your development.

7.11 You should note that the specific view from a property is not protected as this is not a material planning consideration.

Further information

Better Places to Live: By Design - A companion guide to PPG3 (ODPM) makes number of design recommendations which recognise the importance of privacy in the home.

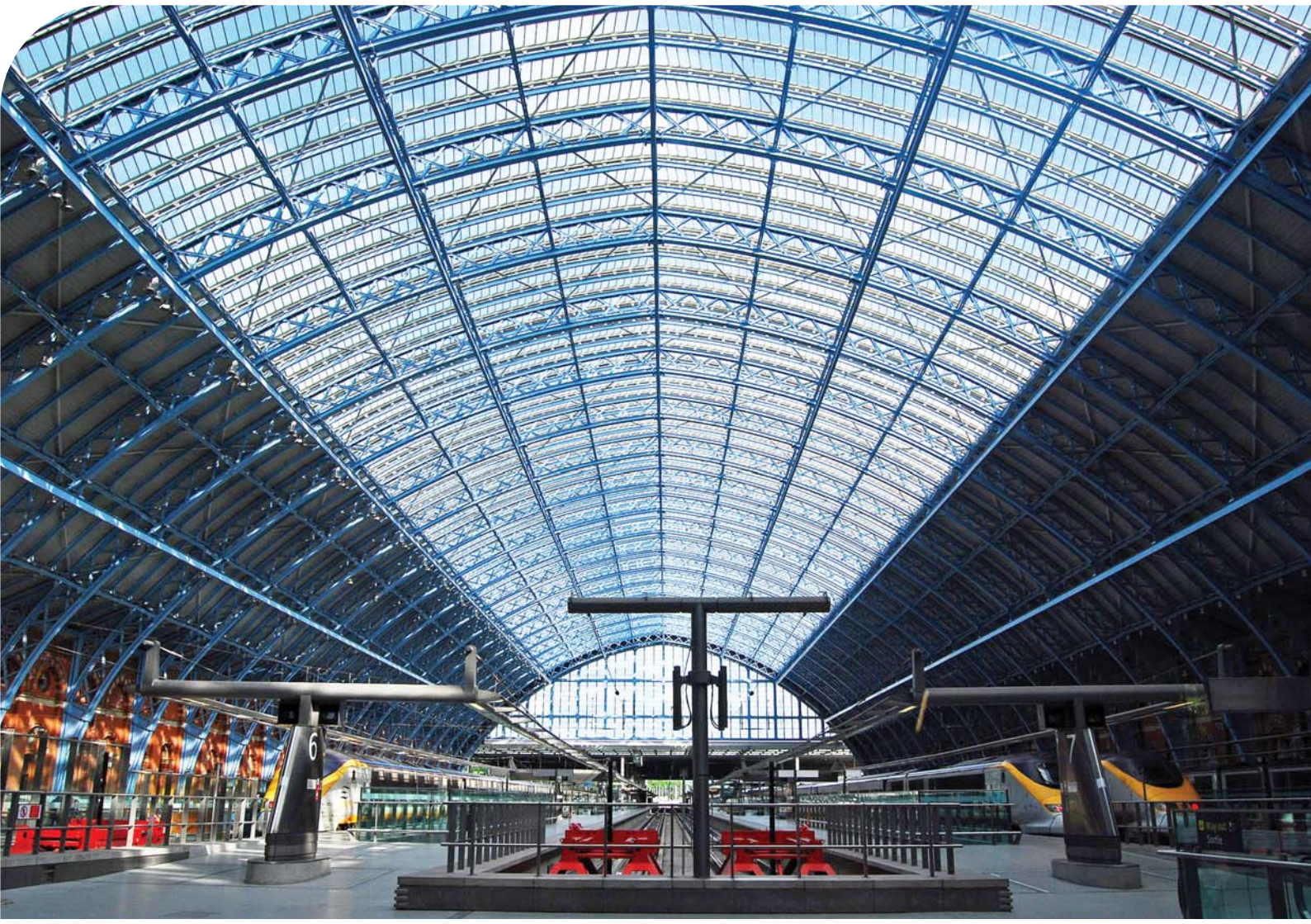
Perceptions of Privacy and Density in Housing report available from Design for Homes; 0870 416 3378 or www.designforhomes.org. This report highlights some of the issues facing households living at higher densities, and the implications for future design of buildings.

Camden Planning Guidance

Transport

CPG 7

London Borough of Camden



Camden

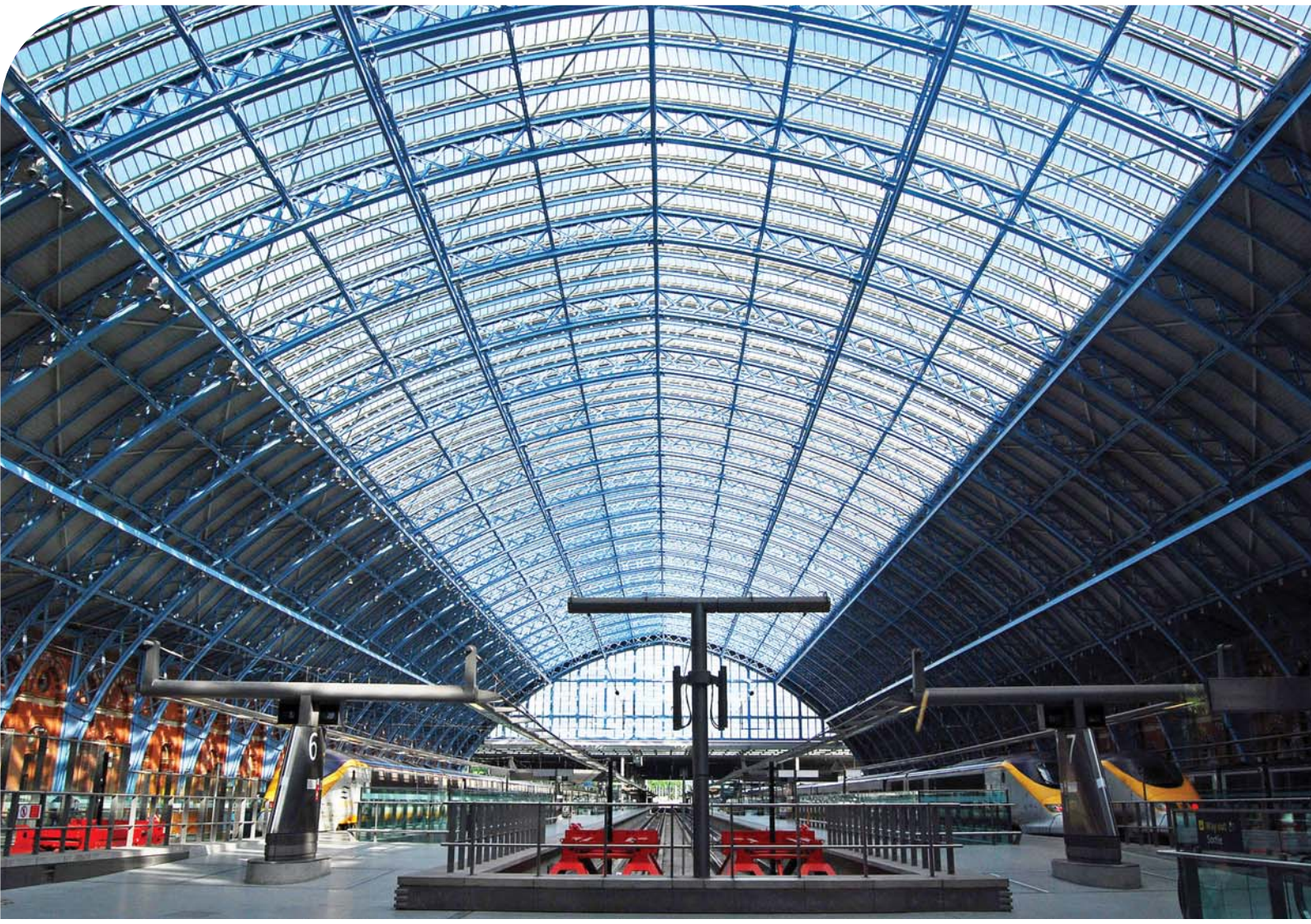
CPG7 Transport

Camden Planning Guidance

Transport

CPG 7

London Borough of Camden



Camden

7 Vehicle access

KEY MESSAGES

- Planning permission must be sought for works to create or alter an access onto a classified road
- The Council will not approve applications that would cause unacceptable parking pressure or add to existing parking problems

7.1 This section gives guidance on designing developments to provide safe access and use by motor vehicles, ensuring that new means of access do not cause harm to the safety of other users of the development and the adjacent highway. It focuses on the Council's approach to planning applications that include new footway crossovers and new access routes to enable access to properties and sites.

Footway crossover
A dropped kerb or short ramp to permit vehicle access.

7.2 It relates to Core Strategy Policy CS11 - *Promoting sustainable and efficient travel* and policies DP18 - *Parking standards*; DP19 - *Managing the impact of parking*; and DP21 - *Development connecting to the highway network* within the Development Policies.

7.3 This section provides guidance on how proposals are judged in terms of:

- impact on the highway network and on-street parking conditions;
- visibility and sightlines for emerging vehicles;
- impact on the footway;
- layout and dimensions for footway crossovers; and
- Preventing waiting on the highway for schemes that include controlled access points, lifts and ramps.

When does this apply?

7.4 This guidance applies to planning applications that involve a change in the way that a site is accessed from the highway.

7.5 Planning permission must be sought for works to create or alter an access onto a classified road, including a crossover over a footway or pavement to provide access onto private land. However, there are certain circumstances where planning permission may not required for access to a paved area or garage. These can include an access:

- from a road that is not classified (classified roads are listed in the Camden Network Management Plan);
- to a property that is not subdivided into flats, and is occupied by a single household.

Classified road
A road which has a number in the national road system (i.e. M - motorway, A - first-class road, and B - secondary road.

7.6 Before considering applications for vehicle access we will first assess how an application has sought to minimise car use in accordance with Core Strategy Policy CS11 and policies DP16 - DP20 of the Camden Development Policies document. Relevant alternative measures include:

- provision for walking, cycling and public transport;
- car-free development so that there is no need for parking; and
- car clubs and pool cars.

7.7 It should also be noted that, separately to planning permission, consent is required from the relevant Highway Authority for a new or altered access from the public highway onto private land, and must be obtained before embarking on any work. The Council is the Highway Authority for all public roads in the Borough except the Transport for London Road Network (see Development Policies Map 1), for which, Transport for London is responsible.

How should vehicle access be provided?

7.8 Access to a site by motor vehicles will either be by driving over the footway using a crossover or the footway will be interrupted by a new junction to create a level access direct from the carriageway:

- Crossovers may be appropriate where the site is not intensively used by vehicles. The Council's Street Management Division will advise on the appropriateness of crossovers and, where a crossover is appropriate, will generally carry out its construction at the developer's expense, in accordance with the design requirements set out in the Camden Streetscape Design Manual;
- Direct access using a new junction is likely to be appropriate either where the site is intensively used by vehicles, or where access is required by heavy goods vehicles. The Council will seek adoption of new roads, and so they must be designed in conjunction with the Council's Street Management Division (see Development Policy DP21).

Impact on the highway network and on-street parking conditions

7.9 The Council's approach to development and highway management is set out in policy DP21 of the Camden Development Policies, which seeks to ensure that new connections to the highway network from developments do not cause harm to the network, to its users or the environment. Applicants whose schemes will connect directly to the highway network should also refer to Camden's Network Management Plan and consult Council.

7.10 The creation of off-street parking and new access routes frequently involves the loss of on-street parking spaces due to the creation of a

crossover over the kerb. As set out in paragraphs 19.6 - 19.9 of the Camden Development Policies document, we will not approve applications for planning permission (and for highways consent) that would cause unacceptable parking pressure or add to existing parking problems.

7.11 Camden's Parking Enforcement Plan Parking provides regularly updated parking permit data, which is used to establish levels of on-street parking pressure on each of Camden's roads. This information will be used when considering the acceptability of applications that would involve the loss of on-street parking spaces.

7.12 We will require developments to be car free, where necessary, in order to avoid harmful impacts on on-street parking conditions through the creation of new access routes (see section 4 of this guidance for more information on our approach to car free development).

Visibility and sightlines for emerging vehicles

7.13 Vehicles joining the highway network need clear views of pedestrians, cyclists and other traffic, and users of the highway network need clear views of those joining it. Views can be obstructed by boundary treatments and parked cars. The relationship between motor vehicles and cyclists and pedestrians is particularly sensitive.

7.14 Adequate visibility for emerging vehicles should be provided with new vehicle accesses, or development that effects existing vehicular accesses. Developers should refer to the Manual for Streets for guidance.

Layout and dimensions for footway crossovers

7.15 It is essential that footway crossovers do not harm ease of pedestrian movement, and the front building line should provide a minimum pavement width of at least 1.8 metres. Any changes to the public highway would need to be approved by the highway authority and design details should be discussed with Camden highway authority prior to the submission of an application.

7.16 It is important that new access points are not overly steep, in order to allow for safe and convenient access. For normal pavement crossovers that involve a dropped kerb, the Council will apply the following gradients:

- Vehicular ramps from the carriageway to the area of level footway should be a maximum of 15% (1:6);
- For pedestrians dropped kerbs should be a lower gradient.
- For longer vehicular ramps, the Council will apply the following gradients:
- Vehicular ramps should be a maximum gradient of 10% (1:10)

- For pedestrians, ramps should be a maximum gradient of 1:12, in line with the Disability Discrimination Act (DDA) requirements (although a gradient of 1:20 is preferred)

7.17 Where possible, the ground floor level of a development should be the same as the level of the highway, in order to avoid the provision of unnecessary steps, and to allow the footway to be constructed with an adequate slope (i.e. "crossfall") to allow water run off.

Preventing waiting on the highway: Controlled access points, lifts and ramps

7.18 Sometimes it will be necessary to provide a limited amount of space for vehicles on the site or curtilage, with controls at the point of entry and/ or provision of vehicle space at a different level from the street, accessed by a vehicle ramp or lift.

Curtilage
The enclosed area of land adjacent to a dwelling house.

7.19 In each case, an area should be provided within the site for all vehicles waiting for a traffic signal, barrier or vehicle lift. This area should be sufficient to accommodate the maximum likely number of queuing vehicles, without any obstruction to pedestrians and vehicles using the public highway. Where a lift, ramp or other access is only available to one vehicle or direction of flow, there must be space at each end for leaving vehicles to pass those queuing to enter.

7.20 Depending on expected traffic flows, access roads may be expected to be two-way. Segregated areas for pedestrians and/ or cyclists may also be required.

Further information

7.21 The Council's Road Network Management Plan establishes the road hierarchy in Camden and provides a list of classified roads in the borough. It sets out how the Council will manage the road network in order to provide for efficient movement of vehicles and pedestrians and reduce disruption and congestion.

7.22 The Camden Streetscape Design Manual provides information on the Council's expectations for the detailed design and layout of highways, footways and public spaces in Camden. Detailed consideration should be given to the Manual before designing any highway works.

7.23 Other relevant documents include:

- Department of Environment, Department of Transport Design Bulletin 32 - Residential Roads and Footpaths - Layout Considerations – which describes the main considerations that should be taken into account in the design of residential layouts. It also takes into account new initiatives on matters such as road safety and includes references to improvement schemes on existing estates.

- Design Manual for Streets; DfT, 2007 – which provides advice for the design of residential streets and the creation of sustainable and inclusive public spaces.
- Design manual for roads and bridges – which is a series of 15 volumes that provide official standards, advice notes and other documents relating to the design, assessment and operation of trunk roads and motorways.

7.24 Regard should also be had to:

- the creation of high quality streets and public spaces (see section 7 of this guidance);
- potential community safety issues associated with forecourt parking – see Core Strategy policy CS17 and Designing safer environments section of the CPG1 Design.

9 Cycling facilities

KEY MESSAGES

This section includes guidance on:

- The implementation of our minimum cycle parking standards for new development;
- The design and layout of cycle parking; and
- Cycle hire and cycle stations.

9.1 This section provides guidance on meeting cycle parking standards in an effective way, so that cycle parking is convenient and secure, and users of a development are more likely to use bicycles to travel to and from the site.

9.2 It relates to Core Strategy Policy CS11 – *Promoting sustainable and efficient travel* and policies DP17 – *Walking, cycling and public transport* and DP19 – *Parking standards and limiting the availability of parking* of the Camden Development Policies. It should be read in conjunction with Development Policies Appendix 2 – Parking standards.

When does this apply?

9.3 This guidance applies to:

- Applications which involved the creation of one or more additional dwellings;
- Applications which proposed additional floorspace of 500 sq m or more; and
- Applications which are likely to significantly increase the demand for people to cycle to the site.

How do we implement our cycle parking standards?

9.4 Numerical standards for cycle parking spaces are introduced by policy DP18 of the Camden Development Policies, and set out in detail in Development Policies Appendix 2. These standards are applied at a threshold of 500 sq m in most cases. Throughout the standards, the stated number of spaces relates to the number of bicycles to be accommodated, not to the number of stands.

9.5 Where a development crosses the threshold, requirements apply to the entire floorspace, not only the floorspace above the threshold. For example, at a new leisure development, 1 visitor cycle parking space per 250 sq m is required from a threshold of 500 sq m. This means that no requirement applies to a facility of 400 sq m, but 4 visitor spaces are required for a facility of 1,000 sq m.

9.6 Thresholds and standards are given as a gross floor area (GFA) relating to the development as a whole, and are not intended to be applied

separately to individual units where a development is subdivided into smaller units. Thus, space for cycles may be required for small premises (under 500 sq m) which form part of a larger development.

9.7 Table 6.3 of the London Plan sets out additional cycle parking standards and states that additional cycle parking provision will be required for larger (C3) residential units.

Location, design and layout of off-street cycle parking

9.8 Cycle parking should be provided off-street, within the boundary of the site. Cycle parking needs to be accessible (in that everyone that uses a bike can easily store and remove a bike from the cycle parking) and secure (in that both wheels and the frame can easily be locked to the stand). Security is a critical concern in the location, design, enclosure and surveillance of all cycle parking. The table below provides detailed guidance on the location, design and layout of cycle parking for various groups of cyclists.

Location of off street cycle parking

General • Cycle parking outside buildings should be positioned near entrances and where frequent surveillance is possible. For short stays, the parking should be sited within 25 metres of building entrances. For stays of over an hour, the parking should be sited within 50 metres of building entrances. • All cycle parking, including all parts of the parked cycles, should be clear of routes needed for pedestrian movement. • The route to cycle parking from street level should be step free. cycle parking inside buildings should be at the entrance level of the building or accessible by a ramp or lift from street level that can accommodate a bike.
Parking for visitors Parking for visitors should be clearly visible or clearly signed from the public highway, and should be near building entrances
Parking for employees (and other long stay parking) Parking for employees (and other long stay parking) should be provided either within the building, or otherwise protected from the weather. Consideration should be given to providing lockers and showers for cyclists. For larger development this would be expected and would be a requirement of a Travel Plan (see section 2 of this guidance concerning Travel Plans).
Parking for residents Parking for residents should be within the building. Parking for a resident may take the form of a space within an individual dwelling provided that the space is close to the door of the dwelling, and access to the dwelling is level, or by a ramp or lift that can accommodate a bike.

Design and layout of cycle parking: Sheffield and "Camden" cycle stands

The Council recommends the use of either "Camden" or Sheffield for the provision of off-street cycle parking, as they meet the Council's requirements in terms of accessibility and security, provided they are laid out correctly.

- The "Camden" stand is a new form of Sheffield Stand, which is now used for all new cycle parking installed on Camden's public highway. Developers are encouraged to use it in place of the Sheffield stand, although the Sheffield stand is still acceptable. The Council's Public Realm and Transport team can advice on purchasing "Camden" stands as they are not as widely available as the Sheffield stand.
- The Sheffield Stand is the most common type of cycle stand used in the public highway. It is recommended for use along with Josta two-tier cycle parking;

Annex 1 provides more detailed guidance on the design and layout of "Camden", Sheffield and Josta stands.

We are willing to consider other forms of cycle parking, however you must meet our accessibility and security requirements, details of which can be obtained from the Council's Public Realm and Transport team. Generally, designs that require cycles be lifted into place or provide insufficient opportunity to lock the cycle will not be acceptable.

The London Cycle Hire Scheme

9.9 The London Cycle Hire Scheme is a public bicycle sharing scheme for short journeys in and around central London. Users can pick up a bike from a docking station, use it for short journeys, then drop it off at any docking station, ready for the next person.

9.10 Whilst the cycle hire scheme is currently focused around central London, the Mayor of London is investigating its expansion. The Camden Core Strategy states that we will seek to ensure that the scheme is extended to key destinations across the borough, including our town centres (see Core Strategy paragraph 11.13).

9.11 Where appropriate, developments close the area covered by the London Cycle Hire Scheme will be expected to contribute towards the scheme,

where justified as a result of increased trips generated. Contributions could include:

- a financial contribution towards cycle hire facilities. The amount sought will be based on the number of additional trips that are generated by the scheme;
- provision of space on-site to accommodate new cycle hire docking stations, in larger developments where there is space and the location is suitable. Transport for London (TfL) is producing a set of guidance for developers regarding specifications and design requirements for docking stations due to be released in 2011.

9.12 Contributions sought will relate both to the individual impact of a scheme and to any cumulative impact of a number of schemes in the same area.

Cycle stations

9.13 Cycle stations provide a secure managed area for cycle parking. The Camden Core Strategy promotes the provision of cycle stations as part of an effort to increase the availability of cycle parking in the borough (see paragraph 11.13 of the Core Strategy), and we intend to create a network of publically accessible cycle stations across the borough.

9.14 We will seek the provision of cycle stations in locations where it will be possible to attract a sufficient number of users. Suitable locations include:

- town centres and the central London area;
- transport interchanges;
- large commercial developments;
- residential areas - linked to new and existing residential development of a suitable scale; and
- larger health and education facilities.

9.15 Where developments generate an increased level of activity they will be expected to provide contributions towards the provision and maintenance of nearby cycle stations, in order to mitigate the effects of the increased number of journeys.

9.16 We will also seek on-site provision of cycle stations as part of larger developments in suitable locations. On-site provision of cycle stations can incorporate a development's cycle parking requirements for visitors (as set out in our parking standards), but should also include extra provision for the wider public. Parking provision for employees and residents of a development, as set out in our parking standards, should be provided separately in order to ensure that they retain the appropriate number of spaces to meet the demand that they generate.

Design of cycle stations

9.17 As a minimum, cycle stations should incorporate indoor, sheltered standard cycle parking (e.g. Camden or Sheffield type cycle stands) with

controlled access to the indoor area, and lighting. Cycle stations can incorporate a variety of other features including automated cycle locks, changing facilities, lockers, toilets and showers. Access to and from the cycle station by bike must be safe and convenient and accounted for within the space.

9.18 The Camden Cycle Stations Programme - Review of Best Practice (March 2009) provides information on best practice in the provision of cycle stations. Features that contribute to a successful cycle station include:

- Being located not more than 100m from the target destination, with shorter stays requiring shorter distances;
- Good surveillance by staff, other users and passers-by.
- Effective maintenance and management
- Clear and unambiguous signing to and within the cycle station.

Further information

9.19 In addition to the guidance provided in Annex 1 below (which includes details on the layout of off-street cycle parking), reference may also need to be made to the Camden Streetscape Design Manual. The manual contains dimensions for on-street cycle parking and the widths required for unobstructed pedestrian routes.

9.20 Other supporting documents include:

- Forthcoming TfL Design and specification of cycle hire scheme
- Forthcoming TfL Guidance on Cycle Stations
- Camden Cycle Stations Programme - Review of Best Practice (March 2009)

9.21 London Cycle Network Design Manual (London Cycle Network Steering Group, March 1998)

Annex 1 – Sheffield Stand Cycle Parking

9.22 This Annex describes in detail how to lay out Sheffield stands. It also can also be applied to the layout of “CaMden” stands.

9.23 The "Sheffield Stand" refers to a common design of cycle parking made from a tubular steel loop, approximately 50mm to 75mm in diameter, that is fixed to the ground (either bolted through a baseplate or set in concrete). Each Sheffield Stand can accommodate two bicycles, one either side, provided there is sufficient clearance next to the stand and sufficient circulation space so all cycle parking spaces can be accessed

9.24 The CaMden Stand is similar to the Sheffield Stand but is in the shape of a rounded “M” rather than a simple loop. This is designed to encourage uses to lock both wheels and the frame to the stand, rather than just the top tube / frame.

Figure 3. Sheffield Stand Elevation

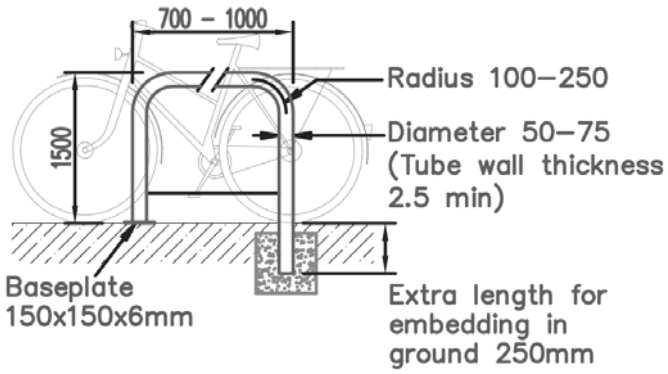
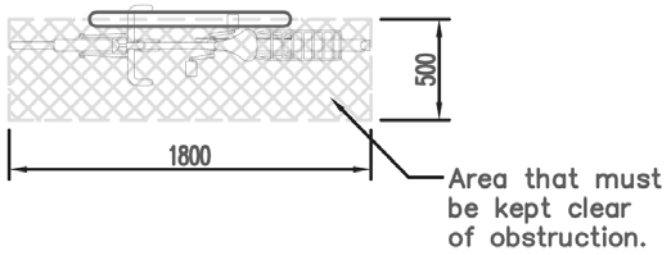


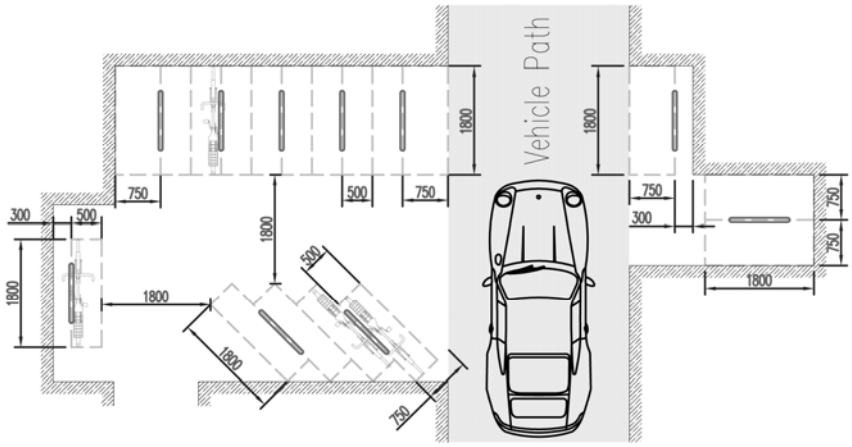
Figure 4. Sheffield Stand Plan



9.25 For adjacent stands, an area of at least 1800mm by 500mm next to the stand (measured from the centre line of the tube), must be kept clear for each cycle parking space to allow room for the cycle and working space for locking the bike to the stand. However, if a stand is next to a physical obstruction, such as a wall or a vehicular path, there must be at least 750mm between the stand and the physical obstruction to enable both sides of the stand to be used. If a stand is to be placed close to a wall or other physical obstruction so that only one side of it can be used (i.e. only one cycle can be locked to it), there must be at least 300mm between the stand and the physical obstruction.

9.26 Aisles around the cycle store must be at least 1800mm in width. An example cycle store showing various layout options is shown below. Note that the area to be kept clear does not actually have to be marked on the ground, but is shown in outline for clarity.

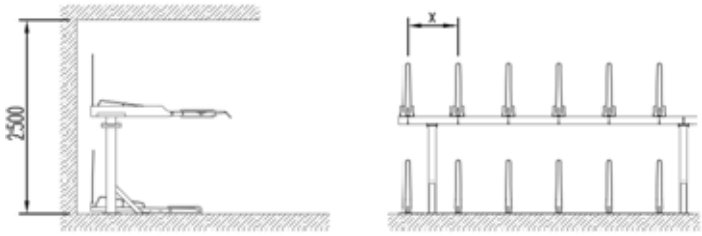
Figure 5. Cycle stand siting



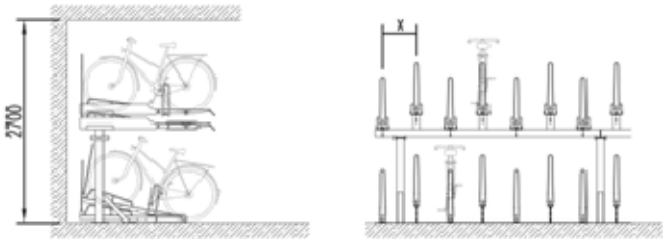
Josta Two-tier Cycle Parking

9.27 The Josta two-tier cycle parking system (or similar) is generally able to accommodate approximately twice as many cycles per square meter of floor space as Sheffield stands. It also still meets the Council's requirements for accessibility and security, but requires a ceiling height of at least 2500mm.

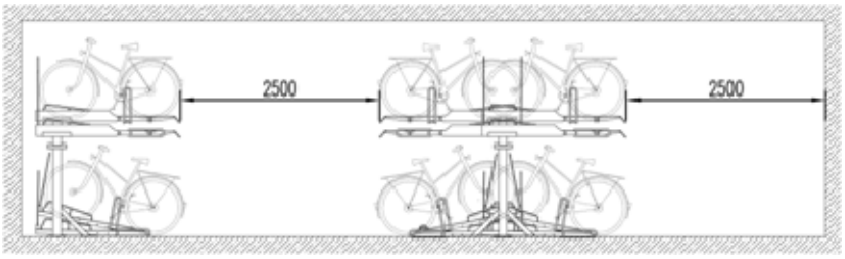
9.28 With a ceiling of at least 2500mm the stands can be placed 650mm apart, i.e. X = 650mm in the diagram below.



9.29 With a ceiling of at least 2700mm the stands can be placed 400mm apart, i.e. X = 400mm in the diagram below.

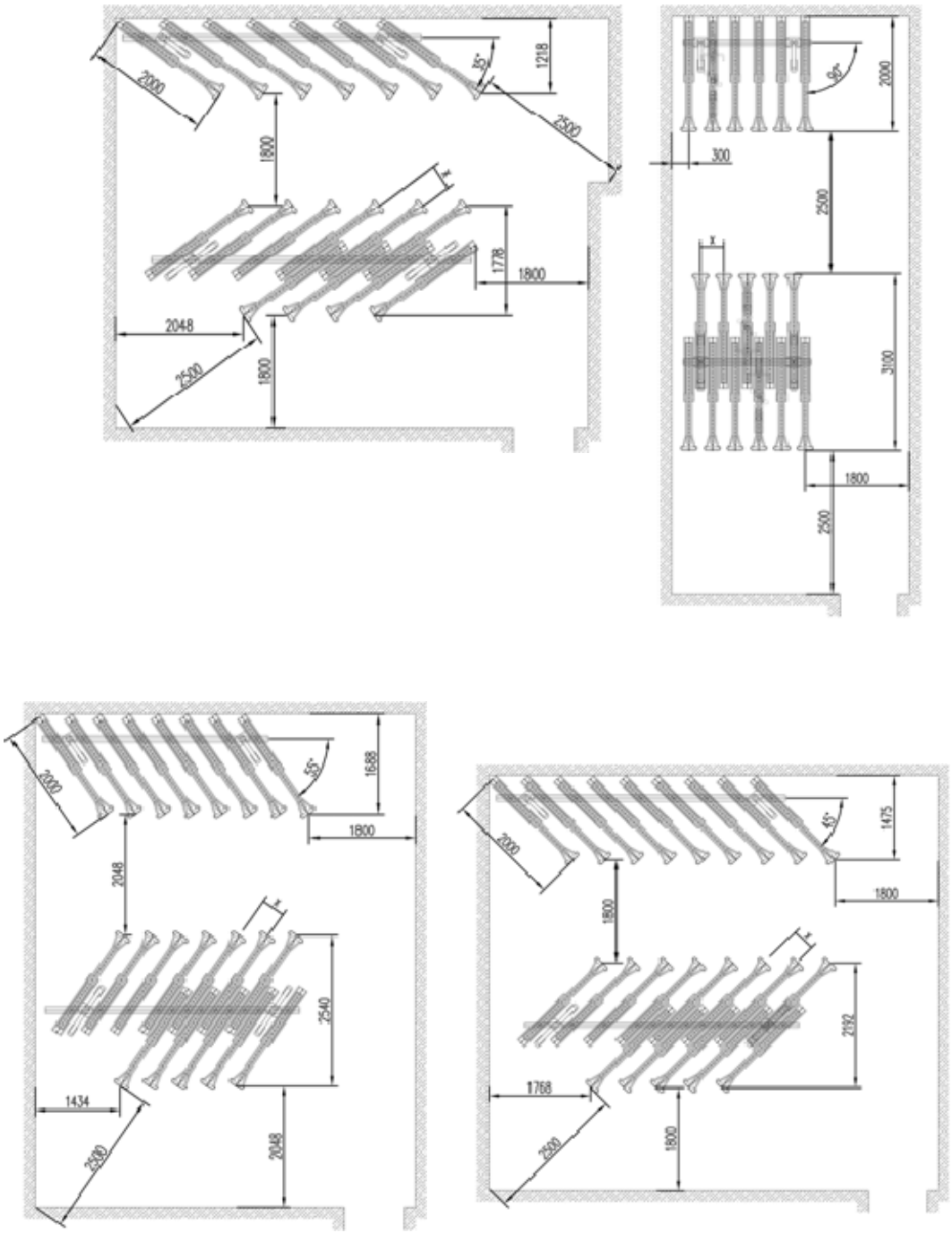


9.30 In order to enable the top tier to be used, at least 2500mm of clearance in front of the stand, measured on a line at the same angle at which the top tier stands are extended (see diagrams below), is required between rows of stands, walls or other obstructions.



9.31 The Josta stands can be arranged at different orientations (angles) provided there is 2500mm of clearance in front of the rack to remove cycles from the top tier (as described above) and aisles around the cycle store at least 1800mm in width. Examples, with minimum distances are shown below. “X” indicates the spacing between stands, which depends on the ceiling height as described on the previous page.

Figure 6. Josta Stand minimum siting dimensions



Camden Planning Guidance

Planning obligations

CPG 8

London Borough of Camden

July 2015

Camden

CPG8 Planning obligations

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this Camden Planning Guidance to support the policies in our Local Plan documents. This guidance is therefore consistent with our adopted Core Strategy and Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional material consideration in planning decisions.

1.2 The Council adopted CPG8 Planning obligations on 7 September 2011 following statutory consultation. This document has been subject to two updates:

- Updated 25 February 2015 to take into account Camden's Community Infrastructure Levy (CIL) Charging Schedule following independent examination. Camden's CIL charging schedule came into effect on 1 April 2015.
- Updated 17 July 2015 to include revised guidance for employment and business support.

Details on these updates and the consultation process are available at camden.gov.uk/cpg.

What does this guidance cover?

1.3 The purpose of this guidance is to provide an indication of what may be required when the Council considers that a development proposal needs a planning obligation to be secured through a legal agreement. Planning obligations can be used positively and to address some of the negative impacts of development which would otherwise make a development unacceptable. This guidance also sets out how planning obligations will be operated alongside the Community Infrastructure Levy.

When will it apply?

1.4 This guidance applies to all development where proposals are likely to be subject to planning obligations under Section 106 of the Town and Country Planning Act 1990 (as amended). In dealing with planning applications, local planning authorities consider each proposal on its merits and reach a decision based on whether the application accords with the development plan, unless material considerations indicate otherwise. Where applications do not meet these requirements, they may be refused.

1.5 In some instances, however, it may be possible to make development proposals which might otherwise be unacceptable, acceptable through the use of planning conditions or, where this is not possible, through planning obligations. Where there is a choice between imposing conditions or entering into a planning obligation a condition will be used.

1.6 The use of planning obligations is an important tool in managing the impacts of development and assisting the delivery of necessary infrastructure to support the London Plan and Camden's Local Plan documents. They will be used to ensure that the strategic objectives of the Core Strategy and Development Polices are met through requirements attached to individual development proposals.

1.7 The use of planning obligations is specifically required through policy CS19- Delivering and monitoring the Core Strategy although other Development Policies may be used to justify an obligation, particularly those relating to affordable housing, sustainability and transport. Further site specific requirements are set out in our adopted Site Allocations DPD. This guidance is intended to provide general advice on how planning obligations operate. Large scale developments generally have more significant and complex obligations attached to them, but obligations may also be applied to small scale developments to achieve measures such as car free housing or to manage the impacts of construction.

3 Amenity

3.1 Development can be positive, but it can also have a significant environmental impact on the amenity of those who live near the development site. It can sometimes cause general nuisance and disturbance, vibration, noise pollution and dust pollution. Development can also have an impact on the surrounding landscape and biodiversity.

3.2 The negative impacts of development on amenity can be short term and connected to the construction phase of the development, or they can be long term and connected to the day to day operation of the development. The negative impact of a development on the amenity of the surrounding area can normally be offset by good design, planning conditions and controls covered by other legislation.

3.3 Where these measures are not adequate to deal with the potential negative environmental impacts of a proposed development which is deemed generally acceptable, a Section 106 Agreement can be drawn up between the Council and the developer, requiring the developer to undertake certain actions to offset those impacts.

3.4 The Council will seek to manage the impact of development when considering a development proposal in line with Development Plan policies DP26 and DP28. However, certain aspects of demolition and construction have specific planning implications and may need to be addressed through planning conditions or planning obligations entered into through a Section 106 Agreement.

3.5 Depending on the complexity and potential impact of the proposal costs may be sought from the applicant to cover the additional costs to the Council of resourcing the necessary assessment and supervision of these plans and requirements.

Construction

3.6 Where demolition and construction is likely to affect local amenity, it is better to consider the environmental impacts at the planning stage and seek ways to minimise them. Many concerns can be addressed through adoption of a co-operative stance between all parties involved and developers should refer to and utilise the Considerate Constructors Scheme.

3.7 Many of the environmental impacts of construction works are covered by specific legislation to control pollution, maintain clean air and minimise disturbance. Because of this and other controls small construction projects cause relatively minor amounts of local disturbance and in most cases will not require a section 106 agreement to deal with construction management. However, in the case of large construction and demolition works, planning obligations may be used to minimise the environmental impacts and address the consequences of construction (e.g. to manage construction traffic and/or reinstate surfaces to a condition that existed prior to construction).

3.8 In most cases planning obligations will involve a demolition and/or construction management plan. Please refer to Camden Planning Guidance 6 Amenity, Section 8 for further detail on Construction Management Plans (CMPs). In these plans the developer undertakes to carry out the demolition or construction works in strict accordance with a plan approved by the Council. The plan may include provisions for phasing, sequential development, management of waste, controlling noise and access during construction. When drawing up the construction or demolition management plan the developer will be required to consult with officers of the Council, the police and local residents and businesses as relevant. Local businesses could also be used to supply materials and services in relation to development and construction in order to minimise travel distances and transport costs.

3.9 As outlined also in CPG4: Basements and lightwells measures to alleviate impacts may be secured through condition and/or section 106 agreement as appropriate. As many impacts occur beyond the application sites section 106 agreements will need to be used.

3.10 This may require the submission and approval of further plans and methodologies in advance of works starting. These will need to be submitted as soon as logistically possible e.g. on appointment of a contractor (who should be informed of and familiar with these type of requirements as part of a selection process), but well in advance of any works on site taking place. If the Council cannot approve the submitted material because it is inadequate or not enough time has been given then works cannot commence.

3.11 **All related plans must be prepared and submitted well in advance of works taking place and must be approved before any related works commence.**

3.12 The Council may require the developer to set up a Construction Working or Liaison Group in order to discuss, advise and, where appropriate, make recommendations to the developer in relation to construction management. The Working Group should be made up of an appropriate number of representatives from local residents and/or business associations, a nominee of the Council, and a project manager and/or Liaison Officer who will act as a point of contact between the local community and the developer.

3.13 A Construction Working Group can have an input into the Construction or Demolition Plan or Method Statement for Construction, which the developer must submit for the approval of the Council before implementation. The plan or statement should normally cover the following:

- the programme for construction works;
- site conditions;
- erection of hoardings and scaffolding;
- time of operations;

- noisy activities;
- time of deliveries;
- dealing with construction traffic, vehicles and other likely traffic and parking issues;
- temporary road and footway closures and surfacing reinstatement/repair proposals; and
- consideration of complaints from the business and residential community.

3.14 Construction should proceed at all times in accordance with this plan or Method Statement and updated where appropriate to respond to changing circumstances. A pro-forma CMP is available on the Councils website at http://www.camden.gov.uk/ccm/content/environment/planning-and-built-environment/two/planning-applications/making-an-application/supporting-documentation/planning-agreements.en

Construction waste

3.15 The Council will seek to minimise the amount of waste generated by a development and to maximise the amount of waste that is reused or recycled. Developers should try to ensure that construction waste is minimised. Recycling of demolition waste can help reduce the amount of aggregates that have to be transported through London and contribute to the saving of resources.

3.16 Construction waste needs to be disposed of safely and the vicinity of the construction site should be kept in a clean and safe condition. The Council may require the developer to submit for approval a Construction Waste Management Plan separately, or as part an overall Construction and Demolition Plan, which the Developer will be obliged to follow during the period of construction.

Noise

3.17 Noise pollution has a major effect on amenity and on quality of life in general. The Council will not grant permission for noise sensitive development in locations where there is noise pollution, unless appropriate attenuation measures are taken. Policy DP28 Noise and vibration sets out the acceptable thresholds for noise in relation to sensitive uses. If suitable separation cannot be achieved the Council will consider whether it is practical to control or reduce noise levels through the use of conditions, planning obligations or other environmental legislation.

3.18 Whilst design measures and planning conditions will often be sufficient to address noise impacts within the development site, planning obligations may require (including a financial contribution where legitimate):

- noise mapping;

- noise monitoring to identify the number of people adversely affected by noise from road traffic and railways, and to validate noise levels calculated by noise mapping; and/or
- a post development survey to confirm that requisite measures have been implemented successfully.

3.19 In addition the Council may require a noise management plan through a legal agreement, which may require a developer to:

- put in place a scheme for the sound insulation of affected dwellings in order to safeguard amenity;
- reduce noise at source, e.g. by vehicle fleet selection to minimise noise generated by individual vehicles such as delivery lorries, cars and railway vehicles;
- implement off-site noise mitigation measures against traffic noise and vibration such as noise barriers and sound insulation of residential properties and other noise sensitive receivers;
- provide and maintain off-site tree and landscape buffers;
- put into operation a traffic management scheme to reduce road traffic noise; and/or
- work with the local highways authority to implement requisite highways works and a maintenance programme incorporating provision of quieter road surfaces, such as porous asphalt.

Contaminated land

3.20 Contamination of the ground and underground water can affect human health, cause harm to the natural environment and damage buildings and underground services. The Council will require measures to remove unacceptable risk from contaminated land and thus make the site suitable for its new use by way of planning conditions.

3.21 Where a development includes any potentially contaminative uses the Council will expect proposals to be submitted to prevent future contamination of land or groundwater and may impose planning conditions to that effect. Land contamination issues must be fully addressed in any environmental assessment or statement to accompany a planning application.

3.22 For those developments in or adjacent to areas where objectives for land contamination are unlikely to be met by condition (i.e. where there is still a residual impact), the Council will require a section 106 planning obligation. The planning obligation will be directed towards measures designed to deal with the contamination, including during construction works, and to make the site suitable for its intended use.

3.23 The Council may require a financial contribution for:

- site investigation and remediation works which would include any measures to prevent hazards arising from future use of the site and the disposal or containment of any contaminants;

- for monitoring work following the completion of the development, e.g. measuring gas or water contamination in boreholes or installing permanent monitoring equipment; and/or
- a post-development survey to confirm that requisite measures have been implemented successfully.

3.24 A management plan may also be necessary requiring the maintenance of remedial works such as landscaping or water treatment facilities, or imposing restrictions on the land to minimise and control future potentially hazardous or contaminating development or use of the site.

Microclimate

3.25 Large developments have the potential to change the microclimatic conditions in the surrounding area, for example by overshadowing a public space for large parts of the day, or by causing windy conditions around the development. The Council will expect that in the case of a development that has the potential to have an adverse effect on the environmental conditions in a nearby street or public space relevant attenuation measures should be integrated into the proposals.

3.26 On-site attenuation measures can also be specified in the planning conditions attached to a planning permission. The Council may require a developer to undertake an assessment (e.g. a wind assessment) of the development as part of the planning application submission. The developer may be required to integrate any findings or recommendations into the finished development. The Council may also require the developer to manage and maintain a development in accordance with an environmental plan, which may need to be approved as part of an application.

3.27 In certain cases the adverse effects of a development on the environmental conditions of the public spaces around and within the development may be attenuated by off-site measures such as planting trees as a windbreak. Other off-site shading or shielding devices may be required to control or improve the environmental conditions in public and semi-public spaces around the proposed development. The Council may require the developer to pay a financial contribution to secure these site related works.

4 Community facilities

4.1 Community facilities include childcare, education and training, healthcare, police stations, fire stations, youth provision, libraries, community halls, meeting spaces, places of worship, public conveniences and other similar uses that provide a service to the local community. Leisure facilities include cinemas, music venues, theatres, leisure centres, indoor and outdoor sports facilities and other similar uses.

4.2 Core Strategy policy CS10 – Supporting community facilities and services, sets out the Council's overarching approach to protecting and providing the community facilities that meet the needs of Camden's growing population. Development Policy DP15 – Community and leisure uses helps to deliver the Core Strategy by providing information about the detailed approach that will be taken to protect existing community and leisure facilities and the expectation that schemes which create additional demand for community facilities to make an appropriate contribution towards community facilities on-site or close to the development.

Education

4.3 Education infrastructure is an integral component of balanced and sustainable communities. CIL funds will generally be used to address the cumulative impacts of developments on school places. The Children, Schools and Families department of the Council (or other appropriate education providers) may as part of infrastructure programming, require funds to expand school places where they are necessary to meet growing population needs and to support new development.

4.4 These kind of projects in most cases may be set out the Regulation 123 list. On large scale major sites it may be necessary to provide schools or land for schools directly on site or nearby to address the direct impacts of the development. This type of site specific provision will generally be secured through planning obligations where legitimate.

Other community facilities

4.5 There are a number of community centres and recreation facilities including meeting halls and spaces, libraries and indoor sports halls across Camden, and such centres provide an important component of daily life for a significant section of the population. These can help to enhance quality of life, improve personal health and well-being, deliver a sense of community and help to reduce crime.

4.6 New residential or commercial development which generates or attracts significant numbers of people to an area may require new provision or lead to an increased demand on existing community facilities near to a site. The provision of these facilities is important in supporting new growth as recognised in planning policies. CIL funds will generally be used to address the cumulative impacts of development on community

facilities. Services providers may as part of infrastructure programming require funds to provide new or improve community facilities where they are necessary to support new growth.

4.7 In exceptional cases where a community facility is to be lost as a result of a development, or a development generates the need for increased facilities the Council will normally expect it to be provided on the development site or for alternative provision to be made in the locality.

4.8 Where this is not possible the Council may seek a financial contribution based on the cost of provision of a replacement facility. In cases where a community facility is provided the Council will prescribe a specification for the building to facilitate the occupation by community groups, which may include subsidised rents.

4.9 On large scale major sites it may be necessary to provide new community facilities or land for such facilities directly on site or nearby to address the direct impacts of the development. This type of site specific provision will generally be secured through planning obligations where legitimate.

Contributions to healthcare

4.10 New development can lead to an increase in demand for new health care provision and put pressure on existing facilities and capacity to meet the health care needs of local residents, workers and visitors to the borough. It is appropriate for those carrying out major new development in Camden to make a contribution towards the provision of health care, particularly local primary health care, if development generates or increases pressures on existing facilities.

4.11 The Council will consult with statutory healthcare providers in the area to identify the healthcare needs likely to be generated by a development. CIL funds can be used to address the cumulative impacts of development on health facilities. Separate planning obligations and contributions will not generally be sought for developments of less than 50 residential units but local circumstances will need to be assessed, e.g. loss of health facilities.

4.12 In schemes of more strategic importance where significant numbers of visitors or workers are going to be generated, in addition to a new residential population, there will be a need for developers to carry out an assessment of the health implications of the development and its impact on local health services.

4.13 On large scale major sites it may be necessary to provide health facilities or land for such facilities directly on site or nearby to address the direct impacts of the development. This type of site specific provision will generally be secured through planning obligations where legitimate.

7 Sustainability

7.1 Promoting a sustainable Camden is an integral element of our Local Plan documents strategy. Core Strategy policy CS13 – Tackling climate change through promoting higher environmental standards sets out a key part of our overall approach to tackling climate change, which includes promoting higher environmental standards in design and construction.

7.2 Core Strategy policy CS13 states that the Council will have regard to the costs and feasibility of measures to tackle climate change within developments (paragraph 13.4). This approach also applies to policy DP22. We will also take into account the cumulative costs of not responding to the need to mitigate and adapt to climate change as well as the long term cost savings, such as on energy and water bills, to future occupiers. Measures to tackle climate change are integral in the development process and are a priority of the Council, therefore, they should not be seen as 'add-ons'. They are an essential element of sustainable development. For further information on ways to achieve carbon reductions and more sustainable developments please refer to Camden Planning Guidance note 3 – Sustainability.

Biodiversity and habitats

7.3 Planning obligations may be used to require developers to carry out works to secure or reinstate existing habitat features, enhance existing features, create new features or to undertake habitat creation schemes. In those very exceptional cases where a developer cannot protect an ecological habitat adjacent to or within the boundaries of the site and in other respects the development is acceptable they will be required to provide an alternative compensatory measure of equal or greater value.

7.4 These measures could be land off-site on which the Council or other responsible agency can carry out works and recover the reasonable costs from the developer, or assistance in enlarging or enhancing existing nature conservation assets and habitats and make provision for maintenance of the site.

7.5 A planning obligation may also be appropriate where additional monitoring or survey work is considered necessary to confirm that relevant environmental measures have been implemented successfully. Some developments may result in increased activity and affect the value of areas of nature conservation merit adjacent to or within the site.

7.6 In certain circumstances legal agreements may be appropriate to restrict types and hours of activities and development rights. They may also be used to control access so as not to damage or harm existing features and to make proper provision for the long-term maintenance of directly affected sites.

Sustainable design and construction

7.7 Policy DP22 – Promoting sustainable design and construction contributes towards delivering the strategy in policy CS13 by providing detail of the sustainability standards we will expect development to meet. Meeting the requirements for sustainable design and construction is often achieved in the detailed design or construction phases. Normally, requirements for environmental design will be dealt with using conditions, but in some circumstances, a Section 106 agreement may be required to secure an environmental assessment of the proposed development carried out by an impartial assessment body or a sustainability plan to provide and maintain the highest environmental standards of development.

7.8 If they cannot be implemented through the approved design or satisfactorily secured through conditions, the following design features may be specified through a sustainability plan required to be submitted as part of a section 106 Agreement:

- energy efficient design measures;
- renewable energy facilities;
- waste and recycling storage facilities;
- water retention and recycling facilities;
- heating or cooling systems;
- internal water consumption levels; and
- materials sourcing proportions.

7.9 Other specific management plans may normally be required through a condition of a planning approval. However, some proposals or aspects of a proposal might generate a requirement for a management plan to deal with some of the following issues, depending on the scale, nature and location of the scheme:

- waste management;
- energy including renewable energy on site and energy efficiency;
- facilities management;
- construction and demolition;
- water efficiency;
- Sustainable Drainage Systems (SUDs)
- community safety;
- contamination;
- hazardous substances; and
- biodiversity.

7.10 This list is not exhaustive, and the requirements will be relevant, proportionate and related to the specific nature and potential impacts of the development proposed.

7.11 Camden Planning Guidance 3, Sustainability provides further detail on the appropriate standards for different types of development – BREEAM, Ecohomes or the Code for Sustainable Homes. A Section 106 Agreement may be used by the Council to require the developer to carry out and submit a post-construction review to ensure that the development has met the criteria which were approved earlier as part of the estimate and design stage assessments. The Council will not permit occupation of the development until a satisfactory post-construction review has been provided and any issues identified in that review have been satisfactorily addressed

Decentralised energy networks

7.12 Developments are expected to connect to a decentralised energy network unless it can be demonstrated that it is not technically feasible or financially viable. Developers should use guidance in CPG3 – Sustainability chapter 5, to determine whether connection to a decentralised energy network, a combined heat and power plant or a contribution towards a decentralised energy network will be expected.

7.13 Where justified and clearly related to the development of a site section 106 agreements will be used to secure:

- the installation of CHP/CCHP and the generation and use of energy;
- details that ensure the plant and its operation is carbon dioxide efficient with regards to operating hours, compatibility with the need (amount and timing) for heat, and requirements for a heat store;
- details that ensure the design of the heating system is compatible with any nearby decentralised energy network; the export of heat, cooling and/or electricity;
- developments use heat, cooling and or electricity from a decentralised energy network;
- sufficient space is provided for future plant, heat exchanges, connection points to either generate, export and take heat, cooling and/or electricity; and
- a financial contribution towards future decentralised energy networks in the immediate vicinity of the site.

10 Transport

Car free and car capped housing

10.1 In order to encourage use of other types of transport and reduce parking stress the Council will use legal agreements to make development car free or car capped. This will limit the number of new residents from being able to obtain on-street parking permits (unless the resident is the holder of a disabled persons badge issued pursuant to Section 21 of the Chronically Sick and Disabled Persons Act 1970.)

10.2 Agreements will require the owner of the property to inform the Council's Planning Obligations officer in writing of the official postal address of the property (as issued and agreed by the Council's Street Name and Numbering Department) and to clearly identify the unit number of the car free units specified in the legal agreement before the development is occupied. The owner will also be required to inform any occupants of the property of any car free restrictions (in writing). Please refer to CPG7: Transport on car free and car capped developments for an explanation why the Council imposes these restrictions.

10.3 Once planning permission is granted which includes a car free restriction, a copy of the agreement will be passed to the Council's permit issuing team who will maintain a record of properties excluded from obtaining a parking permit. In cases where part of the property is subject to a car free restriction no parking permits will be issued until the owner or developer has clarified in writing with the Council's Planning Obligations officer the official postal address of the property and identified the unit(s) to which the car free restriction applies.

Travel plans

10.4 The Council may use legal agreements to require travel plans to manage the impacts of the development where these measures are deemed necessary to control the impacts of the development. A contribution may be sought to cover the staff costs for overseeing the implementation of these plans. Please refer to CPG7:Transport for further information on Travel Plans and Transport Assessments.

Public transport contributions

a) Contributions towards Crossrail

10.5 The collection of funds for Crossrail is required under Policy 6.5 of the London Plan (Funding Crossrail and other strategically important transport infrastructure) which states that:

10.6 'In view of the strategic regional importance of Crossrail to London's economic regeneration and development, and in order to bring the project to fruition in a suitably timely and economic manner, contributions will be sought from developments likely to add to, or create, congestion on London's rail network that Crossrail is intended to

mitigate. This will be through planning obligations, arrangements for the use of which will be established at strategic level, in accordance with relevant legislation and policy guidance.'

10.7 In April 2013 Supplementary Planning Guidance was published by the Mayor explaining how this system will operate alongside the Mayor's Crossrail CIL. In Camden all office, retail and hotel development schemes in Central London and the Euston and Kings Cross Opportunity area which add more than 500sq m of floorspace will need to will need to pay a charge.

Use	**Rate per sq m**
Office	£140
Retail	£90
Hotels	£61

10.8 Applicants' are recommended to consult the 2013 Supplementary Planning Guidance note on the Use of Planning Obligations in the Funding of Crossrail, and the mayoral community infrastructure levy which can be viewed on the Greater London Authority web site.

10.9 In general terms, funds collected under the Mayor's CIL for office, retail and hotel uses (currently £50 per sq m) can be deducted from the section 106 charge. The charge will be collected by Camden on behalf of the Mayor. The negotiation of the contribution towards Crossrail will be carried out having regard to Policy 8.2 (Planning Obligations) in the London Plan.

b) Other public transport contributions

10.10 Where public transport provision is not adequate to serve a development (in terms of capacity, frequency, reliability, boarding points, access to boarding points and vehicles), and the absence of such provision would make a development unacceptable the Council may seek a contribution to public transport provision in accordance with the statutory tests. This will be assessed through the transport assessment. Please see CPG7: Transport on Assessing transport capacity.

10.11 The Council will therefore consider mechanisms such as those listed below to reconcile development proposals with the public transport services which will serve them:

- seeking contributions to existing provision so that they can serve the development better (examples could include enhancing pedestrian routes to stops, providing shelters, better seating and real-time information at stops, or increasing service frequencies); and
- seeking contributions towards pooled funds to be used towards a particular provision or type of provision once accrued funds are adequate (examples could include funds for bus priority measures extending some distance along a route, for an extension to a route, or

for a co-ordinated series of measures across an area to make public transport safer at night).

10.12 The pooling of funds will be limited to 5 contributions per infrastructure project or type of infrastructure. The Council will generally consider seeking contributions towards facilities that assist the use of public transport services which have an existing or proposed boarding point within a convenient walking distance of the development. For bus services, a convenient walking distance is generally up to 400 metres. For rail services, a convenient walking distance is generally up to 800 metres. Funds will not be sought for transport projects which are in Camden's CIL funding list.

Pedestrian, cyclist and environmental improvements

10.13 New developments also have wider impacts and may increase the demands on a transport network that at certain times already operates above capacity. Traffic problems include congestion, traffic intrusion (e.g. additional traffic on quiet lanes), road safety, air quality and the impact of additional traffic on other, especially vulnerable, highway users. Such development also increases the need to improve transport alternatives such as walking, cycling and public transport; this requires further investment so as to make these modes more attractive. Where these are site specific and necessary works to make a scheme acceptable they may be secured through planning obligations. Wider strategic and area-based network improvements will generally be addressed through the use of CIL funds.

Figure 4. The financial contributions

	Capital cost	Maintenance	Design and Project Management
Self-contained homes in Use Class C3			
One bedroom home	£385	£386	£46
Two bedroom home	£663	£561	£80
Three bedroom home	£1,326	£832	£159
Four bedroom home	£1,537	£921	£184
Student housing, hotels and hostels			
Single room	£297	£297	£37
Double room	£593	£594	£71
Commercial/ higher education development in the Central London Area			
Per 1,000 sq m	£1,265	£1,284	£152

11.14 Please refer to CPG 6 Amenity for the full explanation and worked examples.

Strategic Planning and Implementation
planningpolicy@camden.gov.uk
London Borough of Camden
5 Pancras Square
London N1C 4AG

Camden