

Camden Planning Guidance

Design

London Borough of Camden

CPG **1**



September 2013

CPG1 Design

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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 formally adopted CPG1 – Design on 6 April 2011 following statutory consultation. This document was updated on 4 September 2013 following statutory consultation to include Section 12 on artworks, statues and memorials. The Camden Planning Guidance documents (CPG1 to CPG8) replace Camden Planning Guidance 2006.
- 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
- 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 and 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, and 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, 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 is 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, English Heritage 2010; and Building in Context, English Heritage/CABE, 2002.
Other	Royal Institute of Chartered Surveyors (RICS); and Royal Institute of British Architects (RIBA).

5 Roofs, terraces and balconies

KEY MESSAGES

Roof extensions fall into two categories:

- Alterations to the overall roof form; or
- Smaller alterations within the existing roof form, such as balconies and terraces.

When proposing roof alterations and extensions, the main considerations should be:

- The scale and visual prominence;
- The effect on the established townscape and architectural style;
- The effect on neighbouring properties

- 5.1 This guidance provides advice on roof alterations and extensions and on proposals for balconies and terraces. The Council will seek to ensure that roof alterations are sympathetic and do not harm the character and appearance of buildings or the wider townscape in the borough.
- 5.2 This guidance replates primarily to Development Policies DP24 Securing high quality design and DP25 Conserving Camden's Heritage.

When does this apply?

- 5.3 This guidance applies to all planning applications involving roof alterations, roof extensions, balconies and terraces, and is particularly relevant to residential properties.
- 5.4 For properties in conservation areas, reference should also be made to the relevant conservation area statements, appraisals and management plans. These describe the area and its special character and contain specific area-based advice.
- 5.5 Where buildings are listed, reference should also be made to planning guidance on Heritage.

Roof alterations and extensions – general principles

- 5.6 Proposals to alter and extend roofs fall into two categories: those that are accommodated within the existing roof form, such as dormer windows and roof lights, and those which alter the overall roof form, such as the construction of mansard roofs.
- 5.7 Additional storeys and roof alterations are likely to be **acceptable** where:
- There is an established form of roof addition or alteration to a terrace or group of similar buildings and where continuing the pattern of development would help to re-unite a group of buildings and townscape;

- Alterations are architecturally sympathetic to the age and character of the building and retain the overall integrity of the roof form;
- There are a variety of additions or alterations to roofs which create an established pattern and where further development of a similar form would not cause additional harm.

5.8 A roof alteration or addition is likely to be **unacceptable** in the following circumstances where there is likely to be an adverse affect on the skyline, the appearance of the building or the surrounding street scene:

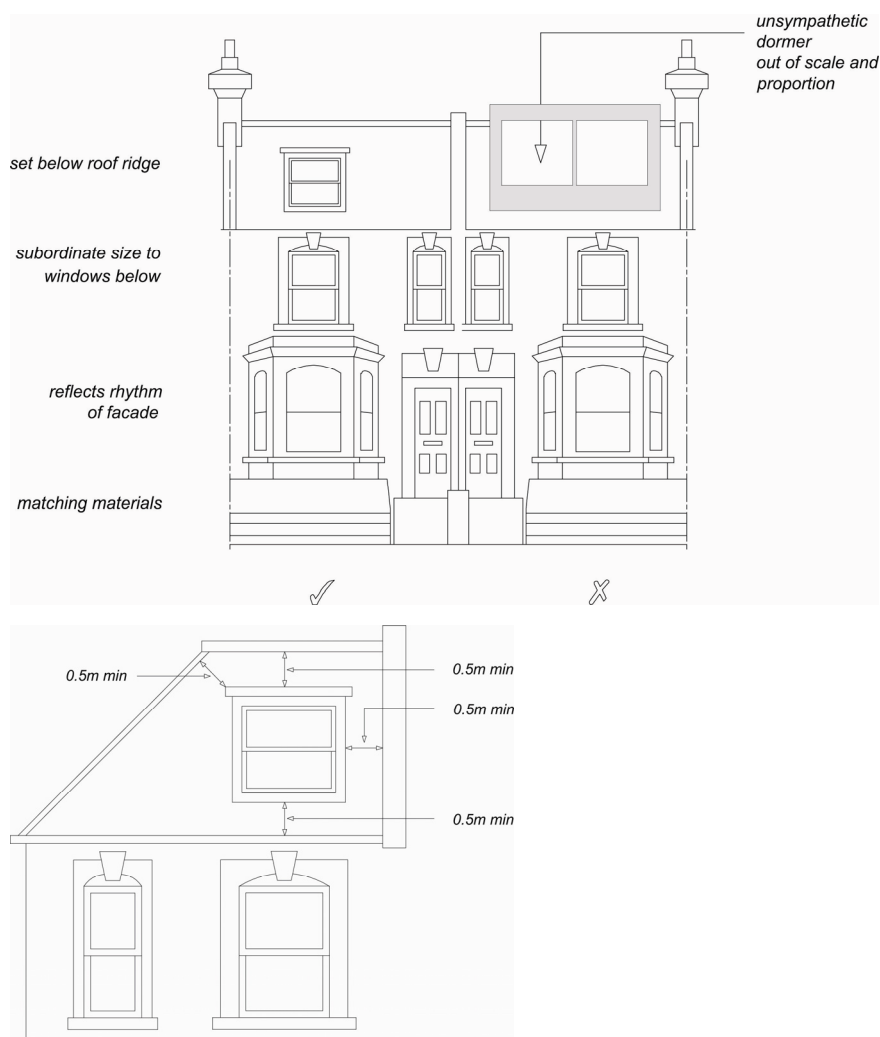
- There is an unbroken run of valley roofs;
- Complete terraces or groups of buildings have a roof line that is largely unimpaired by alterations or extensions, even when a proposal involves adding to the whole terrace or group as a co-ordinated design;
- Buildings or terraces which already have an additional storey or mansard;
- Buildings already higher than neighbouring properties where an additional storey would add significantly to the bulk or unbalance the architectural composition;
- Buildings or terraces which have a roof line that is exposed to important London-wide and local views from public spaces;
- Buildings whose roof construction or form are unsuitable for roof additions such as shallow pitched roofs with eaves;
- The building is designed as a complete composition where its architectural style would be undermined by any addition at roof level;
- Buildings are part of a group where differing heights add visual interest and where a roof extension would detract from this variety of form;
- Where the scale and proportions of the building would be overwhelmed by additional extension.

5.9 Materials, such as clay tiles, slate, lead or copper, that visually blend with existing materials, are preferred for roof alterations and repairs. Where roofs are being refurbished, original materials such as keyhole ridge tiles or decorative chimney stacks and chimney pots should be reused. Replacement by inappropriate substitutes erodes the character and appearance of buildings and areas.

5.10 Where the principle of an additional storey is acceptable, the more specific guidance set out below will apply. This advice is supplemented by more specific area-based advice as set out in the Council's conservation area statements, appraisals and management plans which set out our approach to preserving and enhancing such areas. Many of these appraisals and management plans are available for download on our website, or are available as hard copies from our Planning reception.

Roof dormers

- 5.11 Alterations to, or the addition of, roof dormers should be sensitive changes which maintain the overall structure of the existing roof form. Proposals that achieve this will be generally considered acceptable, providing that the following circumstances are met:
- a) The pitch of the existing roof is sufficient to allow adequate habitable space without the creation of disproportionately large dormers or raising the roof ridge. Dormers should not be introduced to shallow-pitched roofs.
 - b) Dormers should not be introduced where they cut through the roof ridge or the sloped edge of a hipped roof. They should also be sufficiently below the ridge of the roof in order to avoid projecting into the roofline when viewed from a distance. Usually a 500mm gap is required between the dormer and the ridge or hip to maintain this separation (see Figure 4). Full-length dormers, on both the front and rear of the property, will be discouraged to minimise the prominence of these structures.
 - c) Dormers should not be introduced where they interrupt an unbroken roofscape.
 - d) In number, form, scale and pane size, the dormer and window should relate to the façade below and the surface area of the roof. They should appear as separate small projections on the roof surface. They should generally be aligned with windows on the lower floors and be of a size that is clearly subordinate to the windows below. In some very narrow frontage houses, a single dormer placed centrally may be preferable (see Figure 4). It is important to ensure the dormer sides (“cheeks”) are no wider than the structure requires as this can give an overly dominant appearance. Deep fascias and eaves gutters should be avoided.
 - e) Where buildings have a parapet the lower edge of the dormer should be located below the parapet line (see Figure 4).
 - f) Materials should complement the main building and the wider townscape and the use of traditional materials such as timber, lead and hanging tiles are preferred.

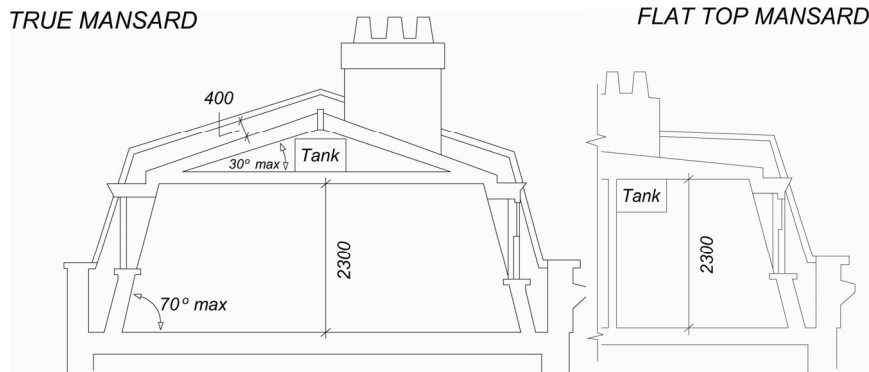
Figure 4. Dormer windows

5.12 See CPG2 Housing (Residential development standards chapter) for further information, particularly the section on ceiling heights.

5.13 The presence of unsuitably designed new or altered dormers on neighbouring properties will not serve as a precedent for further development of the same kind.

Mansard Roofs

5.14 Mansard roofs are a traditional means of terminating a building without adding a highly visible roof. This form is acceptable where it is the established roof form in a group of buildings or townscape.

Figure 5. Mansard Roofs**True Mansard**

Lower slope is at a steeper angle than the upper, and the upper slope is visible

Flat topped Mansard

Upper slope of a pitch below 5° or totally flat

- 5.15 Mansard roofs are often the most appropriate form of extension for a Georgian or Victorian dwelling with a raised parapet wall and low roof structure behind. Mansard roofs should not exceed the height stated in Figure 5 so as to avoid excessive additional height to the host building. They are often a historically appropriate solution for traditional townscapes. It should be noted that other forms of roof extensions may also be appropriate in situations where there is a strong continuous parapet and the extension is sufficiently set back or where they would match other existing sympathetic roof extension already in the terrace.

Parapet wall

A low wall or railing that is built along the edge of a roof, balcony or terrace for protection purposes.

Cornice

The topmost architectural element of a building, projecting forward from the main walls, originally used as a means of directing rainwater away from the building's walls.

- 5.16 The three main aspects to consider when designing a mansard roof extension are its:
- pitches and profile;
 - external covering; and
 - windows.
- 5.17 The lower slope (usually 60-70°) should rise from behind and not on top of the parapet wall, separated from the wall by a substantial gutter. Original cornice, parapet and railing details should be retained and where deteriorated or lost, should be incorporated into the design of new roof extensions. Visible chimney stacks should be retained and increased in height, where necessary. Only party walls with their chimney stacks and windows should break the plane of the roof slope, and should be accommodated in a sensitive way and be hidden as far

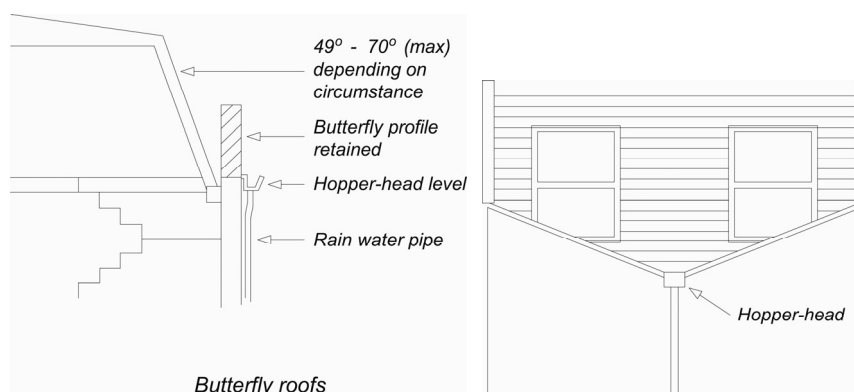
as is possible. (See also guidance on dormer windows and roof lights). Dormer windows or roof lights should be confined to the lower slope.

- 5.18 Roofing materials should be of the highest quality because of their significant visual impact on the appearance of a building and townscape and the need to be weather-tight. Natural slate is the most common covering and this should be laid with a traditional overlap pattern. Artificial slate or felt are not acceptable roof coverings in conservation areas. Where a roof in a conservation area is being re-covered, the choice of covering should replicate the original, usually natural slate or clay tile.

Valley or Butterfly roofs

- 5.19 On buildings with a 'valley' or 'butterfly' roof if a mansard extension is considered acceptable in terms of the guidance in paragraphs 5.7 and 5.8 of this chapter, then the parapet should be retained. The new roof should start from behind the parapet at existing hopper-head level, forming a continuous slope of up to a maximum of 70° (see Figure 6). In this context, it is usually more appropriate to introduce conservation-style roof lights, which are flush with the roof slope, rather than dormers. Terraces and additional railings will not usually be acceptable.

Figure 6. Butterfly roofs



Hopper head level

The level at which the 'hopper head' (a square or funnel shaped receptacle to connect rainwater or waste pipes to a down-pipe) is positioned.

Other roof additions

- 5.20 On some contemporary buildings a less traditional form of roof addition may be more appropriate. In such cases, proposals should still have regard for the following general principles:
- The visual prominence, scale and bulk of the extension;
 - Use of high quality materials and details;

- Impact on adjoining properties both in terms of bulk and design and amenity of neighbours, e.g. loss of light due to additional height;
- Sympathetic design and relationship to the main building.

Roof lights

- 5.21 Roof lights can have an adverse impact upon the character and appearance of buildings and streetscapes. This occurs where they are raised above the roof slope rather than being flush with the roof profile, or where they are an incompatible introduction into an otherwise uncluttered roofscape, or where they conflict with other architectural roof elements, e.g. gables and turrets.
- 5.22 Roof lights should be proportioned to be significantly subordinate both in size and number and should be fitted flush with the roof surface. Some properties, particularly listed buildings and those within conservation areas with prominent roof slopes may be so sensitive to changes that even the installation of roof lights may not be acceptable.

Balconies and terraces

- 5.23 Balconies and terraces can provide valuable amenity space for flats that would otherwise have little or no private exterior space. However, they can also cause nuisance to neighbours. Potential problems include overlooking and privacy, daylight, noise, light spillage and security.
- 5.24 Balconies and terraces should form an integral element in the design of elevations. The key to whether a design is acceptable is the degree to which the balcony or terrace complements the elevation upon which it is to be located. Consideration should therefore be given to the following:
- detailed design to reduce the impact on the existing elevation;
 - careful choice of materials and colour to match the existing elevation;
 - possible use of setbacks to minimise overlooking – a balcony need not necessarily cover the entire available roof space;
 - possible use of screens or planting to prevent overlooking of habitable rooms or nearby gardens, without reducing daylight and sunlight or outlook; and
 - need to avoid creating climbing opportunities for burglars.

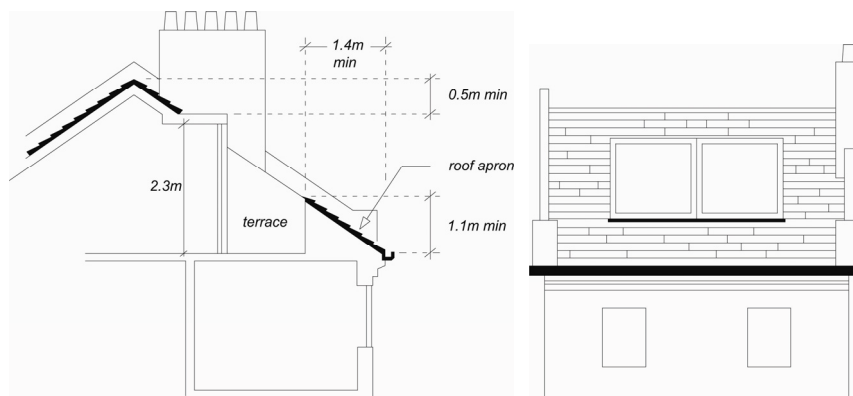
Roof Level

- 5.25 A terrace provided at roof level should be set back behind the slope of a pitched roof in accordance with Figure 7, or behind a parapet on a flat roof. A terrace should normally comply with the following criteria:
- The dimensions of the roof should be sufficient to accommodate a terrace without adversely affecting the appearance of the roof or the elevation of the property.
 - A terrace will only normally be acceptable on the rear of properties. It is normally inappropriate to set back a mansard to provide a terrace.

- It should not result in the parapet height being altered, or, in the case of valley/butterfly roofs, the infilling of the rear valley parapet by brickwork or railings.
- Any handrails required should be well set back behind the line of the roof slope, and be invisible from the ground.
- It should not result in overlooking of habitable rooms of adjacent properties.

- 5.26 When a terrace is provided within the slope of a pitch as in Figure 7, the adjacent tiles or slates should be kept unbroken above the eaves. The width of the terrace should be no wider than a dormer opening. A terrace may be acceptable behind an existing parapet. Where the height of the parapet is less than 1.1m, a railing will be required to fulfil Building Regulations.

Figure 7. Roof terraces



Building services equipment

- 5.27 New building services equipment and water tanks should be accommodated within the envelope of the building and its siting should be considered as part of the overall design (see chapter on Building services equipment in this CPG). Building services equipment includes, but is not limited to, heating and cooling systems, ventilation and extraction systems and associated ducting for electricity, communications and plumbing.

Green roofs

- 5.28 We encourage the incorporation of green roofs into schemes where appropriate in design terms (see chapter on Green roofs and walls in CPG3 Sustainability). You should contact the Council to confirm whether planning permission is required for green roofs. Planning permission is not required on flat roofs which are concealed by a parapet.

Solar panels

- 5.29 We encourage the installation of solar panels into schemes and for some properties these will not need planning permission. You should

contact the Council and visit the Planning Portal website www.planningportal.gov.uk to confirm whether planning permission is required for solar panels. Solar panels should be sited so as to maximise efficiency but minimise their visual impact and glare, for example utilising valley roofs and concealed roof slopes. Reference should be made to CPG3 Sustainability (Energy Efficiency: existing buildings and Energy Efficiency: new buildings chapters).

Camden Planning Guidance

Sustainability

London Borough of Camden

CPG 3



September 2013

CPG1 Sustainability

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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. This document was updated on 4 September 2013 following statutory consultation to clarify the guidance in Section 9 related to the Code for Sustainable Homes. The Camden Planning Guidance documents (CPG1 to CPG8) replace Camden Planning Guidance 2006.
- 1.2 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?

- 1.3 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.
- 1.4 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 - Code for Sustainable Homes, BREEAM and EcoHomes
- Green roofs, brown roofs and green walls
- Flooding
- Climate change adaptation
- Biodiversity
- Urban food growing

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.

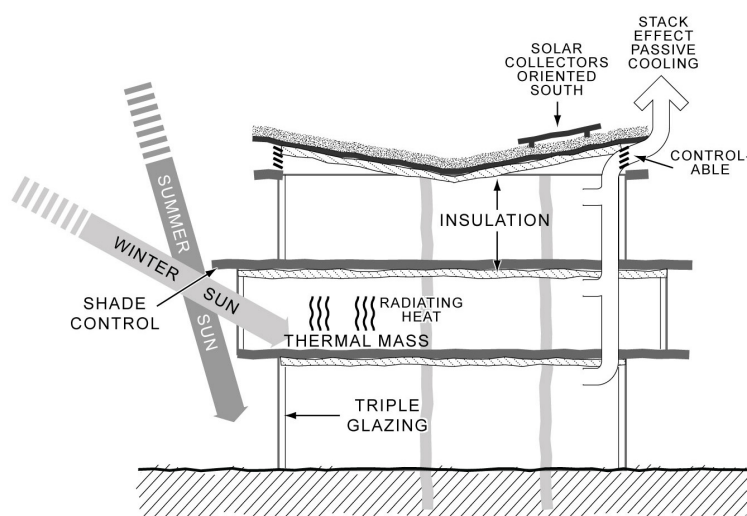
Cold bridging

Cold bridging occurs on a surface where one material loses 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 25% improvement on the current 2010 Building Regulations:
- 2010 – 2013 25 per cent
 - 2013 – 2016 40 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 and the Energy Saving Trust (EST) guidance on energy efficiency to achieve Level 4 of the Code for Sustainable Homes. 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 (m ³ /h.m ² at 50 Pa)
Proportion of energy efficient lighting	100%
Code for Sustainable Homes	Developments should achieve 50% of the un-weighted credits in the Energy category (See section 8 on sustainability assessment tools for more details relating to the Code for Sustainable Homes).
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 new London Plan carbon reduction target in policy 5.2 (set out in paragraph 2.20) cannot be met onsite, we may accept the provision of measures elsewhere in the borough or a financial contribution which will be used to secure delivery of carbon reduction measures elsewhere. This process is known as carbon offsetting.

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 80% of the borough's carbon 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 EcoHomes or BREEAM assessment, whichever is applicable. (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 solid 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	<p>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</p> <p>The Energy Saving Trust also provides technical guidance on energy efficiency in the Publications and Case Studies section of their website.</p> <p>www.est.org.uk/housingbuildings/publications</p> <p>Recommended Best Practice in Housing technical guidance documents:</p> <ul style="list-style-type: none"> • CE120 - Energy Efficient Loft Extensions • CE122 - Energy Efficient Domestic Extensions
T-ZERO	<p>A free interactive web-based tool that allows you to identify the optimal low-carbon solutions for your home. Once you have inputted your home's details, such as type of house/flat, amount of insulation in roof/walls and whether or not you have double glazing, the system identifies a tailored list of optimal insulation, heating, and renewable energy options (and the costs of each).</p> <p>www.tzero.org.uk</p>
GreenSpec	<p>Provides details of products and how they can be used to improve the efficiency of your home or building</p> <p>www.greenspec.co.uk</p>
The Planning Portal	<p>Provides information on what alterations you can make to your home without requiring planning permission</p> <p>www.planningportal.gov.uk</p>

Energy efficiency in historic buildings:

English Heritage	<p>English Heritage, the UK government's adviser on the historic environment, has produced the following guidance:</p> <ul style="list-style-type: none"> • 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. http://www.english-heritage.org.uk/publications/energy-conservation-in-traditional-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. http://www.english-heritage.org.uk/publications/energy-efficiency-historic-buildings-partl/ • 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	<p>Provides technical guidance on energy efficiency in the Publications and Case Studies section of their website. www.est.org.uk/housingbuildings/publications</p> <p>This includes their Recommended Best Practice in Housing technical guidance documents: CE138 - Energy Efficient Historic Homes</p>
The Victorian Society	<p>Has information on their website on greening Victorian homes - www.victoriansociety.org.uk/advice/greening</p>
Building Conservation	<p>Provides a directory of useful contacts, grant sources and websites www.buildingconservation.com</p>
The Sustainable Development Commission	<p>Provides case studies of existing homes that have improved their energy efficiency, including the example detailed in this section. www.sd-commission.org.uk</p>

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 £3,000		

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.



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?

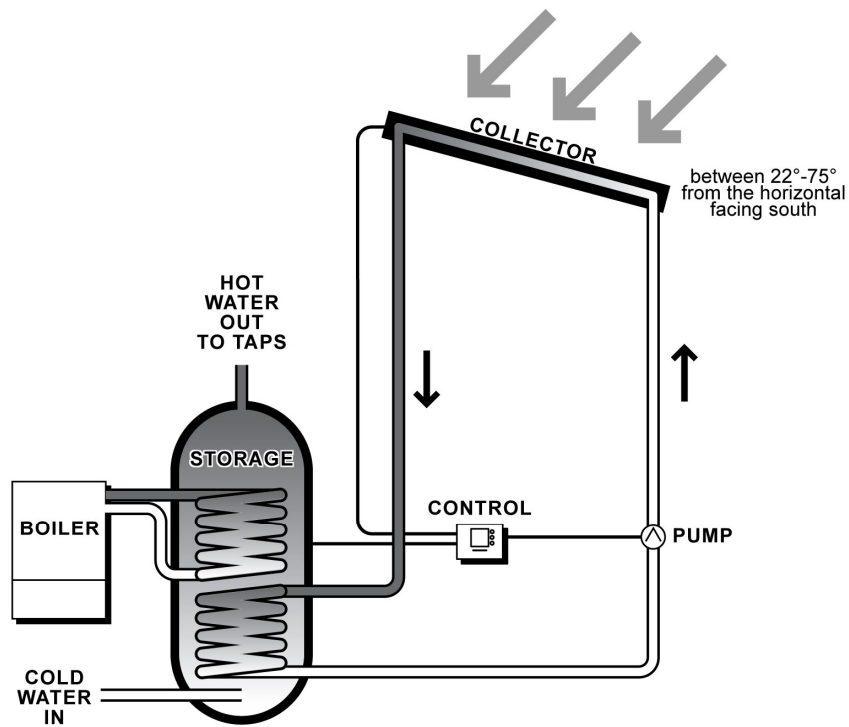
- Suitable for developments with all year hot water demands.
- South facing at 30-40 degrees is ideal, but as the panels do not rely on direct sunlight they can still be efficient at other angles.
- Can be fitted to existing buildings, but need to consider additional weight of the panels and compatibility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



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?

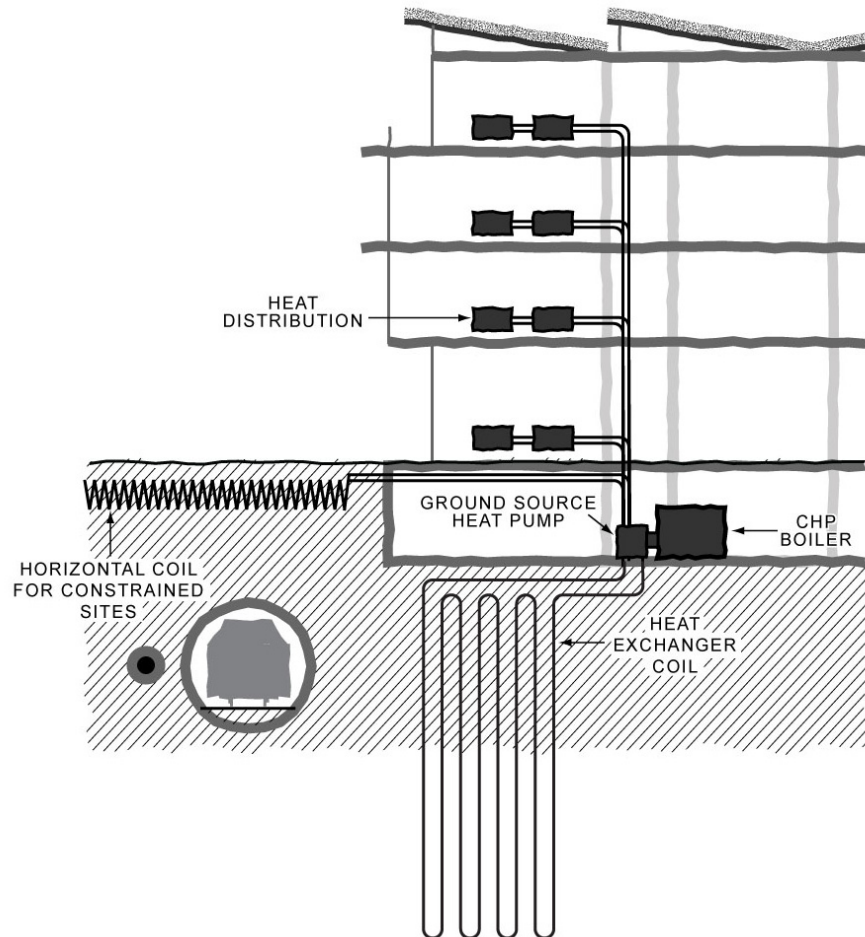
- The lower temperatures mean that GSHPs are well suited for underfloor heating
- Ideal for buildings which need heating in winter and cooling in summer

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 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?

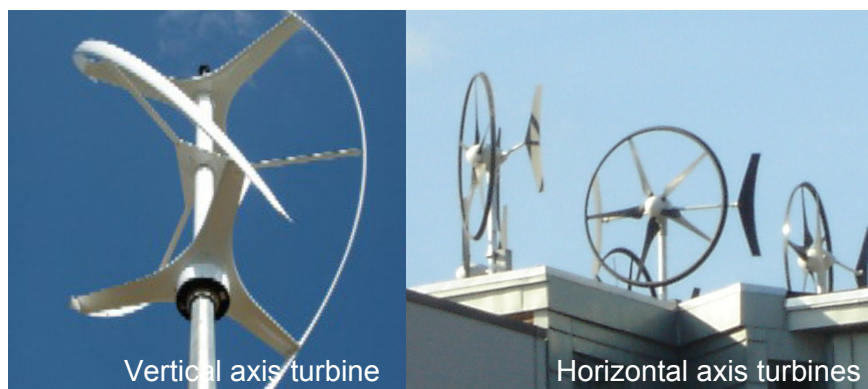
- Boilers must be accredited as 'exempt appliance' under the Clean Air Act 1999
- Technical information relating to the biomass boiler/CHP will be required
- All biomass boilers and CHP will require an air quality assessment, including location and height of flues, details of emissions and how the emissions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



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	<p>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</p> <p>Available from the London Energy Partnership website www.lep.org.uk</p>
REAL Renewable Energy Action for London	<p>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</p>
Environmental Protection UK and LACORS	<p>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 PM_{2.5}).</p> <p>There are a number of guidance leaflet available on their website:</p> <ul style="list-style-type: none"> • 'Biomass and Air Quality Guidance for Local Authorities' <p>'Biomass and Air Quality, Developers' Information Leaflet' www.environmental-protection.org.uk/biomass</p>
The Mayor of London	<p>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</p>

Camden Planning Guidance

Amenity

London Borough of Camden

CPG 6



CPG6 Amenity

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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

2 Air quality

KEY MESSAGES:

- All of Camden is a designated Air Quality Management Area due to the high concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀).
- All developments are to limit their impact on local air quality.

2.1 Poor air quality can harm health and the environment. The Council aims to make sure that new development does not harm air quality. This guidance provides advice on how to address air quality issues in planning applications.

2.2 Camden Core Strategy policy CS16 - *Improving Camden's health and well-being* and policy DP32 – *Air quality and Camden's Clear Zone* of the Camden Development Policies sets out our approach to air quality in the borough.

2.3 *Planning Policy Statement PPS23: Planning and Pollution Control* contains the Government's core policies and principles on air quality and air pollution. The London Plan outlines regional policies related to protecting local air quality during the planning process.



Air quality in Camden

2.4 An Air Quality Management Area (AQMA) must be declared by the local authority for an area that is unlikely to meet the national air quality targets for specific air pollutants. The authority then produces a Local Air Quality Action Plan. See Camden's website for our air quality plan.

2.5 The whole of Camden is an Air Quality Management Area (AQMA) as it does not meet national air quality targets for nitrogen dioxide (NO₂) and particulate matter (PM₁₀). The main sources of air pollution in Camden are road transport and gas boilers. The Council's Air Quality Action Plan outlines measures to reduce emissions from the key sources of air pollution in the borough. Included in the plan are measures to minimise and control NO_x and PM₁₀ emissions associated with new developments both during the construction of a building and its future use.

2.6 Air quality is particularly poor in the south of borough which is characterised by high levels of traffic. We will only grant planning permission for development that significantly increases travel demand in

the south of the borough where it includes appropriate measures to minimise the transport impact of development.

- 2.7 Where appropriate we will seek developments to include monitoring equipment to allow us to better understand local air quality.

WHAT DOES THE COUNCIL REQUIRE?

The Council's overarching aim is for new development is to be 'air quality neutral' and not lead to further deterioration of existing poor air quality.

You will be required to include mitigation and offsetting measures to deal with any negative air quality impacts associated with your development proposals. At the same time your development should be designed to minimise exposure of occupants to existing poor air quality.

To manage and prevent further deterioration of air quality in Camden, we will require an air quality assessment with planning applications for development that could have a significant negative impact in air quality. This impact can arise during both the construction and operational stages of a development as a result of increased NO_x and PM₁₀ emissions.

- 2.8 An air quality assessment will also be required for a proposal if it introduces uses that are susceptible to poor air quality, such as housing or a school, into areas of particularly poor air quality.
- 2.9 The Council will not grant planning permission for developments that could significantly harm air quality or introduce people into areas of elevated pollution concentrations, unless mitigation measures are adopted to reduce the impact to acceptable levels and protect public exposure (see paragraph 32.4 of policy DP32 of the Camden Development Policies).
- 2.10 Although all of Camden is covered by an AQMA we will only require an air quality assessments where development could potentially cause significant harm to air quality as set out in the table below.

An Air Quality Assessment is required in developments:

- with potential to significantly change road traffic on any road exceeding 10,000 vehicles per day. Significant changes include:
 - increase in traffic volumes > 5% (Annual Average Daily Traffic (AADT) – or peak);
 - lower average vehicle speed or significant increase in congestion;
 - significant increase in the percentage of HGVs;
- that introduce, or increase car parking facilities by, 100 spaces or more;
- with commercial floorspace of more than 1,000sq m;
- with more than 75 homes;
- where people will be exposed to poor air quality for significant periods of the day, in particular developments located on busy roads;
- involving the following - biomass boilers, biomass or gas combined heat and power (CHP);
- involving industrial or commercial floorspace regulation under the Environmental Permitting (England and Wales) Regulations (EPR) which will be subject to Environmental Assessment under the Town and Country Planning (Environmental Impact Assessment) Regulations 1999.

What should an air quality assessment cover?

2.11 Air quality assessments for developments potentially contributing to poor air quality are to include the following:

- a) An inventory of the PM₁₀ and NO_x emissions associated with the proposed development, including the type and quantity of emission concentrations, during the construction and operational phase. This shall cover transport, stationary and mobile emission sources.
- b) The application of atmospheric dispersion modelling to predicted existing and future NO₂ and PM₁₀ concentrations, both with and without the proposed development. Dispersion modelling shall be the carried out in accordance with Air Quality and Planning Guidance, London Councils (2007) and Technical Guidance Note (TG09). (Specific guidance for modelling combustion plant emissions can be obtained from the Council's Sustainability Team – see Useful Contacts at the end of this section).
- c) An assessment of the significance of air quality impacts during both the construction and operational phases. Reference shall be made to the Environmental Protection UK Guidance Note: Development Control: Planning for Air Quality (2010 Update).
- d) Consideration of the potential cumulative impacts on air quality which may arise during the construction or operational phases as a result of emissions arising from other developments within a 100m radius of the development.
- e) Where a biomass boiler or combined heat and power (CHP)/combined cooling, heating and power (CCHP) will be used for

on site energy generation, you are to complete the Council's Air Quality Information Request Form. This requires specific technical details related to the appliance, fuel type, emission concentrations, maintenance and exhaust stack. The forms can be obtained from Camden's Air Quality Officer or the Council's air quality webpage under Environment.

- f) Applications which include biomass boilers or biomass CHP, the air quality assessment shall compare the impact of emissions from the intended biomass boiler/CHP and a gas boiler/CHP of identical thermal rating.
- g) An indication of the number of new occupiers and users of the site who will be exposed to poor air quality as a result of the development (the occupiers/users should also be shown on a map). For further information please refer to the Environmental Protection UK Guidance Note: Development Control: Planning For Air Quality (2010 Update).
- h) An assessment of the impacts on air quality of the demolition and construction phase and details of mitigation methods for controlling dust and emissions from plant and machinery. Reference should be made to the Best Practice Guidance: The control of dust and emissions at construction and demolition, London Councils (2006).
- i) An outline of, and justification for, mitigation measures associated with the design, location and operation of the development in order to reduce air pollution and exposure to poor air quality.

Developments containing sensitive uses

- 2.12 Developments which will not result in additional NO_x and/or PM₁₀ emissions and present no risk in worsening air quality, but introduce new sensitive uses to an area which breaches the air quality standards for NO₂ or PM₁₀ need to submit an assessment of the local air quality but can omit requirements B, D and E above.

What measures can reduce air pollution emissions and protect public exposure?

- 2.13 Various actions can be taken to mitigate air pollution emissions arising from the construction and operational phases of a new development. Additional actions can be adopted to curtail public exposure in areas where air pollution levels are particularly high. These should be taken into account during the design stage of an application. The key measures are detailed below:

Demolition and construction

- 2.14 The impact of the construction and demolition phases of a development on air quality must be taken into account as part of your planning application. Exhaust



emissions from construction vehicles and machinery such as generators, piling and grinding equipment can result in:

- dust emissions;
- gases (NO_x); and
- fine particles.

2.15 Controlling dust emissions is important to:

- prevent disturbance to local residents due to soiling;
- minimise damage to vegetation; and
- reduce impacts on local PM₁₀ concentrations, thereby protecting public health.

2.16 We may require PM₁₀ monitoring, before and during the construction and demolition phase, dependant upon the scale of the proposed development.

2.17 We will encourage best practice measures to be adopted during construction and demolition work to reduce and mitigate air pollution emissions. You will be encouraged to adopt the procedures outlined in the London Council's best practice guidance *The control of dust and emissions from construction and demolition*. These focus around three principles to control emissions – prevention, suppression and containment. We will expect you to include the following items in construction management plans:

- Identification of whether demolition/construction represents a low, medium or high risk site in the context of air quality.
- Identification of the best practice measure required to control and mitigate plant and vehicles exhaust emissions.
(See section 8 of this Guidance on Construction management plans for further details).

Distance of impacts

Depending of the size, location and characteristics of your development, impacts from demolition and construction phases can occur at distance of 10 to 500m.

Building location and design

2.18 The location of a development has a direct influence on exposure to elevated air pollution levels. This is particular relevant where developments include sensitive uses such as hospitals, schools and children's playgrounds. Suitable building design, layout and orientation can avoid increasing exposure whilst minimising energy demand and energy loss. The Council requires the impact of outdoor air pollution on indoor air quality in new developments to be taken into account at the earliest stages of building design.

- 2.19 The location of outside space is also an important consideration and any exposure of gardens and roof terraces should be screened and, where practicable, minimised through appropriate positioning and orientation. You should take care not to locate flues and exhaust vents in close proximity to recreational areas such as roof terraces or gardens. An energy efficient building design can minimise air pollution resulting from the use of gas boilers. Adopting sustainable building design (e.g. the Code for Sustainable Homes and the Building Research Establishment Environmental Assessment Method (BREEAM)), will reduce thermal heat losses and result in less gas use leading to lower NO_x emissions. See Camden Planning Guidance 3 – Sustainability for further details on the Code and BREEAM.

Gas boilers

- 2.20 Gas boilers are a large source of NO_x emissions in Camden. In order to minimise NO_x emissions arising from heating and hot water systems the Council requires boilers fitted in new development to achieve a NO_x emissions of <40 mg/m³ and an energy efficiency rating >90%.

Renewable Energy and Combined Heat and Power

- 2.21 Core Strategy policy CS13 promotes the use of renewable energy technologies to reduce carbon emissions and tackle climate change. The adoption of renewable energy and energy efficiency technologies in major developments can minimise air pollution emissions through reductions in gas consumption required for heating and hot water. These include solar thermal collectors and ground source heat pumps in addition to gas and hydrogen fuel cell combined heat and power (CHP) or combined cooling heat and power (CCHP).

Hydrogen fuel cell

A fuel cell is an electrochemical cell that converts energy from a fuel (hydrogen) into electricity.

- 2.22 Biomass boilers however can give rise to higher emissions of NO_x and PM₁₀ emissions than conventional gas boilers. Permission to operate these appliances will only be granted if the air quality impacts are demonstrated to be equivalent or lower than those associated with a conventional gas boiler of similar thermal rating. Where an assessment demonstrates adverse effects on air quality, this type of biomass boiler should not be used in the development.
- 2.23 You are advised to refer to the national guidance note *Biomass and Air Quality Guidance Note for Local Authorities*, published by Environmental Protection UK. In cases where emissions released from a biomass boiler do not lead to negative impacts on air quality, the



appliance will be required to meet high standards of air pollution control with particular emphasis given to:

- boiler design and operation;
- pollution abatement equipment;
- servicing and maintenance;
- fuel quality, storage and delivery; and
- exhaust stack height.

2.24 We will require evidence that the exhaust stack height of gas CHP/CCHP has been appropriately calculated to guarantee that NO_x emissions are effectively dispersed, and do not risk increasing ground level NO₂ concentrations. An air quality assessment will be required for developments including CHP/CCHP. Where the assessment reveals a negative impact on air quality, mitigation measures will be required entailing the best available techniques to reduce emissions. This includes the installation of NO_x abatement technology such as:

- use of low NO_x burners; or
- increasing stack height.

2.25 A programme of on-going maintenance and servicing will be necessary to minimise gas emissions released from CHP/CCHP.

2.26 The Council will use Section 106 obligations to set requirements for controlling emissions from biomass boilers and CHP/CCHP.

Traffic Reduction

2.27 Reducing car usage caused by new developments is the principle way to minimise vehicle emissions and protect local air quality. Please refer to transport policy *CS11 - Promoting sustainable and efficient travel* in the Camden Core Strategy for more on our approach to improving air quality through transport measures. This requires:

- the adoption of car free and car capped developments;
- provision cycling facilities to encourage sustainable transport;
- green travel plans;
- provision of car club bays; and
- infrastructure for low emissions vehicles such as electric vehicle recharging points.

Further information

Planning Guidance	<ul style="list-style-type: none"> • Planning Policy Statement 23: Planning and Pollution Control (2004) • Planning Policy Statement 23 Annex 1: Pollution Control, Air and Water Quality <p>These documents outline the government's advice on methods of planning for pollution control.</p>
Air Quality Guidance	<ul style="list-style-type: none"> • Technical Guidance Note: Assessment of Air Quality Issues of Planning Applications, Association of London Government (ALG), 2006 This provides technical advice on how to deal with planning applications that could have an impact on air quality. • Development Control: Planning for Air Quality. Environmental Protection UK, 2010 This advises of the significance of air quality assessments within the planning process. • Best Practice Guidance - The control of dust and emissions from construction and demolition (London Councils) 2006 The aim of this guidance is to protect the health of on-site workers and the public and to provide London-wide consistency for developers. • Biomass and Air Quality Guidance for Local Authorities (Environmental Protection UK) 2009 This guidance details procedures for assessing and managing the effects of biomass on air quality and provides background material. • Low Emission Strategies (Beacon Low Emission Group) 2009 This provides advice on how to reduce emissions of air pollutants and greenhouse gases from transport.
Useful Contacts	<p>Camden Council Corporate Sustainability Team www.camden.gov.uk/smallsteps (020 7974 4444) provides guidance on air quality in Camden</p>

3 Contaminated land

KEY MESSAGES:

- Contaminated land can pose a serious risk to health.
- The Council will expect developers to identify and assess potentially contaminated land at an early stage.
- Developers will be expected to follow the Council's Contaminated Land Strategy.

3.1 This guidance provides advice on how to approach the development of potentially contaminated sites. This guidance should be read in conjunction with Core Strategy policy CS16 – *Improving Camden's health and well-being*.

3.2 To protect the local environment and the health and well-being of residents, workers and visitors, we will carefully assess any proposals for the redevelopment of sites that:

- are known to be contaminated;
- have the potential to be contaminated, through previous or current uses; or
- are located in close proximity to these sites.

What is contaminated land?

3.3 Contaminated land is land that has been polluted with harmful substances to the point where it now poses a serious risk to health and the environment.

Causes of land contamination

- improper chemical handling or disposal practices,
- accidental spillages, or leakages of chemicals during manufacturing or storage.
- polluted groundwater migrating under a site
- particles settling from factory emissions.

3.4 The most common pollutants of land are metals and organic compounds. Typical land uses that can cause land contamination include petrol stations and gas works.

3.5 Contamination can also come from historical activities dating back many hundreds of years, such as spoil heaps from some Roman lead mines, and even from naturally occurring substances.

3.6 Contaminants may still be present above acceptable levels even though the polluting use stopped many years ago. 'Contaminated land' has a specific legal definition which is used in relation to an 'unacceptable risk'

of harm to health. For more information please see Department for Environment, Food and Rural Affairs (DEFRA) web pages.

- 3.7 In principle we will support the redevelopment of contaminated sites where the contamination issue can be successfully addressed and where future uses can be carried out safely. Remediation is particularly important where people have access to ground for gardening, play or planting food for consumption within redeveloped sites.

What should you do if your site is contaminated or potentially contaminated?

- 3.8 In accordance with Planning Policy Statement (PPS) 23: Planning and Pollution Control, if you propose a development on contaminated or potentially contaminated land, it is your responsibility to ensure that contaminated land issues are considered at the planning application stage.
- 3.9 Where contamination is known or suspected on a site or the proposed use would be vulnerable to contamination, we will expect you to provide, as a part of your planning application, the necessary information as outlined in this chapter to determine whether the proposed development is acceptable.
- 3.10 The information required will need to be sufficient for us to determine:
- the existence or otherwise of contamination;
 - the nature of the contamination and the risks it may pose; and
 - whether these can be satisfactorily reduced to an acceptable level.
- Please refer to Annex 2 of PPS23 for further details.
- 3.11 The identification and assessment of land contamination issues is to be carried out by a qualified and experienced consultant, in consultation with the Council's Environmental Health Service. The contamination report is to be submitted with your planning application so that contamination issues can be assessed at the planning application stage and any necessary remediation measures secured through conditions or a Section 106 legal agreement.
- 3.12 The Council's Contaminated Land Strategy sets out how we will:
- deal with contaminated land;
 - make information available to the public; and
 - implement the requirements of the Part IIa of the Environmental Protection Act 1990 and Environment Act 1995. This and other documents are available on the Council's website (www.camden.gov.uk/contaminatedland) and should be referred to where contamination is a potential issue.
- 3.13 If there is any existing contamination (or potential risk of contamination) to ground or surface water or to land with statutory nature conservation designation, either from the existing state of land or from proposed

works, the Environment Agency must be informed and their consent obtained to any works. The English Heritage Archaeological Section should be contacted where contaminated land is included within an Archaeological Priority Area.

Archaeological Priority Area

As specified in the Camden Proposals Map, and Map 4 of the Camden Development Policies, to help protect archaeological remains that might be affected by development. See policy DP25 Conserving Camden's Heritage of the Camden Development Policies for further guidance on the borough's Archaeological Priority Areas.

- 3.14 Your report should comply with the policies and advice given in PPS23 and its annexes. There are also various best practice documents and British Standards that should be followed. The London Boroughs have produced a local guidance document titled *Contaminated Land: A Guide to Help Developers Meet Planning Requirements*. This document provides guidance on what information should be contained within a contamination report and is available on Camden's website.

Supporting documents

PPS23	Planning Policy Statement 23: Planning and Pollution Control. Office of the Deputy Prime Minister, November 2004. www.odpm.gov.uk In particular Annex 2 should be referred to as this section deals specifically with contaminated land issues. The policies and advice contained in PPS23 is not repeated in this guidance and therefore should be consulted for detailed guidance.
Camden Council Website	Information on the Council approach to management of land contamination, information on historical land uses in the Borough and a copy of the London Borough's 'Guide for Developers on Contaminated Land'. http://www.camden.gov.uk/contaminatedland
Department of Food, Environment and Rural Affairs	has published a number of documents on land contamination. These can be found at: www.defra.gov.uk/environment/land/contaminated/index.htm
Environment Act 1995	Available from Stationary Office: www.opsi.gov.uk/acts/acts1995/Ukpga_19950025_en_1.htm

Useful Contacts

Camden Environmental Health Service (Contaminated Land) web page www.camden.gov.uk/contaminatedland has more information on the Council's approach to contaminated land.

English Heritage www.english-heritage.org.uk can provide advice on the approach to contaminated land within Archaeological Priority Areas.

4 Noise and vibration

KEY MESSAGES:

We will ensure that noise and vibration is controlled and managed to:

- Limit the impact of existing noise and vibration sources on new development; and
- Limit noise and vibration emissions from new development.

- 4.1 The impact of noise and vibration can have a major affect on amenity and health and can severely affect people's quality of life.
- 4.2 Policy *DP28 – Noise and Vibration* of the Camden Development Policies aims to ensure that noise and vibration is controlled and managed. It sets out the Council's thresholds for noise and vibration and goes beyond the thresholds set out in Planning Policy Guidance 24: Planning and noise (see below). DP28 contains noise/vibration thresholds for the day, evening and night.



How can the impact of noise and vibration be minimised?

4.3 The main sources of noise and vibration in Camden are generated from:

- Road traffic;
- Railways;
- Industrial uses;
- Plant and mechanical equipment;
- Entertainment uses (such as bars and nightclubs); and
- Building sites.

4.4 For details on how to manage noise and vibration from building sites see section 8 on Construction management plans.

Ways to minimise the impact of noise on your development

Design

- Locating noise sensitive areas/rooms away from the parts of the site most exposed to noises;
- Creating set backs;
- Designing the building so its shape and orientation reflect noise and protect the most sensitive uses;
- Stacking similar rooms (such as kitchens and living rooms) above each other; and
- Positioning non-residential uses closer to the noise source in mixed use developments.

Built fabric

- Insulating and soundproofing doors, walls, windows, floors and ceilings;
- Sealing air gaps around windows;
- Double glazing;
- Including architectural fins (where appropriate); and
- Laminated glass.

Landscaping and amenity areas

- Incorporating planting, landscaping, fencing/barriers and solid balconies to reflect sound.

4.5 Our preference for controlling noise:

- Begins with attempting to reduce noise at its source;
- Then to separate the development (or at least the sensitive parts e.g. habitable rooms) from the source or to use noise barriers; and

- Finally construction materials such as acoustic glazing should be used.
- 4.6 When you consider measures to minimise noise and vibration you also need to take into account our policies on design and crime prevention. You should consider the implications of noise and vibration at the beginning of the design process to enable prevention or mitigation measures to be designed into the scheme. Poorly designed schemes will not be acceptable.
- 4.7 Proposals will be expected to include appropriate attenuation to alleviate or mitigate the impact of noise and vibrations to an acceptable level, as set out in policy *DP28 – Noise and vibration* of the Camden Development Policies. Where appropriate, the Council will consider the cumulative impact of noise sources (for example, air conditioning units).
- 4.8 Everyday domestic activities can also generate noise, e.g. communal entrances and roof terraces. Sufficient sound insulation must be provided between dwellings to prevent the transmission of noise between them, particularly in conversions where new partition walls are often deficient in terms of insulation.

Ways to mitigate noise emitted by your development

Engineering

- Reducing the noise emitted at its point of generation (e.g. by using quiet machines and/or quiet methods of working);
- Containing the noise generating equipment (e.g. by insulating buildings which house machinery and/or providing purpose-built barriers around the site); and
- Protecting any surrounding noise-sensitive buildings (e.g. by improving sound insulation in these buildings and/or screening them by purpose-built barriers).

Layout

- Ensuring an adequate distance between source and noise-sensitive buildings or areas; and
- Screening by natural barriers, buildings, or non-critical rooms in the development.

Administrative

- Limiting the operating time of the source;
 - Restricting activities allowed on the site; and
 - Specifying an acceptable noise limit.
- 4.9 If your proposal could result in noise and vibration that would cause an unacceptable impact to nearby uses or occupiers, or proposes sensitive uses near a source of noise or vibration and cannot be adequately attenuated then planning permission is likely to be refused.

Developments will be assessed against the thresholds set out in policy DP28.

How will the Council manage the impact of noise and vibration?

- 4.10 Detailed acoustic/noise and vibration information in the form of a report will be required if your development proposes:
- The installation of plant, ventilation or air conditioning equipment;
 - A use that will create significant noise (e.g. new industry, nightclub)
 - A noise-sensitive development in an area where existing noise sources are present (e.g. an existing industrial site, busy road, railway line);
 - A use that will generate a significant amount of traffic.

Noise sensitive developments

Those developments located near sources of noise, including housing, schools and hospitals as well as offices, workshops and open spaces.

- 4.11 The list above is a guide only and you may need to provide noise and vibration information for other developments depending on the circumstances of the site or proposal.
- 4.12 The appropriate amount and detail of information required will depend on the specific circumstances of your proposal. At a minimum you will be expected to provide the following information to support your application:
- Description of the proposal;
 - Description of the site and surroundings, a site map showing noise and vibration sources, measurement locations and noise receivers;
 - Background noise levels;
 - Details of instruments and methodology used for noise measurements (including reasons for settings and descriptors used, calibration details);
 - Details of the plant or other source of noise and vibration both on plan and elevations and manufacturers specifications;
 - Noise or vibration output from proposed plant or other source of noise and vibration, including:
 - Noise or vibration levels;
 - Frequency of the output;
 - Length of time of the output;
 - Features of the noise or vibration e.g. impulses, distinguishable continuous tone, irregular bursts;
 - Manufacturers' specification of the plant, supporting structure, fixtures and finishes;

- Location of neighbouring windows (and use if applicable);
- Details of measures to mitigate noise or fume emissions and vibration;
- Details of any associated work including acoustic enclosures and/or screening;
- Cumulative noise levels of all the proposed and existing units;
- Hours/days of operation.

4.13 Where appropriate the Council will seek a legal agreement to control or reduce noise levels where this is unlikely to be met through the use of a condition attached to a planning permission.

Further information

PPG24	Planning Policy Guidance Note 24: Planning and Noise provide Government guidance on noise. This guidance defines four Noise Exposure Categories (A-D) and outlines what should be done if your proposal falls into one of these categories. Advice is also provided on how to address noise issues and secure amelioration methods through the planning system. www.communities.gov.uk/publications/planningandbuilding/ppg24
DEFRA	The Department of Food, Environment and Rural Affairs provide a number of publications on noise and noise related issues. www.defra.gov.uk
Camden Council website	Camden's Environmental Health web pages provide strategic information on noise in Camden including the results of monitoring that has taken place www.camden.gov.uk/noise Also see <i>Camden's Guide for Contractors working in Camden</i> on the Camden website.
The Mayor's Ambient Noise Strategy	This provides details on the Mayor of London's approach to reducing noise in London. http://legacy.london.gov.uk/mayor/strategies/noise/docs/noise_strategy_all.pdf

5 Artificial light

KEY MESSAGES:

When considering proposals for artificial lighting the Council will consider the:

- need for planning permission;
- need for the lighting;
- design of the lighting; and
- impacts on biodiversity.

5.1 This section provides guidance on the Council's approach to artificial lighting. This guidance should be read in conjunction with policy *DP26 Managing the impact of development on occupiers and neighbours* of the Camden Development Policies.

5.2 Artificial lighting has many benefits, however excessive or poorly designed lighting can be damaging to the environment and result in visual nuisance including by:

- Having a detrimental impact on the quality of life of neighbouring residents;
- Significantly changing the character of the locality;
- Altering wildlife and ecological patterns; and
- Wasting energy.



5.3 Nuisance often occurs due to glare and 'light spillage' because the lighting has been poorly designed.

5.4 *Planning Policy Statement 23 (PPS23): Planning and Pollution Control* enables the Council to take account of the possible obtrusive impact of

lighting and paragraph 3.25 of PPS23 permits us to use conditions or planning obligations to protect the environment.

WHAT IS LIGHT POLLUTION?

Light pollution is the term used to describe any adverse effect of artificial lighting. Light pollution includes:

- Glare - the uncomfortable brightness of a light source when viewed against a dark sky;
- 'Light trespass' – the spread of light spillage the boundary of the property on which a light is located; and
- 'Sky glow' - the orange glow we see around urban areas caused by a scattering of artificial light by dust particles and water droplets in the sky.

Will planning permission be required for lighting?

- 5.5 Structures supporting, and the installation of lighting equipment may require planning permission, especially if they are substantial or affect the external appearance of a building. Planning permission is not required for the carrying out of maintenance which affects only the interior of the building or does not materially affect the external appearance of the building. Temporary lighting schemes generally do not require planning permission.
- 5.6 Planning permission is normally required for:
- the erection of columns to support lighting or other similar structures;
 - the erection of substantial structures or installations that affect the external appearance of a property;
 - external lighting as part of an industrial or commercial scheme;
 - new lighting structures or works which are integral to other development requiring planning permission; and
 - illuminated advertisements, although there are some exceptions such as those indicating medical services and some commercial advertisements on the front of business premises (See Camden Planning Guidance 1 - Design).
- 5.7 You are advised to check with the Planning Service before installing any lighting scheme. You will need to provide the following details:
- Number of lights;
 - Likely lux output;
 - The height of the lighting columns (if applicable); and
 - The area to be lit.
- In accordance with policy DP26 in Camden Development Policies, schemes that would cause harm to amenity will not be permitted.

What information should accompany a planning application?

- 5.8 Where planning permission for lighting schemes is required you will need to submit the information required by paragraph 5.7. We will also expect the submission of the following additional information:
- The design of lights and infrastructure;
 - A plan or plans showing layout of the lights, including orientation of the beams of light;
 - Lighting levels, lumen details, lamp type, wattage;
 - Control systems including types and location of sensors, times lighting will be on; and
 - The need for the lighting, that is, an explanation of what activity the lighting is supporting.

- 5.9 All light installations must be energy efficient and 'Dark Sky' compliant, thereby not causing obtrusive light pollution, glare or spillage (by reference to the British Astronomical Association Campaign for Dark Skies).

Lumen

This is a measurement of the light output from a light source.

Lux

This is a measurement of the light intensity falling on a surface.

Dark sky compliance

To design lighting schemes in order to avoid lighting that extends beyond its intended target and would be inefficient and waste energy. It also avoids glare and light in unwanted areas.

What should you consider when designing lighting?

General lighting requirements

- 5.10 To minimise obtrusive light you should follow the general principles taken from the Institution of Lighting Engineers, Guidance Notes for the Reduction of Obtrusive Light (2005):
- Lighting is to be directed downwards wherever possible to illuminate its target. If there is no alternative to up lighting, then the use of shields will help reduce the spill of light to a minimum. Up lighting is a particularly bad form of obtrusive light and contributes to sky glow.
 - Lighting is to be designed to minimise the spread of light near to, or above, the horizontal. Again, any light that shines above the horizontal line of the light adds to the sky glow effect.
 - Lighting should be designed to the correct standard for the task. Over-lighting is a cause of obtrusive light and also represents a waste of money and energy.
 - The main beam angle of all lights proposed directed towards any potential observer is to be kept below 70°. It should be noted that the higher the mounting height, the lower the main beam angle could be. This will help reduce the effect of glare and light spill on neighbouring dwellings, passing motorists, pedestrians, etc.
 - Lighting should be directed to minimise and preferably avoid light spillage onto neighbouring properties. Wherever possible use floodlights with asymmetric beams that permit the front glazing to be kept at, or near parallel to, the surface being lit.
 - The lights used should be the most efficient taking into account cost, energy use, and the purpose of the lighting scheme required. All lighting schemes should meet British Standards.
- 5.11 We will seek to ensure that artificial lighting is sited in the most appropriate locations to cause minimal disturbance to occupiers and wildlife, while still illuminating the intended area. This includes considering any occupiers located above the lighting source.

- 5.12 Consideration should be given to lighting associated with buildings of special historic and architectural interest in order to protect their special interest and that of the wider area. This applies both to the lighting of such buildings and the impact of the lighting installation when seen by day.

Lighting Infrastructure

- 5.13 The visual effect of lighting infrastructure when viewed in the daytime needs to be considered. These elements can include junction boxes, poles, brackets and cabling. The design, size and colours of the physical infrastructure needs to be carefully considered and should relate to the building it is located on.

Use

- 5.14 The design of lighting should be specific to the use it supports (e.g. for recreation facilities). Hours of lighting should be limited to the times needed to support the use (both in summer and winter) and be restricted through the use of timers and sensors where relevant (e.g. for security lighting).
- 5.15 The Council may seek to secure conditions to any planning permission in order to control the hours of operation of any approved lighting scheme.

Why do impacts on biodiversity need to be considered?

- 5.16 Artificial lighting can often impact on wildlife habitats, particularly where lighting is proposed in open spaces, for example to provide lighting for sports courts and pitches or to improve security (such as along Regents Canal). Artificial lighting can have particularly severe implications for the natural daily rhythms of a range of animals and plants, and therefore sites and habitats identified for their nature conservation value should not be adversely affected by lighting. (See the Local Development Framework Proposals Map for a list of nature conservation sites).
- 5.17 If your proposed lighting is located within or adjacent to areas of open space we will expect that any biodiversity impacts arising from the installation or operation of the lighting is mitigated. This may require a survey to identify if there are any nesting birds in the immediate vicinity or if it is close to an area where bats may hibernate or emerge at feeding time. This is particularly important if the operation of the lighting extends beyond dusk, which is roughly the time bats will come out to forage. See Camden Planning Guidance 3 – Sustainability for further information on our approach to protecting biodiversity.
- 5.18 You should contact Camden's Biodiversity Officer at an early stage to discuss measures to mitigate the impact of lighting schemes on biodiversity.

Further information

PPS23	Planning Policy Statement 23: Planning and Pollution Control. Office of the Deputy Prime Minister, November 2004. www.odpm.gov.uk
DEFRA	The Department of Food, Environment and Rural Affairs has published a number of documents on light pollution. These can be found at: http://www.defra.gov.uk/environment
Environment Act 1995	Available at the Stationary Office: www.opsi.gov.uk/acts/acts1995/Ukpga_19950025_en_1.htm

Useful Contacts

Camden Planning Service www.camden.gov.uk/planning

The Institution of Lighting Professionals www.theilp.org.uk promotes good practice and excellence in lighting schemes.

The Chartered Institute of Building Services Engineers www.cibse.org provides information on appropriate lighting designs and mechanisms.

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 be assessed on a case by case basis.

Daylight

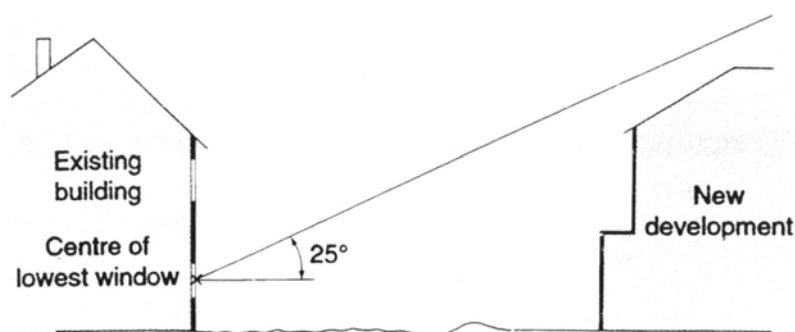
- 6.6 We will aim to minimise the impact of the loss of daylight caused by a development on the amenity of existing occupiers and ensure sufficient daylight to occupiers of new dwellings taking in account overall planning and site considerations. If your proposal will have an unreasonable impact on amenity 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.

Section

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.

8 Construction management plans

KEY MESSAGES:

- Construction management plans are required for developments that are on constrained sites or are near vulnerable buildings or structures;
- They are essential to ensure developments do not damage nearby properties or the amenity of neighbours.

- 8.1 The purpose of this guidance is to give details on how construction management plans can be used to manage and mitigate the potential impacts of the construction phase of a development.
- 8.2 All construction and demolition work will cause at least some noise and disturbance. Where construction impact is particularly significant Camden will ensure it is managed through a legally binding construction management plan.
- 8.3 This guidance relates to Core Strategy Policy CS5 Managing the impact of growth and development and policies DP20 Movement of goods and materials, and DP26 Managing the impact of development on occupiers and neighbours of the Camden Development Policies.

When does this guidance apply?

- 8.4 This guidance applies to all development proposals which, having regard to the nature of the surrounding area, are likely to give rise to significant noise and other disturbance during construction. Details on the circumstances in which the Council will expect construction management plans are set out within this guidance.

How should construction management plans be prepared?

- 8.5 Camden's planning policies make it clear that the effect on local amenity and the highway network from construction and demolition is a material planning consideration. Construction management plans are used to set out the measures a developer should take (both on-site and off-site) in order to reasonably minimise and manage the detrimental effects of construction on local amenity and/or highway safety. Usually Camden will secure construction management plans through a Section 106 Agreement, although sometimes for less complicated schemes they may be secured by using a condition attached to planning permission.
- 8.6 Whilst construction management plans are a 'planning led' document they will incorporate mechanisms controlling planning considerations that overlap with other regulatory regimes (particularly highways and environmental protection). Hence, most construction management plans will be an umbrella document managing all impacts of the demolition, excavation and construction process.

- 8.7 Besides ensuring measures under these different regimes are coordinated in one document, construction management plans represent a proactive way of dealing with construction issues. They encourage developers to work with the Council and local people in managing the construction process with a view to ensuring that problems do not arise in the first place.

Circumstances Camden will expect a construction management plan

- 8.8 Whether a construction management plan is required for a particular scheme will be assessed on a case by case basis, although the Council will usually require a construction management plan for larger schemes (i.e. over 10 residential units or 1,000sq m of new commercial floorspace). However, occasionally a relatively large development will have comparatively little impact on its neighbourhood.
- 8.9 Conversely, small schemes on confined or inaccessible sites can have very significant impacts, particularly where the construction process will take place over a number of months (or even years) or outside normal working hours. When assessing smaller developments, special regard should be had to on-site factors that would seriously exacerbate the impact of the development works on the surrounding area. These could include development in residential areas, in close proximity to a school or a care home or very narrow or restricted site access (e.g. development in a mews with no footways). Regard will also be had to the nature and layout of a site. It will be much more difficult to fully absorb or contain the effects of demolition and construction in terms of noise, dust vibration etc within the boundaries of a small constrained site. Furthermore, lack of on-site space for plant, storage of materials and loading and unloading of construction may mean that construction effects will inevitably take place close to the boundary and spill out on to the highway network – a particular issue in much of Camden.
- 8.10 The types of schemes where a CMP will usually be appropriate include:
- Major developments (and some larger scale non major developments);
 - Development where the construction process has a significant impact on adjoining properties particularly on sensitive uses;
 - Developments which give rise to particular 'on-site' issues arising from the construction process (e.g. large scale demolition or complicated or intrusive remediation measures);
 - Basement developments;
 - Significant developments involving listed buildings or adjacent to listed buildings;
 - Developments that could seriously affect wildlife;
 - Developments that could cause significant disturbance due to their location or the anticipated length of the demolition, excavation or construction period;

- Development where site specific issues have arisen in the light of external consultation (where these are supported by objective evidence); and
- Development on sites where constraints arising from the layout or size of the site impact on the surrounding road network.

Contents of a construction management plan

- 8.11 Any construction management plan will manage on-site impact arising from demolition and construction. It will also seek to establish control over construction traffic and how this integrates with other construction traffic in the area having regard to the cumulative effect.
- 8.12 A Section 106 or planning permission securing a construction management plan will contain provisions setting out in detail the measures the final version of the construction management plan should contain. Most construction management plans will be umbrella documents managing all impacts of the demolition, excavation and construction processes. This would include (but is not limited to) issues such as:
- Dust, noise and vibration on site and off site;
 - Traffic management highways safety and highways congestion;
 - Protection of listed buildings (if relevant);
 - Stability of adjacent properties;
 - Protection of any off-site features that may be damaged due to works;
 - Protection of biodiversity and trees; and
 - Preserve the amenity of surrounding residential and other sensitive uses.
- 8.13 A construction management plan is often split into two elements. The first element will be focussed on controlling environmental impacts, pollution and other non-highway related impacts arising from the scheme, having regard to the requirements of the Council's Considerate Contractor Manual and best practice guides from the GLA. In particular this will seek to control hours of operation and monitor and manage air quality, noise, dust and other emissions of other pollutants and location of equipment. The second element will be focussed on traffic control with a view to minimising disruption, setting out how construction work will be carried out and how this work will be serviced (e.g. delivery of materials, set down and collection of skips), with the objective of minimising traffic disruption and avoiding dangerous situations for pedestrians and other road users.
- 8.14 Sometimes the Section 106 will link the construction management plan with a requirement to convene a working group to act as a forum for the developer to meet with local residents and businesses to deal with construction issues as they arise.

- 8.15 Construction management plans will also have to be consistent with any other plans required for the development. For example, a Site Waste Management Plan, which is a legal requirement for works over a certain size which may require the re-use or recycling of materials on-site and therefore the construction management plan will have to reflect that space will be required to sort, store and perhaps crush or recycle materials.
- 8.16 The construction management plan should include the following statement:
 “The agreed contents of the construction management plan must be complied with unless otherwise agreed with the Council. The project manager shall work with the Council to review this construction management plan if problems arise in relation to the construction of the development. Any future revised plan must be approved by the Council and complied with thereafter.”

Transport considerations

- 8.17 The details contained within a construction management plan will relate to the nature and scale of the development, however, in terms of assessing the impact on transport the plan should demonstrate that the following has been considered and where necessary the impacts mitigated:
- a) Start and end dates for each phase of construction;
 - b) The proposed working hours;
 - c) The access arrangements for vehicles;
 - d) Proposed routes for vehicles between the site and the Transport for London Road Network (TLRN). Consideration should also be given to weight restrictions, low bridges and cumulative effects of construction on the highway;
 - e) Sizes of all vehicles and the frequency and times of day when they will need access to the site, for each phase of construction;
 - f) Swept path drawings for any tight manoeuvres on vehicle routes to the site;
 - g) Details (including accurate scaled drawings) of any highway works necessary to enable construction to take place;
 - h) Parking and loading arrangements of vehicles and delivery of materials and plant to the site;
 - i) Details of proposed parking bays suspensions and temporary traffic management orders;
 - j) Proposed overhang (if any) of the public highway (scaffolding, cranes etc);
 - k) Details of any temporary buildings outside the site boundary, or overhanging the highway;
 - l) Details of hoardings required or any other occupation of the public highway;

- m) Details of how pedestrian and cyclist safety will be maintained, including any proposed alternative routes (if necessary), and any banksman arrangements;
- n) Details of how traffic associated with the development will be managed in order to reduce congestion;
- o) Arrangements for controlling the movements of large/heavy goods vehicles on and in the immediate vicinity of the site, including arrangements for waiting, turning and reversing and the provision of banksmen, and measures to avoid obstruction of adjoining premises.
- p) Details of any other measures designed to reduce the impact of associated traffic (such as the use of construction material consolidation centres);
- q) Details of how any significant amounts of dirt or dust that may be spread onto the public highway will be cleaned or prevented;
- r) Details of any Construction Working Group that may be required, addressing the concerns of surrounding residents, as well as contact details for the person responsible for community liaison on behalf of the developer, and how these contact details will be advertised to the community;
- s) A statement confirming registration of the site with the Considerate Constructors Scheme;
- t) How the servicing approach takes into consideration the cumulative effects of other local developments with regard to traffic and transport;
- u) Provision for monitoring of the implementation of the CMP and review by the council during the course of construction works;
- v) Any other relevant information with regard to traffic and transport; and

Air quality and climate change considerations

8.18 A method statement should be prepared and adopted as part of the construction management plan to minimise gaseous and particulate matter emissions generated during the Construction Phase. The following best practice measures shall be included in the method statement:

- Techniques to control PM₁₀ and NO_x emissions from vehicles and plant;
- Techniques to control dust emissions from construction and demolition;
- Air quality monitoring; and
- Techniques to reduce CO₂ emissions from construction vehicles.

How will we secure construction management plans?

8.19 Generally a Section 106 agreement (rather than a condition) is the most appropriate mechanism for securing a construction management plan. For larger schemes or developments on constrained sites within heavily

built-up areas where building activities could materially affect the highway construction management plans will always be secured through Section 106s. While the use of conditions is normally preferred to Section 106 Agreements, conditions can only be used to control matters on land within the developer's control. The range of matters typically covered by a CMP, particularly in relation to highways, mean that a Section 106 Agreement will be necessary in most cases.

- 8.20 The level of detail contained in a typical Section 106 also lends itself to the tailored, site-specific approach Camden uses for construction management plans. However, the use of a condition to secure a construction management plan may be sufficient for sites where the building activities associated with the build out can be totally accommodated within the site itself, particularly where these are smaller schemes.

9 Access for all

KEY MESSAGES:

- Well designed, accessible buildings and spaces ensure that local services and facilities are accessible to everyone and increase equality of opportunity and social inclusion. We will seek to ensure the highest standards of access and inclusion in Camden's built environment and public realm.
- We expect all development of buildings and places, including changes of use and alterations to or refurbishment of existing buildings where practical and reasonable, to be designed to be accessible and useable by all to promote equality of opportunity.
- Access should be considered at the beginning of the design process.

- 9.1 A successfully accessible and inclusive environment is one that everyone can benefit from by being able to move freely, independently and uninhibited within the built environment regardless of age or disability.
- 9.2 This guidance applies to all development in Camden that may affect the accessibility of buildings and spaces.
- 9.3 All new developments should incorporate a suitable level of access for everyone and be inclusively designed.
- 9.4 Changes of use, alterations and extensions to existing buildings and spaces should, where practicable and reasonable, be designed to improve access for all.
- 9.5 The planning system is not able to require existing buildings or areas to retrospectively improve access where alterations are not being made.
- 9.6 For developments involving housing, reference should also be made to Camden Development Policies policy DP6 – *Lifetime homes & wheelchair housing* and Camden Planning Guidance on Lifetime homes and wheelchair housing. The accessibility needs are lower for certain sectors of the population, such as students, and so the Council will assess each development proposal on its own merits to determine a suitable level of accessible accommodation to be provided.
- 9.7 Guidance on the provision of parking spaces for drivers with disabilities is contained in Camden Planning Guidance on Vehicle access.
- 9.8 This guidance provides general advice on accessibility and advises on further sources of more detailed information. In particular this guidance relates to Core Strategy policy CS14 - *Promoting High Quality Places and conserving our heritage*; CS6 - *Providing quality homes* and policy DP29 - *Improving access* of the Camden Development Policies.
- 9.9 It is more effective to consider access arrangements from the beginning of the design process as they are an integral aspect of building design.

Overcoming access barriers at a later stage in the project can result in a building or space that is not inclusive and may be inaccessible to many people.

- 9.10 Applicants are advised to consult the Council’s Building Control Service at an early stage in the formulation of development proposals to ensure conformity with the relevant requirements relating to access. Satisfying some of the requirements of Part M of the building regulations can affect the size and design of the building and needs to be taken into account at the early design stage.
- 9.11 The following table sets out four key principles which, if put together successfully, should help create an accessible environment:

Additional information

- 9.12 Level access should be provided to the principal entrance in all developments, and is a requirement for all new dwellings. Any new works must not make access any worse than what may have previously existed, in line with Approved Document M of the Building Regulations.
- 9.13 The design of routes around buildings should be clear and free from obstruction, especially to the entrance. Any obstructions should be made clear and avoidable, for example by changes in surface texture.
- 9.14 The above access principles apply mainly to non-residential developments – although the first two will also be applicable to residential developments. In the case of residential development, proposals must meet Lifetime Home Standards as set out in policy *DP6 – Lifetime Homes and wheelchair homes* of the Camden Development Policies. Reference should also be made to Camden Planning Guidance 2 and the section on Lifetime Homes and wheelchair housing.

Design and Access Statements

- 9.15 A Design and Access Statement is a short written and illustrated report which accompanies and supports a planning application. It explains the thinking behind a design and its context in a proposal in a structured way. A Design and Access Statement should:
- Show how the applicant has analysed the site, its setting, and as a result of this assessment, formulated and applied design principles to achieve a good, inclusive design for buildings and public spaces;
 - Include the specific needs of disabled people, by showing how they have been integrated into the proposed development, and how inclusion will be maintained and managed; and
 - Be flexible, adaptable and be able to change with the design of the proposal should any amendments or changes occur.
- 9.16 The level of detail appropriate in an access statement will depend on the size, nature and complexity of the proposal, as a minimum, all should include:
- A short illustrated statement setting out the site and context appraisal, the purpose of the proposed development, a list of design principles and a description of the proposal explaining how the design responds to the appraisal and design principles;
 - A plan of the site, surrounding area or natural form and key features as identified in the appraisal;
 - Annotated sketches and photographs;
 - Important elements of the context that inform the design principles;
 - Plans and elevations of the proposal;
- 9.17 The following points should be taken into account when preparing a Design and Access statement:

- A brief explanation of the applicant's approach to access, with particular reference to the inclusion of disabled people;
- A description of how the sources of advice on accessibility and technical issues will be, or have been, followed;
- Details of any consultations undertaken or planned, including the number of users, particular user need groups (for example, visually impaired, deaf or hard of hearing, ethnic groups, people with learning disabilities and mental health) and the degree to which the process has been influenced by it;
- Details of any professional advice that has been followed, or will be sought, including recommendations from access audits or appraisals;
- An explanation of any specific issues affecting accessibility to, or within, the particular environment being considered, and/or service provision, employment or educational opportunities.
- Details of access solutions adopted to overcome any issues, including those which deviate from recognised good practice;
- Details of the management and maintenance practices adopted, or to be adopted, to maintain features enhancing accessibility (for example, lighting, colour and luminance contrast, door closing forces etc), specialist equipment (for example, induction loops, audible and visual fire alarm systems etc), and staff training; and
- A plan illustrating features such as routes in, out and around the outside of the building, vertical and horizontal circulation routes, positions of accessible car parking bays, the location of public transport, and any other features relevant to the proposal.

9.18 Where good practice cannot be met, the Access Statement should say why this is the case, set out the implications for users, and explain what other measures are being taken to ensure access is provided to the facilities available. See Further Information at the end of this section for links to more detailed guidance.

Listed buildings

- 9.19 Design and access statements are also required for a listed building consent. Where a planning application is submitted in parallel with an application for listed building consent a single combined statement can be submitted which should address the requirements for both.
- 9.20 Measures to facilitate dignified and easy access to and within listed buildings can often be sensitively incorporated without damage to their special architectural or historic interest. However, the Disability Discrimination Act 1995 does not override other legislation such as listed building or planning legislation. Listed Building Consent will almost always be required for works to improve access and in formulating proposals; applicants are encouraged to undertake early discussions with the Council.

- 9.21 English Heritage has produced guidance on this topic titled Easy Access to Historic Buildings (see Further Information for the link). Additional information is also contained in Circular 01/06.

Other considerations

- 9.22 Applicants should note that Design and Access Statements differ from the requirements for Access statements set out in Approved Document M of the Building Regulations, which are only required when specific building control regulations can not be met. Approved Document M of the Building Regulations sets out the requirements to ensure access to and use of a building's facilities are accessible to all.
- 9.23 It may also be appropriate to combine the Design and Access Statements with other statements requested in other sections of Camden Planning Guidance, provided that the requirements of all such statements are adequately addressed.
- 9.24 Part 3 of the Disability Discrimination Act 1995 gives disabled people a right of access to goods, facilities and services. This requires service providers to:
- Alter a barrier feature so that it no longer has effect;
 - Provide a reasonable means of avoiding that feature; or
 - Provide a reasonable alternative method of making the service available.
- 9.25 These requirements apply to all buildings where services are provided to the public and to transportation infrastructure.

Further information

Design and Access Statements	<p>Department for Communities and Local Government (March 2010) Guidance on information requirements and validation: www.communities.gov.uk/publications/planningandbuilding/validationguidance</p> <p>ODPM publication: Planning and Access for Disabled People: A Good Practice Guide www.communities.gov.uk/publications/planningandbuilding/planningaccess</p> <p>Department for Communities and Local Government Circular 01/2006: Guidance on Changes to the Development Control System: Section 3 provides guidance on the legislative position and information required www.communities.gov.uk/publications/planningandbuilding/circularcommunities2</p> <p>The Commission for Architecture and the Built Environment (CABE) 'Design and access statements: how to write, read and use them' www.cabe.org.uk</p> <p>Mayor of London's Supplementary Planning Guidance: Accessible London: Achieving an Inclusive Environment http://legacy.london.gov.uk/mayor/strategies/sds/docs/spg_accessible_london.pdf</p>
Access and the historic environment	<p>English Heritage have published guidance on 'Easy Access to Historic Landscapes' and 'Easy Access to Historic Buildings' which can be found on their website at: www.english-heritage.org.uk/publications/easy-access-to-historic-buildings/</p>
Lifetime Homes and wheelchair housing standards	<p>Lifetime Homes www.lifetimehomes.org.uk</p> <p>Accessible London: Achieving an Inclusive Environment, GLA (April 2004)</p>

10 Wind and micro-climate

KEY MESSAGES:

- Buildings taller than their surroundings may cause excessive wind in neighbouring streets and public areas.
- New developments should consider the local wind environment, local temperature, overshadowing and glare, both on and off the site.
- Where poor wind conditions already exist reasonable attempts must be made to improve conditions generally.

- 10.1 The construction of a building changes the microclimate in its vicinity. Micro-climate refers to local conditions including wind, temperature, overshadowing, access to daylight and general comfort. In particular high-rise buildings can cause high wind velocities at pedestrian level which can create an uncomfortable environment and can even be dangerous. Therefore, the design of your building should not only focus on the building envelope and on providing good indoor environment, but should also include the effect of the design on the surrounding outdoor environment.
- 10.2 The purpose of this guidance is to ensure that appropriate standards are met in the design of buildings and outdoor features to ensure that suitable wind safety and comfort levels are achieved.
- 10.3 This guidance relates to Core Strategy CS14 - *Promoting high quality places and conserving our heritage* and policy DP24 - *Securing high quality design* of the Camden Development Policies.

When does this guidance apply?

- 10.4 This guidance applies to all development that has the potential to change their environment with regard to wind and micro-climate, whether new build or extension. However, the implications for a proposal will vary greatly depending on the nature of the site, the scale of development, its interaction with surrounding sites, and existing buildings and structures on the site.

DEVELOPMENTS LARGE ENOUGH TO CHANGE THEIR LOCAL ENVIRONMENT WILL INCLUDE:

- New or modified buildings that are 18 metres or 5 storeys higher than any surrounding building;
- Significant modifications to the built environment in areas of quantifiable and recognised existing wind nuisance;
- Major proposals adjacent to or incorporating a significant area of public or outdoor space;
- Developments with a large amount of glazing or dark masonry surfaces; or
- A combination of new or modified buildings that cumulatively, will significantly change the wind environment.

Wind environment around buildings

- 10.5 Buildings taller than their surroundings may cause excessive wind in neighbouring streets and public areas. Environmental winds are primarily driven by building massing and should be considered at the early design stages, when changes to achieve design objectives can be made most easily.
- 10.6 We will expect you to consider the local wind environment when designing your scheme, both on and off the site. Where poor wind conditions exist in the area prior to development, a reasonable attempt must also be made to improve conditions in general.

What information should I provide?

- 10.7 Relevant developments are expected to use the Lawson Comfort Level Ratings (set out below). Areas that must be considered are:
- public and private open spaces on and adjacent to the site;
 - outdoor areas on upper levels of the development;
 - entrance and exit areas;
 - shop windows;
 - bus stops;
 - outdoor dining areas;
 - thoroughfares; and
 - pedestrian crossing points.

- 10.8 The Lawson Criteria are used throughout the UK to assess local wind environments and are a widely accepted assessment tool.

The Lawson Comfort Criteria

The Lawson Comfort Criteria is a scale for assessing the suitability of wind conditions in the urban environment based upon threshold values of wind speed and frequency of occurrence. It sets out a range of pedestrian activities from sitting through to crossing the road and for each activity defines a wind speed and frequency of occurrence. If the wind conditions exceed the threshold then the conditions are unacceptable for the stated activity.

Figure 1. Lawson Comfort Level Rating

Lawson Comfort Level Rating	Predominant activity	Mean hourly wind speed exceeded less than 5% of the time
C4 - Long term "Sitting"	Reading a newspaper and eating and drinking	4m/s
C3 - "Standing" or short term sitting	Appropriate for bus stops, window shopping and building entrances	6m/s
C2 - Pedestrian Walking or "Strolling"	General areas of walking and sightseeing	8m/s
C1 - Business "Walking"	Local areas around tall buildings where people are not expected to linger	10m/s

- 10.9 If this applies to your development your planning application should be accompanied by qualitative wind impact statement, prepared by a suitably qualified professional (i.e. wind engineer or similar).
- 10.10 You must firstly carry out a qualitative wind impact assessment. If the results of this show potential negative impacts you will also need to carry out a quantitative assessment. Both assessments must be submitted with your planning application. Your assessment must provide detailed information on how the proposal meets the criteria in the guidance, using quantitative measures (i.e. evidence of wind tunnel testing or similar).

Your Wind Impact Statement must:

- Show how the proposal is expected to affect the local wind environment;
- Describe how the proposal has addressed the local wind environment;
- Include reference to specific features of the site or the development that make a contribution to the wind environment, either positively or negatively, and highlight areas of concern; and

- Reference the proposal's ability to meet the targets of this guidance, and make recommendations regarding the necessity for additional work, as described below.

Your Wind Impact Statement should:

- Compare existing and proposed conditions against the Lawson Comfort Criteria in both summer and winter conditions;
 - Demonstrate how the proposal has adapted to the local wind environment;
 - Reference specific features of the site or the development that make a contribution to the wind environment, both positively or negatively;
 - Highlight areas of concern, and
 - Describe the proposal's ability to adhere to the guidance.
- 10.11 If your proposal does not achieve the targeted ratings or outcomes you must provide sound justification to demonstrate, to the satisfaction of the Council, why your proposal cannot meet the targets. This justification should be prepared in conjunction with, and endorsed by your wind engineer, and must include evidence of the attempts that have been made to address design deficiencies.
- 10.12 If your proposal does not satisfactorily meet the criteria, and you have not provided justification, your proposal may be refused.
- 10.13 A condition may be imposed to secure the achievement of wind speed(s) around the building no greater than those predicted. The Council may require alterations or other remedial measures at the developer's expense if wind speed targets are not met.

Other considerations relating to the wind environment

- 10.14 Your development must not compromise the viability of wind-driven renewable energy generators on adjacent and nearby sites. Where wind-driven energy generators are likely to be significantly affected, you are responsible for ameliorating the loss by moving, modifying or replacing the installation, or by incorporating equivalent renewable energy generation within your site.
- 10.15 Where a development affects the viability of an existing wind-driven renewable energy generator, and the solution is to modify the installation off-site, all approvals, expenses and risks are the responsibility of the applicant. This requirement will be incorporated as a condition or in a S106 agreement relating to any approval. Where additional renewable energy capacity is to be installed on site, this will be assessed in conjunction with other renewable energy installations. (Note: additional capacity that is gained by installations off-site should be credited toward the onsite requirement for the development)
- 10.16 Wind environment also impacts on natural ventilation systems. Natural ventilation must also be considered in building design.

Other influences on micro-climate

Local heat

- 10.17 Local air temperature can be affected by your building's ability to absorb heat during the day and release it at night. This cumulative effect of this happening across London results in the urban heat island effect. We strongly encourage green roofs, brown roofs, green walls and soft landscaping in all developments to reduce this affect. You can also consider light coloured building materials so unnecessary heat is not absorbed by your building. See Camden Planning Guidance 3 – Sustainability for further guidance on these issues.

Overshadowing

- 10.18 You should consider the design of your proposal carefully so that it does not overshadow windows to habitable rooms or open spaces and gardens. This may be particularly difficult in central London. However, it will be particularly important in Central London to prevent overshadowing of amenity space and open spaces given the limited amount of open spaces and the existing amount of overshadowing.

Glare

- 10.19 Glare is uncomfortably bright sunlight reflected from a building façade. It is generally caused by tall, fully glazed and sloping facades with reflective finishes that reflect the sun. Tall buildings should be designed to avoid this and use materials that do not result in glare.

Further information

General guidance on design principles	By Design: Urban Design in the Planning System – Towards Better Practice, DETR/CABE, 2000
Tall buildings	Guidance on tall buildings, English Heritage/CABE, 2007
Urban design in relation to the historic environment	Understanding Place, English Heritage 2010; and Building in Context, English Heritage/CABE, 2002

11 Open space, outdoor sport and recreation facilities

KEY MESSAGES:

- If your scheme is over a certain size it is expected to make a contribution towards the provision of public open space in the borough;
- Our priority is for the provision of public open space on-site, therefore it is important this is taken into account at the design stage of your scheme;
- Other forms of public open space contributions could be provision off-site or as a payment in lieu.

- 11.1 This guidance gives details of how the Council expects development to provide for a variety of public open space, outdoor sport and recreation facilities. It sets out:
- Which developments are expected to make provision for open space, outdoor sport and recreation opportunities;
 - The amount of open space we expect;
 - The type of open space and outdoor sport and recreation facilities we expect;
 - How we will calculate the open space expected for a specific development; and
 - The Council's priorities for how open space, outdoor sport and recreation facilities will be provided.

- 11.2 This guidance primarily relates to:

Core Strategy Policies:

- CS5 – Managing the impact of growth
- CS15 – Protecting and improving our parks and open spaces and encouraging biodiversity

Development Policies:

- DP26 – Managing the impact of development on occupiers and neighbours
- DP31 – Provision of, and improvements to, open space and outdoor sport and recreation facilities.

Which developments are expected to contribute towards open space, outdoor sport and recreation facilities?

- 11.3 As set out in paragraph 31.6 the Camden Development Policies document you will need to make a contribution to the provision of these facilities in the borough if your development falls within the following categories:

- Five or more additional dwellings;
- Student housing schemes creating an additional 10 or more units/rooms or occupiers; and
- Developments of 500sq m or more of any floorspace that are likely to increase the resident, worker or visitor populations of the borough.



How much open space do we expect?

- 11.4 Development Policy *DP31 – Provision of, and improvements to, open space and outdoor sport and recreation facilities* sets out the amount of open space to be provided by developments as follows:

Figure 2. Amount of open space to be provided by land use

Development type	Open space provision
Residential (all types)	9 sq m per occupier
Commercial development	0.74 sq m per worker

- 11.5 Non-residential developments for higher education are considered to generate requirements per occupier (including employees and students) at the same rate as commercial developments.

What types of open space, outdoor sport and recreation facilities will we expect?

- 11.6 Open space standards relate specifically to public open space. The Council acknowledges the private amenity space and other private open land can reduce pressure on the use of public open space. However public open spaces provide opportunities for social interaction and a focus for community activities. Private spaces cannot be used as a substitute for public open space.

- 11.7 Public open space includes a wide variety of different facilities that are available to the public:
- Green amenity spaces, including natural and semi-natural spaces;
 - Active spaces for outdoor sport and recreation and for children's play; and
 - Civic spaces.
- 11.8 Green amenity spaces can be formal or informal parks and gardens or other landscaped areas, which provide areas of passive recreation for all age groups and attractive green areas within the urban environment. They are intended to be attractive spaces for people to enjoy using or viewing. This type of open space can include areas of natural or semi-natural green spaces, which support wildlife conservation and biodiversity and promote environmental education and awareness.
- 11.9 Active spaces are areas of grassed or artificial surfaces providing opportunities for sport and recreation together with ancillary facilities such as changing rooms and flood lighting. These include playing pitches, courts, greens, athletic tracks and Multi Use Games Areas (MUGAs). Formal recreation areas may be stand-alone facilities or may form part of a larger open space (e.g. the tennis courts and bowling greens at Hampstead Heath).
- 11.10 Civic spaces are hard surfaced areas designed for pedestrians, such as piazzas, which often provide a setting for civic buildings.
- 11.11 Given the amount of hard surfaces in Camden, our priority will generally be for green spaces, especially in the south of the borough. Paragraphs 11.12 to 11.17 give more details of specific types of public open space.

Children's play space and young people's recreation space

- 11.12 These are formal or informal areas designed to engage children or young people. Formal spaces are designated areas for children and young people containing a range of facilities and an environment that has been designed to provide focused opportunities for outdoor play. There are three categories of formal children's play space defined by the National Playing Fields Association (NPFA).
1. LAP - Local Area for Play;
 2. LEAP - Local Equipped Area for Play;
 3. NEAP - Neighbourhood Equipped Area for Play.
- 11.13 Informal spaces are less well defined areas and can be incorporated into smaller spaces such as local footpaths where wide enough or town centre spaces. It involves incorporating features that children can play with such as fountains or objects to climb.
- 11.14 Contributions to children's play space and young people's recreation space can include formal and informal areas. We must be satisfied that any informal space has been sufficiently designed to meet the requirements of children and young people.

Natural and semi-natural green spaces

- 11.15 These include sites and areas formally recognised for their nature conservation value such as Sites of Special Scientific Interest, Sites of Nature Conservation Importance and Local Nature Reserves as well as other areas with biodiversity such as gardens, parks and open spaces.
- 11.16 In exceptional circumstance, generally in areas deficient in nature conservation sites, we may consider the inclusion of a biodiverse green roof, brown roof or green wall as a contribution towards natural and semi-natural green spaces in the borough. For more information about areas of deficiency please see Appendix A to this section. For more information about green roofs, brown roof and green walls please see Camden Planning Guidance 3 – Sustainability.

Allotments and Community Gardens

- 11.17 Allotments and community gardens provide opportunities for people to grow food as part of the long term promotion of sustainability, health and social inclusion.

What type of open space, outdoor sport and recreation facilities are expected for specific development types?

- 11.18 For this guidance, and in line with *Camden's Open space, Sport and Recreation Study Update 2008* we have identified the following five broad categories of open space:
- Public amenity open space;
 - Children's play space and young people's recreation space;
 - Natural and semi-natural green space;
 - Allotments and community gardens; and
 - Outdoor sport and recreation.
- 11.19 We recognise that not every type of development will generate a need for all types of open space, outdoor sport and recreation facilities. For example, housing for older people will not generate demand for children's play space. Figure 3 sets out the types of open space that are likely to be needed for various types of development.

Figure 3. Type of open space to be provided by development

	Amenity open space	Children's playspace	Natural green-space	Outdoor sport facilities	Allotments / Community gardens
Self-contained homes (Use Class C3)	✓	✓	✓	✓	✓
Student housing	✓	x	✓	✓	x
Housing for older people	✓	x	✓	x	✓
Commercial	✓	x	✓	✓	x

Source: adapted from Camden Open Space, Sport and Recreation Study Update 2008.

- 11.20 The requirement for 9 sq m of public open space per residential occupier and 0.74 sq m of public open space per employee/ student (commercial/ higher education developments) should generally be divided into different types of open space approximately as set out in Figure 4.
- 11.21 In Camden the potential to add to outdoor sports facilities for adults is limited. Provision for outdoor sports will be sought within the overall requirement of 9 sq m per residential occupier where an opportunity for provision arises. Where a development provides public facilities for outdoor sports these will reduce the requirement for other types of open space.
- 11.22 The Camden Open Space, Sport and Recreation Study Update 2008 derived a separate standard for allotments of 0.9 sq per residential occupier. The study indicated that additional space to grow food could only be provided by taking a flexible approach including community gardens, roof gardens, temporary use of vacant sites and converting parts of existing open spaces. Although the standard is not included within the 9 sq m overall requirement, paragraph 31.7 of the Camden Development Policies document indicates that allotments and community gardens are a Council priority. Provision will be sought wherever an opportunity arises, and will be considered to reduce the requirement for other types of open space.

Figure 4. Break down of open space by type of provision
Residential Developments (all types)

Type of open space	Provision per adult	Provision per child
Amenity open space	5 sq m	4 sq m
Children's playspace (where applicable)		2.5sq m
Natural green space	4 sq m	2.5 sq m

Commercial / higher education (non-residential)

Type of open space	Provision
Amenity open space	0.4 sq m per person
Natural green space	0.34 sq m per person

How we will calculate the open space expected for a specific development

- 11.23 Figure 5 below shows the figures we will use to assess open space requirements for individual residential, commercial and higher education developments. The figures are based on the break down of open space requirements in Figure 4 and the occupancy rates recommended by the Camden Open Space, Sport and Recreation Study Update 2008. The occupancy rates are given in Appendix B to this section.

Figure 5. Open space required for specific developments

Self-contained homes in Use Class C3	Amenity open space	Children's play space	Natural green space	Total
One bedroom home	6.5 sq m		5.2 sq m	11.7 sq m
Two bedroom home	9.2 sq m	0.6 sq m	7.2 sq m	17.0 sq m
Three bedroom home	12.8 sq m	2.9 sq m	9.5 sq m	25.2 sq m
Four bedroom home	14.1 sq m	3.6 sq m	10.2 sq m	27.9 sq m
Student housing, hotels and hostels				
Single room	5.0 sq m		4.0 sq m	9.0 sq m
Double room	10.0 sq m		8.0 sq m	18.0 sq m
Commercial/ higher education development				
Per 1,000 sq m gross external area	21.6 sq m		17.9 sq m	38.9 sq m

- 11.24 Appendix D sets our worked examples showing the open space required for a number of different development types and sizes.

How public open space will be provided

11.25 There are three ways in which you can make a contribution to public open space in Camden:

1. On site provision of new public open space;
2. Off site provision of new public open space;
3. Providing a financial contribution in lieu of direct provision.

On site provision of new public open space

11.26 If your development is located in an area deficient in public open space or with an under provision of public open space we expect provision of new public open space on the development site (see Appendix A to this section and Core Strategy Map 7). This is in accordance with paragraph 31.7 of the Camden Development Policies document. Paragraph 31.7 and accompanying Table 1 also set out other developments that are expected to provide open space on-site. Some on-site provision is expected for residential development adding 60 or more homes and commercial development adding 30,000 sq m or more.

11.27 The amount and type of public open space that can be achieved on-site will be determined by the size of the site. Where children's play facilities are required as a result of the development, priority should be given to the provision of these facilities. On sites already covered by development, and where appropriate access may have to be restricted to the occupiers of the building, the provision of a roof garden as a contribution to public open space may be considered. If a roof garden is to be considered as public open space, as a minimum it should be able to be used by all the occupants of the building.

11.28 Any new public open space that is provided as part of your development should be:

- Large enough to cater effectively for the intended users;
- Designed to be fully accessible, where possible;
- Designed in consultation with the Council's Open space team; and
- Practical to maintain.

11.29 Where you are required to make a contribution to public open space we will ensure that the type of open space you provide best meets the needs of the occupiers or users of the development. You should consider designing your open space carefully to enable different types of open space to be located together or adjacent to each other to complement the overall provision of open space, sport and recreation opportunities.

11.30 We will expect new open space provision to be publicly accessible, however in exceptional circumstances, for example where an existing open space is in private ownership or already has restricted access we may accept an alternative access arrangement.

Off site provision of new public open space

- 11.31 Where a site cannot provide public open space on-site, the preferred option will be provision of new suitable open space off-site. Once again this is especially important where a site does not have access to existing open space in accordance with the distance thresholds (see Appendix A to this section). The new provision should be within the distance threshold for the type of public open space to be provided. For example, if a developer is to provide a children's play area of 100 sq m this should be provided within 50 m walking distance of the development, if amenity open space is to be provided, this should be a maximum of 280 m from the development. If the developer is to provide for a new formal recreation area such as a multi-use games area, this should be provided within 1,200 m of the development.
- 11.32 We will accept the provision of public access to an existing open space that currently has restricted access as a contribution to off-site public open space provision.

Providing a financial contribution in lieu of direct provision

- 11.33 The Council may agree to accept financial contributions in place of direct provision of new public open space where the development site is too small to incorporate on-site open space and the densely built up character of Camden prevents direct provision of off-site public open space. Financial contributions may be used for:
- The creation of an area of public open space, including buying additional land or leasing it at a nominal rate;
 - Improving access to existing public open space;
 - Opening up access to existing private open space;
 - Fit out of a new or existing open space, or some elements of the open space; and
 - Qualitative improvements to existing open space.
- 11.34 Financial contributions may be pooled to create, fit out, improve or provide access to open space. For example, where the Site Allocations Document indicates that new public open space is required on a development site, contributions from other developments within 280 m may be pooled to facilitate the creation of the new public open space.
- 11.35 Financial contributions are calculated on the basis of the costs and requirements set out in Figure 6.. We will aim to spend the collective amount in the proportions set out in Figure 6 and within the same ward as the contributing development where possible. However individual financial contributions will be spent on priorities identified in:
- Camden's open space, sport and recreation study update 2008;
 - Camden's open space strategy;
 - Camden's biodiversity action plan;
 - Camden's play strategy;
 - Camden's sport strategy;

- Individual park management plans.

11.36 A financial contribution is based on the:

- Capital cost of providing new public open space;
- Cost of maintenance for the first 5 years; and
- Cost for the open space team to administer the contribution and design schemes.

Figure 6. The financial contributions

	Capital cost	Maintenance	Design and admin
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			
Per 1,000 sq m	£1,265	£1,284	£152

- 11.37 These aggregate contributions are based on provision of public open space, natural green space and (where applicable) children's play space. Specific contributions to allotments and community gardens and to outdoor sport and recreation provision will be sought on a case by case basis depending on whether there are opportunities to add to provision or are local facilities that need to be maintained.
- 11.38 The calculation of the aggregate contributions is set out in Appendix C to this section. Appendix C includes break down of the capital cost by open space type. This may be needed for developments where a proportion of the open space requirement is met on site or where adequate open space of some types is already available locally.
- 11.39 Payments for maintenance and design and administration are explained in paragraphs 11.45 to 11.50. They have not been aggregated with capital costs as payments will sometimes be required need to be calculated separately (eg where open space will be provided by the developer but maintained by the Council. The Council may also wish to draw separately on funds for capital works, funds for maintenance and funds for design and administration.
- 11.40 The contributions may be adjusted upwards or downwards according to the particular circumstances of the development. They provide a starting

point for negotiations between the Council and developers. The scale of financial contributions will be reviewed and updated as appropriate.

- 11.41 Appendix D to this section sets out worked examples showing the contributions required for a number of different development types and sizes.

Providing a combination of open space provisions

- 11.42 Your development may contribute to public open space through one of the ways listed above or by a combination of them. To determine the amount and type of public open space you are expected to provide, either on-site or off-site we will consider the:

- Type and size of the existing public open space provision within the distance threshold of your development; and
- Size and likely users of your development.

- 11.43 For example, if you propose a residential development located within 280 m of a small local park you may not be required to contribute to amenity open space, but may still be required to contribute to children's play facilities or a formal recreation area if suitable facilities do not exist within the distance threshold of the development.

- 11.44 In all cases a legal agreement will be required to secure the ongoing use of the open space provided as public open space, or to secure the financial contribution in lieu of direct provision.

Maintenance

On or off-site provision

- 11.45 Where you provide a contribution towards public open space outdoor sport or recreation facilities (either on-site or off-site), the Council will need to be satisfied that it has been properly laid out and completed and that suitable contractual arrangements for its long-term maintenance have been put in place. If you provide new public open space (either on-site or off-site) you will be expected to transfer the space to the Council to maintain and retain for such use.
- 11.46 Where your new public open space is to be transferred to us, you will normally be required to remain responsible for its maintenance for an initial establishment period of 5 years. After this time, we will take full responsibility for the maintenance of that public open space.

Financial contribution

- 11.47 If you make a financial contribution in lieu of direct provision, whether it is for substantial qualitative or accessibility improvements to existing sites already maintained by the Council or for the provision of a new public open space, we will expect you to provide a commuted sum for the maintenance of these facilities for a period of five years.
- 11.48 Where your new public open space is not to be transferred to the Council a commuted sum for maintenance will not be required. However,

if you choose to retain control of your public open space, we will need to be sure that adequate provision for the maintenance and access of that public open space is in place.

- 11.49 In ALL cases a legal agreement will be required to secure the maintenance of public open space over a defined period or to secure the financial contribution in lieu of direct maintenance.

Design and administration

- 11.50 For payments in lieu of providing public open space, on-site or off-site payments we will also require a 12% contribution towards the costs of our open space team to administer the financial contribution and to plan and design works within our open spaces.

Further information

Open Space, Sport And Recreation Study	Camden's open space, sport and recreation study update 2008 provides an assessment of open space, sport and recreation provision and demand in the borough. www.camden.gov.uk/planning
Biodiversity Action Plan	Camden's Biodiversity Action Plan provides Camden's priorities for improving our greenspaces and biodiversity. www.ukbap-reporting.org.uk/plans/lbap.asp
PPS17	Planning Policy Guidance 17 – Planning for open space and its companion guide provide policy and guidance for the provision of open space including the quantitative and qualitative considerations. www.communities.gov.uk
Mayor of London's Supplementary Planning Guidance	The Mayor of London's Supplementary Planning Guidance Providing for children and young people's play and informal recreation provides guidance and examples of how to incorporate space for children and young people. http://legacy.london.gov.uk/

Appendix A

Public Open Space Deficiency

Figure 7 shows the maximum distance that people can reasonably be expected to travel on a regular basis to use different types of open space. Amenity open space and children’s play space should be available within easy walking distance of the development to which they relate. People are generally willing to travel further to use recreation areas providing outdoor sport facilities or to larger parks.

Figure 7. Distance threshold for different types of public open space

Type of public open space	Minimum size (where applicable)	Distance from development to public open space
Public amenity open space		280m*
Formal recreation area		1.2 km
Play Space		
LAP	100sq m	50m*
LEAP	400sq m	280m*
NEAP	1000sq m	500m*
Natural greenspace	Any	500m
Allotments and community gardens	Any	Any

*This distance is the actual walking distance, taking into account local circumstances, such as the location of entrance gates, street patterns, the severance effects of railway lines or heavy traffic flows that could all reduce the accessibility of open spaces.

(Based on Guide to preparing Open Space Strategies: Best practice guidance of the London Plan, Mayor of London, 2002)

Camden Core Strategy Map 7 shows areas of the borough that are deficient in public open space.

AREAS DEFICIENT IN PUBLIC OPEN SPACE

Areas more than 280m walking distance away from a public open space with a multi-functional role, that is a space over 0.25ha (2,500sq m).

Core Strategy policy CS13 also refers to areas with an under-provision of open space. These are areas with access to open space, but the provision is not sufficient to meet the level of local need due to the number of children, dwelling density, and social disadvantage in the area. These are shown in Figure 4.4 of Camden’s Open Space, Sport and Recreation Study Update.

Both components are needed to ensure that everyone is within an appropriate distance of public open space based upon their needs and to ensure that people are not prevented from accessing that open space as a result of prohibitive costs. Contributions to open space will be

encouraged within the distance thresholds for the particular type of open space to be provided.

Paragraph 15.18 of Camden's Core Strategy indicates that residents and visitors further than 1 km away from a metropolitan or borough Site of Nature Conservation Importance (SNCI) are considered to have poor access to the natural environment. Core Strategy Map 8 shows all areas greater than 500 m from an SNCI as deficient in access to nature conservation areas.

AREAS DEFICIENT IN NATURE CONSERVATION SITES

Areas more than 500m walking distance away from a Borough or Metropolitan level Site of Nature Conservation Interest.

Appendix B

Occupancy rate by development type

The Camden Open Space, Sport and Recreation Study Update 2008 recommends calculating occupancy rates and child yields on the basis of the London Housing Survey 2002 and DMAG briefing 2005/25. The occupancy rates are shown in Figure 8.

Figure 8. Occupancy rate for C3 homes based on the London Housing Survey and DMAG briefing 2005/25

Self-contained homes in Use Class C3	Total persons	Children (average)	Adults (net)
One bedroom home	1.3	0.04*	1.3
Two bedroom home	1.9	0.25	1.65
Three bedroom home	2.8	1.15	1.65
Four bedroom home	3.1	1.44	1.66

Source: Camden Open Space, Sport and Recreation Study Update 2008.
*The average child yield for a one bedroom home equates to 1 child per 25 homes, which would not generate a meaningful play space requirement, and has been treated as 0.

Occupancy rates for student housing, hotels and hostels are assumed to be one person per single bedroom and two people per double bedroom.

The study recommends assuming an employee density of one worker per 19 sq m (gross external area) for commercial floorspace. This generates an occupancy rate of 52.6 employees per 1,000 sq m (gross external area). Non-residential developments for higher education are considered to generate the same number of occupants (including employees and students) as commercial developments.

Appendix C

Calculation of financial contributions

This appendix shows how we have calculated the financial contributions for provision or enhancement of public open space.

In addition to this capital cost, you will be expected to pay a commuted sum to cover:

- Maintenance of the facility and open space provision over a 5 year period; and
- Designing the new open space works and administering the financial contribution by Camden's open space team.

Figure 9. Capital cost of provision

Type of public open space	Capital cost
Amenity open space	£46.22 per sq m
Children's play space and young people's recreation space	£199.48 per sq m
Natural and semi-natural greenspace	£16.42 per sq m
Allotments/Community Gardens	£32.50 per sq m

Source: Camden Open Space, Sport and Recreation Study Update 2008

Figure 5 sets out the break down of open space requirements for developments of specific sizes. The capital costs have been aggregated in accordance with Figure 5 as set out in Figure 10.

Figure 10. Calculation of financial contribution to capital cost

Capital cost per square metre	Amenity open space £46.22 psm	Children's play space £199.48 psm	Natural green space £16.42 psm	Total (amenity space + play space + green space)
Self-contained homes in Use Class C3				
One bedroom home: space required	6.5 sq m		5.2 sq m	
Space required x cost per square metre	£300		£85	£385
Two bedroom home: space required	9.2 sq m	0.6 sq m	7.2 sq m	
Space required x cost per square metre	£425	£120	£118	£663
Three bedroom home: space required	12.8 sq m	2.9 sq m	9.5 sq m	
Space required x cost per square metre	£592	£578	£156	£1,326
Four bedroom home: space required	14.1 sq m	3.6 sq m	10.2 sq m	
Space required x cost per square metre	£652	£718	£167	£1,537
Student housing, hotels and hostels				
Single room: space required	5 sq m		4 sq m	
Space required x cost per square metre	£231		£66	£297
Double room: space required	10 sq m		8 sq m	
Space required x cost per square metre	£462		£131	£593
Commercial/ higher education development				
Space required per 1,000 sq m	21.0 sq m		17.9 sq m	
Space required x cost per square metre	£971		£294	£1,265

Contributions to maintenance costs

In addition to capital costs, the Council has established a maintenance cost of £6.60 per square metre per year, based on the 2006 Parks and Open Spaces Budget, plus inflation.

The standard length of time developers should provide for maintenance of new and enhanced public open space is 5 years.

Commuted sums for maintenance of public open space are calculated as follows: open space requirement (sq m) x £6.60 x 5. This equates to £33 per square metre of open space required.

Contributions to the cost of design and administration

Design and administration costs have been assessed as 12% of the capital cost of the open space provision or contribution.

Appendix D

Worked Examples

Worked Example 1:

Public open space provision for self-contained homes (C3)

A residential development of 16 new homes provides the following mix of dwelling sizes: 3 x 1-bedroom, 8 x 2-bedroom, 4 x 3-bedroom and 1 x 4-bedroom. The open space requirement can be calculated as follows:

Home size	No of homes	x open space requirement per home (sq m) from Figure 5	= total requirement (sq m)
One bedroom home	3	11.7	35.1
Two bedroom home	8	17.0	136.0
Three bedroom home	4	25.2	100.8
Four bedroom home	1	27.9	27.9
Total for all homes	16		299.8

The total open space requirement for this 16 home scheme would be approximately 300 sq m.

Worked Example 2:

Public open space provision for non-residential development

An office development provides 1,500sq m of additional floorspace. The open space requirement can be calculated as follows:

Additional floorspace	÷ 1,000 to give floorspace in thousands of sq m	x open space requirement per 1,000 sq m from Figure 5	= total requirement (sq m)
1,500 sq m	1.5	38.9	58.35

The total open space requirement for this additional non-residential floorspace would be approximately 60 sq m.

Worked Example 3:

Payment in lieu of open space provision for non-residential development – capital costs

As per example 2, an office development provides 1,500 sq m of additional floorspace. The payment in lieu of open space provision can be calculated as follows:

Additional floorspace	÷ 1,000 to give floorspace in thousands of sq m	x capital cost per 1,000 sq m from Figure 6	= total payment for capital costs
1,500 sq m	1.5	£1,265	£1,897.50

The payment in lieu of open space provision for this additional non-residential floorspace based on capital costs would be £1,897.50. However, we would also expect payments towards maintenance and design and administration – see example 5.

Worked Example 4

Payment in lieu of open space provision for student housing – capital costs

A student housing scheme provides 30 single rooms and 10 double rooms. The payment in lieu of open space provision can be calculated as follows:

Bedroom type	No of bedrooms	x capital cost per bedroom from Figure 6	= total payment for capital costs
Single	30	£297	£8,910
Double	10	£593	£5,930
Total for all bedrooms	40		£14,840

The payment in lieu of open space provision for this student housing based on capital costs would be £14,840. However, we would also expect payments towards maintenance and design and administration – see example 5.

Worked Example 5

Payment in lieu of open space provision for self-contained homes (C3) – all costs

A residential development of 5 new homes provides the following mix of dwelling sizes: 1 x 1-bedroom, 3 x 2-bedroom, 1 x 3-bedrooms. The total payment in lieu of open space provision can be calculated in 4 stages

Stage 1 – Capital costs

Home size	No of homes	x capital cost per home from Figure 6	= total payment for capital costs
One bedroom home	1	£385	£385
Two bedroom home	3	£663	£1,989
Three bedroom home	1	£1,326	£1,326
Total for all homes	5		£3,700

The payment in lieu of open space provision for this 5 home scheme based on capital costs would be £3,700.

Stage 2 – Maintenance costs

Home size	No of homes	x maintenance cost per unit from Figure 6	= total payment for maintenance
One bedroom home	1	£386	£386
Two bedroom home	3	£561	£1,683
Three bedroom home	1	£832	£832
Total for all homes	5		£2,901

The payment in lieu to cover maintenance of new or enhanced open space for this 5 home scheme would be £2,901.

Stage 3 – Design and administration costs

Home size	No of homes	x design and administration cost per unit from Figure 6	= total payment for design and administration
One bedroom home	1	£46	£46
Two bedroom home	3	£80	£240
Three bedroom home	1	£159	£159
Total for all homes	5		£445

The payment in lieu to design and administration for new or enhanced open space for this 5 home scheme would be £445.

Stage 4 – Sum of all costs

The three separate types of costs will not usually be aggregated for the Council's purposes (see paragraph 11.39). However, for the guidance of developers, the three costs can be added together.

In this example, the total cost to the developer would be:

Capital costs	£3,700
+ maintenance costs	£2,901
+ design and administration costs	£445
= grand total	£7,046

12 Planning for healthy communities

KEY MESSAGES:

- Planning has a significant role in improving health;
- Applicants should consider the impact of the development on health;
- Applicants should submit a completed health checklist with applications.

- 12.1 It is widely recognised that the health and well-being of individuals is directly influenced by a number of related factors. These include:
- housing;
 - employment;
 - education;
 - access to green and open spaces;
 - social capital and community cohesion;
 - climate change and sustainability;
 - community safety;
 - building and urban design;
 - air and noise pollution;
 - diet and food;
 - waste; and
 - other factors.
- 12.2 Planning and the built environment have a significant role in influencing, both directly and indirectly, all of these health determinants.
- 12.3 In the UK, the 2010 Marmot review, Fair Society and Healthy Lives, also identified a number of recommendations to help deliver one of its objectives to: create and develop healthy and sustainable places and communities. These include:
- active travel;
 - provision of good quality open and green spaces;
 - improving the food environment;
 - energy efficiency of housing; and
 - to fully integrate planning, transport, housing, environmental and health systems to address the social determinants of health.



12.4 Camden's Core Strategy reflects health across the strategy as a cross-cutting theme and so almost all the policies in the Core Strategy will have an impact on health. For example, the following policies all have an influence on health and well-being:

- CS6 - *Providing quality homes;*
- CS15 - *Protecting and improving our parks and open spaces and encouraging diversity;* and
- CS11 - *Promoting sustainable and efficient travel.*

12.5 Policy CS16 - *Improving health and well-being* brings these policies together to ensure they are all working to tackle health inequalities and improve well-being. CS16 also sets out how we will work with NHS Camden to improve and protect health and also support the provision of new health facilities.

12.6 The following Core Strategy policies are also relevant as they work together to promote health and improve well-being:

- CS8 - *Promoting a successful and inclusive Camden economy,*
- CS10 - *Supporting community facilities and services,* and
- CS17 - *Making Camden a safer place.*

12.7 The following policies of the Camden Development Policies are also relevant:

- DP15 - *Community and leisure uses;*
- DP26 - *Managing the impact of development on occupiers and neighbours;* and
- DP32 - *Air quality and Camden's Clear Zone.*

Creating healthy communities

12.8 Where possible developments should:

- Encourage walking and cycling;
- Discourage car use to reduce emissions and accidents;

- Provide landscaping, planting and trees to improve air quality and quality of life;
- Provide adequate amenity space for visual and physical recreation;
- Ensure a mix of uses within or near the residential area to reduce the need to travel; and
- Improve the environmental quality of buildings to ensure buildings stay warm in winter and cool in summer.

The NHS Camden Health Checklist for Planning

- 12.9 This guidance is designed to complement policy 3.2 of the London Plan which requires Health Impact Assessments for major developments, and consideration of the health impacts of development to ensure major new development promotes public health within our borough.
- 12.10 The NHS Camden health checklist for planning has been developed to ensure that health is a key consideration within new developments. The checklist provides support and guidance for developers in order to maximise the health benefits of any scheme. The NHS Camden Health Checklist for Planning is contained in Appendix 1 of this section.
- 12.11 We will require a completed health checklist to be supplied alongside all applications for all developments which meet the following criteria:
- More than 10 residential units, including changes use and new dwellings
 - More than 1,000sq m of non-residential floor space
 - Loss/gain of D1 floorspace of more than 50sq m

Hot food takeaways (A5 uses)

- 12.12 The document *Healthy Weight, Healthy Lives: A Cross Government Strategy for England*, published by the government in January 2008 highlights the commitment to promoting healthier communities. A key element of this strategy is the promotion of healthier food choices. The document highlights the need for local authorities to manage the proliferation of fast food outlets as a means of combating their known adverse impact on community health.
- 12.13 Core Strategy policy CS7 and policy DP12 of the Camden Development Policies, along with Camden Planning Guidance 5 - Town Centres, Retail and Employment aim to manage the number and concentration of food, drink and entertainment uses, including hot food takeaways. The measures we use include:
- limiting the number of A5 units in centres and rows of shops (frontages);
 - preventing consecutive takeaway shops opening next to one another;
 - only allowing new A5 uses in appropriate locations where their impact can be minimised; and

- using legal obligations to ensure that impacts are controlled e.g. opening hours.

12.14 Please see section 5 on town centres, retail and entertainment uses in Camden Planning Guidance 5.

Assessing the requirement for new health facilities

12.15 Health facilities include hospital and other premises that provide health and medical services such as doctors, integrated care centres, polyclinics and dentists. Camden Core Strategy policy CS10 aims to ensure that sufficient community facilities (including health facilities) are provided to meet the needs of Camden's population. Policy CS16 specifically aims to ensure that there is adequate provision of health facilities in partnership with NHS Camden.

12.16 Part e) of CS10 expects development that increases the demand for community facilities and services to make appropriate contributions towards providing new facilities or improving existing facilities. These contributions could be financial or they could involve the direct (re)provision of health facilities within or near a proposed development site.

12.17 The Council will consult with NHS Camden to assess the appropriate level and type of contribution required to mitigate any health care impacts which might be generated by a development proposal. The Council will also have regard to the model commissioned by the Healthy Urban Development Unit (HUDU), updated October 2009. The model is designed to forecast the level of demand for health facilities that might result from a new development and the subsequent cost of provision. Large, strategic schemes will be expected to assess the impact of visitors and employees in addition to the new and existing resident population. In other cases, contributions will not normally be sought for developments of less than 10 residential units.

12.18 Please see Camden Planning Guidance 8 – *Planning obligations* for our detailed approach.

Further information

PPS1	PPS1 - Delivering Sustainable Development indicates that LDF policies should plan to protect human health and address accessibility for all members of the community to a range of facilities including health, leisure and community services. It also states that LDF documents should deliver safe, healthy and attractive places to live and support the promotion of health and wellbeing by making provision for physical activity.
PPS23	PPS 23 - Planning and Pollution Control states that potential health impacts arising from development can be a material consideration.
The London Plan	The London Plan (consolidated since 2004) published in 2008 recognises health as a key cross-cutting objective of the overall strategy. The Plan also contains the following relevant policies: <ul style="list-style-type: none"> • Policy 3A.20 Locations for health care • Policy 3A.21 Health objectives • Policy 3A.22 Medical excellence
Mayor's Guidance	<ul style="list-style-type: none"> • Health Issues in Planning: Best Practice Guidance (June 2007) – explains how planning decisions can directly and indirectly improve health and reduce health inequalities through a number of topics, e.g. housing, transport, employment and skills, education etc. • Sustainable design and Construction (May 2006) – recommends a number of building specific measures to benefit the health of occupants, e.g. improving internal air quality, ensuring sufficient levels of natural light etc.
CABE	Commission for Architecture and the Built Environment. (2009). Future health: sustainable places for health and wellbeing.
Key determinants of health	Search on the London Health Observatory: www.lho.org.uk
Healthy Urban Development Unit	Guidance on linking planning and health: www.healthyurbandevelopment.nhs.uk/pages/key_docs/key_documents_hudu.html

Appendix 1: NHS Camden health checklist for planning

Issue to address	Included in proposal/development	Provide details (Evidence from proposals)	Further action required	Relevant LDF policies
1.0 HEALTHCARE FACILITIES AND SERVICES				
1.1 Will the development increase demand on existing primary and secondary care health services?	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core strategy policy CS16
2.0 PHYSICAL ACTIVITY				
2.1 Do the proposals maximise physical activity opportunities? (Active travel; leisure facilities; access to green and open spaces; HomeZones; schools; business; Olympics etc)	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policies, CS11, CS15, CS16 and Development Policies DP15, DP17, DP31
3.0 CRIME AND COMMUNITY SAFETY				
3.1 Have measures been taken to ensure that the proposals will not have a negative impact on crime and community safety? (Licensed premises; drugs & alcohol; road traffic injuries; etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policy CS17
4.0 HOUSING				
4.1 Do the proposals include housing which is: affordable, in mixed use developments; mixed tenure (private, affordable, social); different sizes, accessible and suitable for all ages.	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policy CS6 and Development Policies DP1-9
5.0 EMPLOYMENT AND TRAINING				
5.1 Do the proposals provide employment and training opportunities for local people?	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policy CS8 and Development Policy DP13
6.0 EDUCATION				
6.1 If education facilities are provided, will they be designed to include wider community use and include green and open space?	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policy CS10
7.0 NEIGHBOURHOOD AND BUILDING DESIGN				
7.1 Do the proposals include: accessible street designs for older people and people with mobility problems; and gardens allotments or play areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policies CS14 and CS15
7.2 Do proposals ensure that buildings are designed to maximise physical activity (positioning of stairwells, shower rooms, secure cycle parking etc)	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy policies CS11, CS16 and Development Policies DP6, DP17, DP24
8.0 CLIMATE CHANGE AND SUSTAINABILITY				
8.1 Do the proposals mitigate against a negative impact on the environment (noise & air quality; renewable energy; contaminated land; waste management etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			Core Strategy Policy CS13 and Development Policy DP22
9.0 FOOD				
9.1 Do the proposals include provision of affordable and nutritious food outlets, food growing and limit the proliferation of fast-food outlets?	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			CS16
10.0 WIDER ASSESSMENT				
10.1 Have the health impacts been considered as part of any other assessment? (SEA, HIA, IIA, EIA etc)	<input type="checkbox"/> Yes <input type="checkbox"/> No (if no, please indicate what further action will be required)			n/a

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