



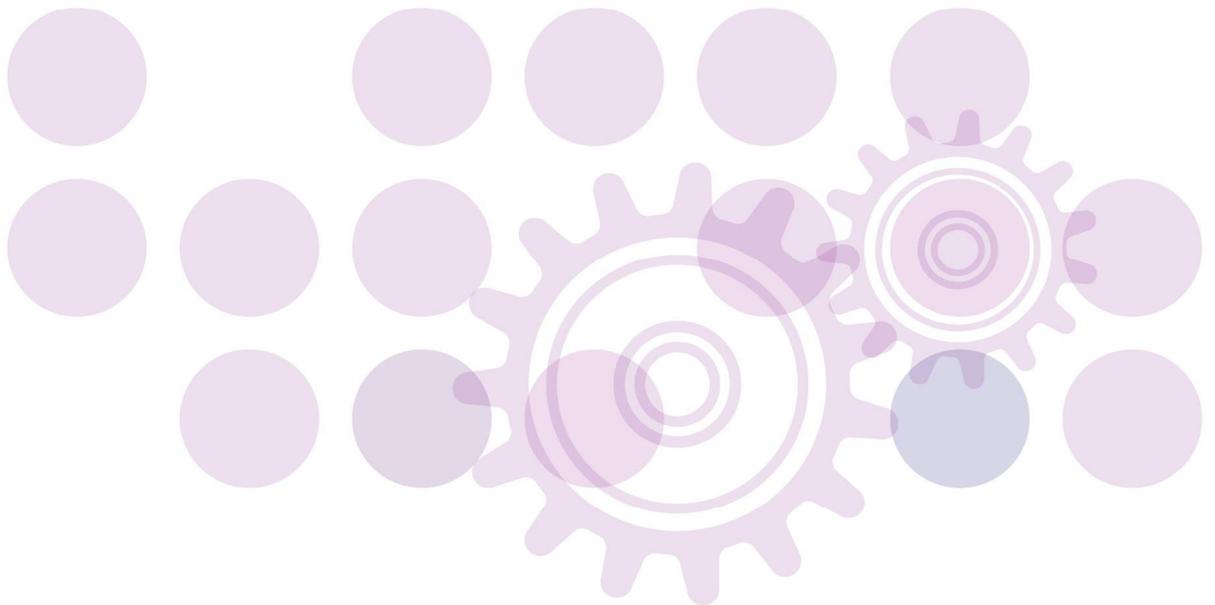
spd

supplementary planning document

Brighton & Hove City Council's Local Development Framework

Yet to be adopted

annex to sustainable building design SPD





Contents

	Page number
Section 3 - Appendices	
3.1. Summary table	3
3.2. Zero carbon development	4
3.2.1. Why pursue zero carbon development in housing?	4
3.2.2. How can zero carbon development be achieved?	6
3.3. Off-site minimisation of 'urban heat island effect'	11
3.3.1. What is urban heat island effect?	11
3.3.2. Why should developments contribute towards off-site measures to minimise impact?	12
3.3.3. How can contributions be calculated?	13
3.4. Implementation and monitoring	15
3.5. Detailed policy guide	15
3.6.1. International documents	15
3.6.2. National documents	15
3.6.3. Regional documents	19
3.6.4. Local documents	20
3.6. Glossary	22



3.1. Summary table

Householder and small-scale developments	<ul style="list-style-type: none"> ▪ New residential and/or mixed-use developments with 2 or fewer residential units; or ▪ residential extensions, conversions and changes of use and/or mixed-use developments numbering 2 or fewer residential units; or ▪ retail of 150 sq m or less; or ▪ any other development of 235 sq m or less. 	
	Development type	What is recommended
	New build residential (including mixed-use)	<ul style="list-style-type: none"> ▪ Sustainability Checklist; and ▪ Level 3 of the Code for Sustainable Homes (CSH).
	Residential involving existing buildings (including mixed-use, conversions and extensions)	<ul style="list-style-type: none"> ▪ Sustainability Checklist; ▪ EST Home Energy Report; ▪ reduction in water consumption; and ▪ minimisation of surface water run-off.
	Non-residential (including new build, conversions and extensions)	<ul style="list-style-type: none"> ▪ Reduction in energy and water use.
Medium-scale developments	<ul style="list-style-type: none"> ▪ New residential and/or mixed-use developments numbering 3 to 9 residential units; or ▪ residential extensions, conversions and changes of use involving 3 to 9 residential units; or ▪ retail between 151 and 999 sq m; or ▪ any other development between 236 and 999 sq m.. 	
	Development type	What is recommended
	All	<ul style="list-style-type: none"> ▪ Minimise 'heat island effect' via contribution towards off-site tree planting; and ▪ Considerate Constructors Scheme.
	New build residential (including mixed-use)	<ul style="list-style-type: none"> ▪ Zero net annual CO₂ from energy use; ▪ Sustainability Checklist; ▪ Level 3 of the Code for Sustainable Homes (CSH); and ▪ Lifetime Home Standards.
	New build non-residential	<ul style="list-style-type: none"> ▪ 50% in energy and water sections of relevant BREEAM assessment within overall 'Very Good'.
	Residential involving existing buildings (including mixed-use, conversions and extensions)	<ul style="list-style-type: none"> ▪ No additional net annual CO₂ emissions from new development; ▪ Sustainability Checklist; and ▪ EcoHomes for refurbishment.
	Non-residential involving existing buildings (including conversions and extensions)	<ul style="list-style-type: none"> ▪ No additional net annual CO₂ emissions from new development; and ▪ reduction in water consumption; and ▪ minimisation of surface water run-off.
Major developments	<ul style="list-style-type: none"> ▪ New residential and/or mixed-use with 10 or more residential units; or ▪ residential extensions, conversions and changes of use with 10 or more residential units; or ▪ any other over 1,000 sq m or being developed on a site of 0.5ha or more. 	
	Development type	What is recommended
	All	<ul style="list-style-type: none"> ▪ Minimise 'heat island effect' via contribution towards off-site tree planting; and ▪ Considerate Constructors Scheme.
	New build residential (including mixed-use)	<ul style="list-style-type: none"> ▪ Zero net annual CO₂ from energy use; ▪ Sustainability Checklist; ▪ Level 4 of the Code for Sustainable Homes (CSH); ▪ feasibility study on rainwater harvesting and grey water recycling systems; and ▪ Lifetime Home Standards.
	New build non-residential	<ul style="list-style-type: none"> ▪ 60% in energy and water sections of relevant BREEAM assessment within overall 'Excellent'; and ▪ feasibility study on rainwater harvesting and grey water recycling systems.
	Residential involving existing buildings (including mixed-use conversions)	<ul style="list-style-type: none"> ▪ No additional net annual CO₂ emissions from new development; and ▪ Sustainability Checklist; and ▪ EcoHomes for refurbishment.
	Non-residential involving existing buildings (including conversions)	<ul style="list-style-type: none"> ▪ No additional net annual CO₂ emissions from new development; and ▪ reduction in water consumption; and ▪ minimisation of surface water run-off.
Greenfield	<ul style="list-style-type: none"> ▪ Land or site that has not previously been developed. 	
	Development type	What is recommended
	All	<ul style="list-style-type: none"> ▪ Zero annual net CO₂ from energy use; ▪ minimise 'heat island effect' via contribution towards off-site tree planting; and ▪ Considerate Constructors Scheme.

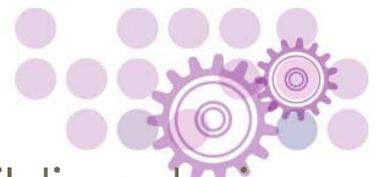


sustainable building design

Brighton & Hove City Council's Local Development Framework

	New build residential (including mixed-use)	<ul style="list-style-type: none"> ▪ Sustainability Checklist; ▪ Level 5 of the Code for Sustainable Homes (CSH); and ▪ Lifetime Home Standards.
	New build non-residential	<ul style="list-style-type: none"> ▪ 70% in energy and water sections of relevant BREEAM assessment within overall 'Excellent'; and ▪ submit feasibility study on rainwater harvesting and grey water recycling systems.

*** Planning applications involving residential new build and conversions that are not accompanied by a completed sustainability checklist will be considered invalid. For further details/advice please visit www.brighton-hove.gov.uk/sustainability-checklist**



3.2. Zero Carbon development

The Sustainable Building Design SPD encourages **all new development that includes housing units of 3 or more (including conversions) to be zero carbon.**

Key drivers are the delivery of local, regional and national targets for reduction in CO₂ emissions by ensuring that new homes in the city do not increase the city's carbon emissions in particular.

Zero carbon development is here defined as development that has a very high standard of energy efficiency and uses low and/or zero carbon technologies so that once the building is in operation, it emits no net annual carbon dioxide (CO₂) emissions from space and water heating, lighting and use of appliances.

This section of the SPD provides details regarding the delivery of zero carbon development by looking at:

- reasons for pursuing zero carbon development in housing;
- how zero carbon development can be achieved;
- how planning applicants can demonstrate compliance ; and
- what happens if zero carbon development cannot be delivered on particular sites.

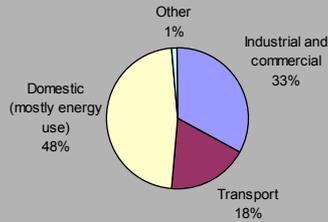
3.2.1. Why pursue zero carbon development in housing?

There are various drivers and challenges supporting this approach. National and regional drivers are:

- Government's 2007 Climate Change Bill legally binding targets to reduce carbon dioxide (CO₂) emissions by at least 26-32% by 2020 and 60% by 2050 against 1990 levels;
- Planning Policy Statement 1: Delivering Sustainable Development states that local planning authorities should ensure development plans contribute to global sustainability by addressing the causes and potential impacts of climate change;
- Supplement to PPS1 on Climate Change pledges to reduce emissions and stabilise climate change;
- Building a Greener Future policy statement and Code for Sustainable Home strategy towards achieving zero carbon new homes by 2016; and
- South East Plan policies on sustainable resource



management, particularly sub-regional targets for land-based renewable energy.



Brighton & Hove CO2 emissions by sector

(source: B&H refreshed 2020 Community Strategy)

Challenges for Brighton & Hove

The main local driver is the refreshed 2020 Community Strategy that pledges to reduce emissions in the city by 3.5% each year from 2006 to 2020¹. This does not anticipate new additions to current emissions arising from growth, including the domestic sector which, in 2003-2004, accounted for 48% of emissions in the city (mostly from energy use)². In order to meet Community Strategy targets:

- existing homes need to reduce CO₂ emissions by around 1.7% every year or 20% over the next 12 years; and
- any new build would need to be zero carbon or carbon neutral, that is, deliver zero 'net [annual] carbon emissions from energy use'³.

The delivery of CO₂ reduction targets in the Brighton & Hove context is presented with a particular set of challenges.

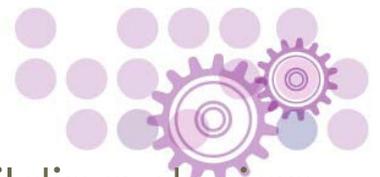
- Nearly 50% of the city's emissions come from energy use in homes⁴ (national average is 42%⁵).
- National strategy leading to zero carbon homes in 2016 focuses on new homes. In Brighton & Hove these account on average for only 0.3% of the total number of households delivered via the planning system in the city each year (national average of 1%⁶).
- Unlike cities or large towns with a significant industrial legacy, vacant or derelict land Brighton & Hove has limited options for expansion. Intensification of existing buildings and small-scale development accounts for a significant share of units delivered via the planning system (of all housing units delivered between 2000 and 2007, 46% resulted from changes of use and/or conversions of existing buildings and over half from developments involving 9 or less units⁷).
- Brighton & Hove is a historic city with extensive Regency and Victorian architecture and an age profile of private sector housing stock that is much older than the national

¹ According to B&HCC Sustainability Team the baseline data for calculations was 2003-2004.

² In the UK, the domestic dwelling stock currently accounts for 27% of all CO₂ emissions (Barton Willmore Guidance Note in

<http://www.bartonwillmore.co.uk/publications/Guidance%20Note%20-%20Renewables.pdf>

³ DCLG (2006) *Building a Greener Future: Towards Zero Carbon Development – consultation document* in www.communities.gov.uk, p. 3.



profile with larger proportions of the stock built before 1919 and during the inter-war period (Brighton & Hove - 69%; England - 43%⁸).

⁴ Refreshed 2020 Community Strategy, 2003-2004 baseline.

⁵ Energy Review Report 2006, 2004 baseline.

⁶ UK 2004 Barker Housing Review

⁷ Brighton & Hove City Council, *Housing completions database*, Planning Strategy & Monitoring unit, Jan 2008.

⁸ Brighton & Hove House Condition Survey July 2001 using data from the English House Condition Survey '96



**3.2.2.
How can zero
carbon
development
be
achieved?**

In the face of these challenges, delivering homes of a standard higher than those set at national level is critical to delivering local, regional and national CO₂ reduction targets.

In many ways, the urgency of delivering higher standards in general and 'zero carbon' development in Brighton & Hove is already reflected in the city's planning record.

The ground breaking community centre known as the Brighton Earthship (Stanmer Park) was arguably the first zero carbon development approved by the local planning authority in 2002⁹. In 2007, two zero carbon residential developments were approved: one involved a 16- unit and the other a 172-unit residential development¹⁰. Building is expected to start on the latter in Spring 2008.

Energy efficiency followed by the use of low and zero carbon technologies is a widely accepted way of achieving low carbon emissions in dwellings.

Energy efficiency measures are considered the most cost-effective and easier to achieve. They are largely determined by design principles and as such the earlier they are applied in the design process the greater are the savings which can be achieved. Some of these principles include:

- passive solar design;
- grouped building forms;
- building orientation and landscaping that maximises benefits from natural elements;
- high levels of insulation and airtightness;
- improved heating systems and controls;
- high efficiency condensing boilers;
- efficient lighting equipment and fittings; and
- provision of "A rated" domestic appliances

⁹ Planning application number BH2001/000481.

¹⁰ Planning applications BH2007/00469 and BH2006/01761, respectively.



However, energy efficiency can only go so far towards delivering zero carbon development. The use of low and zero carbon technologies and/or mitigation measures to deliver zero CO₂ emissions are invariably required.

For the purposes of this SPD, low and zero carbon technologies are heat and energy generating technologies which produce no carbon emissions or less than using mains electricity in a conventional way or gas in individual dwellings and boilers to create heat.

Low/zero carbon technologies are sometimes also referred to as microgeneration technologies¹¹, producing heat or energy locally on a small scale. In line with regulatory approach in Building Regulation Part L, Brighton & Hove City Council recognises the value of LZC technologies and not just renewables in delivering CO₂ reductions.

¹¹Microgeneration is defined in the Energy Act 2004 as the small-scale production of heat and/or electricity from a low carbon source. The suite of technologies caught by this definition includes solar (photovoltaics (PV) to provide electricity and thermal to provide hot water), micro-wind (including the new rooftop mounted turbines), micro-hydro, heat pumps, biomass, micro combined heat and power (micro CHP) and small-scale fuel cells.



Zero Carbon technologies harness non fossil fuel energy to create heat or generate electricity, i.e. sun, wind, and water. They are called zero carbon because they produce no carbon dioxide (CO₂) emissions when producing heat or power. These are also referred to as 'renewable' energy sources and include: solar thermal; photovoltaics; wind turbines; and hydropower.

Low Carbon technologies use grid electricity or mains gas to generate heat or power more efficiently, or use fuels that have a small CO₂ footprint (e.g. biofuel). They are called low carbon because they result in lower CO₂ emissions than traditional mains gas or electricity use. These include: geothermal and ground sourced heat pumps (which require electricity to operate pumps); fuel cells (which require electricity to create hydrogen); combined heat and power (CHP) using renewable fuels such as biomass, biodiesel or renewable gas; or other district heating systems. The latter two are sometimes referred to as decentralised or localised energy, as they create heat and/or power local to where they are used.

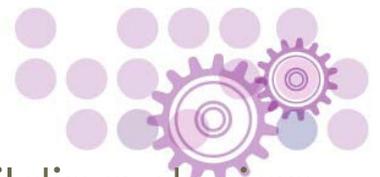
Option 1:
improvements
carried out by
planning
applicants/
developers

In this case, the council will agree with the planning applicant/developer a course of action and secure implementation via Section 106 agreements (Circular 05/2005 on planning obligations)

The planning applicant/developer will have to commit to carrying out one or a set of the following energy efficiency retrofit measures:

- Loft insulation to 300 mm;
- cavity wall insulation
- Draughtproofing;
- Condensing boilers (including boiler itself);
- Improved heating controls; and/or
- Solar water heating.

These measures are considered to have the quickest financial and CO₂ payback. Improvements can be carried out to existing homes in and/or near the site. The planning applicant/developer will be expected to provide evidence of implementation of agreed measures prior to occupation. Other measures such as renewable energy installations may



also be negotiated with the council.

Option 2:
financial
contribution

Alternatively, planning applicants/developers may choose to make a financial contribution to the city council's Section 106 account. This will allow for the council to take up these improvements via its portfolio of home energy efficiency and renewable grants/discount schemes. In order to comply with Circular 05/2005 requirements, such grants/discount schemes will be **available to** all Brighton & Hove residents.

**Contributions
calculator**

The average cost to the planning applicant/developer of off-setting outstanding onsite CO₂ emissions via **financial contributions will vary between £1,006.00 and £2,525.00 per tonne of carbon dioxide (CO₂) saved depending on the capital requirement of the range of measures implemented.**

Such baseline costs are based on the 2005 Building Research Establishment (BRE) study entitled 'Reducing carbon emissions from the UK housing stock. The study considers the potential for large carbon emission reductions emerging from the retrofit measures listed in Option 1 above.¹²

Baseline costs, detailed in the table below, were reached based on an average grant figure of 100% and 50% of the total capital requirement of all measures.

¹² This study was commissioned and funded by the Department for the Environment, Food and Rural Affairs' (Defra's) Climate Change Programme and added to a previous report published in December 2001.



Measure considered	Carbon saved (tonnes/ C/yr)*	Cost saved (£/yr)*	2001 capital cost of measure (£)*	2007 capital costs** (£)	Cost per tonne of Carbon saved per year (2007 values)***	Cost per tonne of Carbon saved per year (2007 values) - excluding solar water heating measure***
Loft insulation to 300mm						
Currently with none	1.236	86.22	273.00	379.47	307.01	307.01
Currently with 50mm or less	0.5478	38.21	254.00	353.06	644.51	644.51
Currently with 75mm	0.2222	15.50	223.00	309.97	1,395.00	1,395.00
Currently with 100mm	0.1614	11.26	211.00	293.29	1,817.16	1,817.16
Currently with 150mm	0.0773	5.39	199.00	276.61	3,578.40	3,578.40
Currently with 200mm	0.0387	2.70	170.00	236.30	6,105.94	6,105.94
Pre-76 Cavity Insulation	1.1492	80.13	325.00	451.75	393.10	393.10
Post-76 Cavity Insulation	0.6753	47.10	325.00	451.75	668.96	668.96
Draughtproofing	0.0813	5.67	110.00	152.90	1,880.69	1,880.69
Condensing boilers (including boiler itself)****	0.6502	45.48		3,200.0 0	4,921.56	4,921.56
Improved heating controls	0.8192	57.38	250.00	347.50	424.19	424.19
Solar Water Heating	0.4211	29.93	2,475.0 0	3,440.2 5	8,169.67	
Average cost at 50% grant					2,525.52	2,012.41
Average cost at 100% grant					1,262.76	1,006.21

* Building Research Establishment/DEFRA publication 'Reducing carbon emissions from the UK housing stock', Appendix A, Table A1, 'Cost-effectiveness analysis for 2001', Published 2005 ISBN 1 86081 752 1. Figures shown are for installation of measures by professionals.

** 2001-2007 inflation rate calculated according to BCIS index = 1.39

*** Excluding solar water heating measures

**** Capital cost of measure provided by contractors of Brighton & Hove City Council's energy efficiency grants, as BRE values are installation only.

Via its energy efficiency and renewable energy grants/discounts the council will seek to deliver the same set of retrofit measures listed in table (same as those listed in Option 1) above in existing homes located in the vicinity of the development. Postcode data made available via the grant/discount schemes will provide the basis for monitoring implementation.

Financial contributions to such grants/discount schemes will be secured via Section 106 agreements and abide by the council's management of such agreements. The Housing Operations and Sustainable Housing teams and the Section 106 Officer will oversee implementation of



**Policy
framework**

contributions.

There are a number of policies supporting the suggested approach towards creating carbon emissions savings in existing homes in the vicinity of the development site:

- Building a Greener Future policy statement and Supplement to PPS1 on climate change urge local authorities to contribute towards reducing emissions (including 2016 zero carbon homes strategy) and stabilising climate change;
- Local Plan Policy SU2 require developments to demonstrate high standard of resource efficiency, particularly 'measures that seek to reduce fuel use and greenhouse gas emissions;
- Circular 5/2005 (Planning Obligations) states that the objective of the planning system is to deliver sustainable development and that obligations are intended, among other things, to secure a contribution from a developer to compensate for loss or damage created by a development or to mitigate a development's impact; and
- item 'h' of Local Plan Policy QD28 denotes 'environmental improvements and their maintenance' as one of the local policy aims that can be sought by means of planning obligations.



3.3. Off-site minimisation of 'urban heat island effect'

The upcoming Nature Conservation SPD details requirements for onsite measures to minimise 'urban heat island effect' via planting.

This SPD considers the impact of development upon immediate surroundings. In order to minimise such impact **all development are encouraged to make one-off financial contributions towards tress and shrub planting schemes at a rate of £14,000 per hectare.**

This section of the SPD details the reasoning behind and justification for such an approach by looking at:

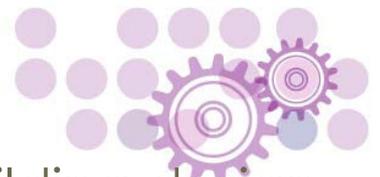
- what is 'urban heat island effect';
- why should developments contribute towards off-site measures to minimise impact; and
- how can contributions to be calculated.

3.3.1. What is urban heat island effect?

On hot days urban areas can have temperatures 20 to 60% higher than the surrounding countryside. This is due to a phenomenon called the 'urban heat island effect' that causes air temperatures in large cities to be warmer than in neighbouring suburbs and rural areas. Warmer air temperatures can impact on air quality, public health and the demand for energy.

Some of the causes are buildings blocking cooling of air at night; the capacity of some surface materials to retain heat and radiate it; and lack of evaporation of water from vegetation. Widespread planting in an urban area can help to decrease local surface and air temperatures while strategic planting directly cools the interior of homes and buildings, decreasing air conditioning costs and peak energy demand.

On-site climate change adaptation measures is supported elsewhere in this SPD as well as in the Trees and Development Sites SPD, the upcoming Nature Conservation SPD and other relevant Local Development Framework (LDF) documents. However, there is also a need to mitigate the wider impact of



3.3.2. Why should developments contribute towards off-site measures to minimise impact?

new development by securing tree and/or shrub planting, particularly in areas of the city where green cover is currently limited and along routes where it is desirable to promote walking.

Although there is much more still to be learned and done about the urban heat island effect in Brighton & Hove, the council considers it is prudent to put in place planting programmes to begin to mitigate against the effects of increasing development in raising urban temperatures by contributing green infrastructure to assist in reducing temperatures.

The UK Climate Impact Programme¹³ produces predictions for climate change scenarios. Raised summer temperatures are included amongst these predictions.¹⁴ The table below shows predictions specific to the South East:

Anticipated climate changes	Relative confidence level	Low emissions scenario	High emissions scenario
Increasing summer temperatures	High	2020's: 1-1.5°C 2050's: 1.5-2.5 °C 2080's: 2.5-3.5 °C	2020's: 1-1.5°C 2050's: 3-3.5 °C 2080's: 4.5+ °C
More frequent extreme high temperatures	High	Increase of up to 14 'extremely' warm days in summer by the 2080's	Increase of up to 30 'extremely' warm days in summer by the 2080's

Table: Anticipated climate changes in the South East of England under the low and high emissions scenarios

The UK is already experiencing the effects of a warming climate in increasing temperatures:

- Global average temperatures have risen by about 0.6°C since the beginning of the twentieth century, with about 0.4°C of this warming occurring since the 1970s;
- The unusually hot summer of 2003 caused severe disruption and an estimated 2,000 excess deaths in the UK. Global climate models indicate that similarly hot summers could be normal within 30–40 years; and
- The summer of 2006 was the longest continuous period of

¹³Climate change data and scenarios for UKCIP are produced by the Tyndall and Hadley Centres. www.ukcip.org.uk

¹⁴ LGA Climate Change Commission: Strengthening local action on climate change interim paper 3 July 2007



Adapting to climate change: reducing the impacts of rising temperatures

Policy framework

hot weather recorded in the UK. The heat wave had significant consequences for human comfort and health, and caused severe disruptions in London when soaring energy demand triggered blackouts¹⁵.

The average changes presented in the table above mask day-to-day variability and extremes, which will be more severe. In urban areas, buildings store heat and contribute to the Urban Heat Island (UHI) effect. A study from Manchester University: 'Adapting Cities for Climate Change'¹⁶ shows significant temperature differences between city centres and their surrounding countryside, but also surface temperature differences of up to 6°C between high and low density suburbs. These differences will become far more pronounced with climate change. Measures need to be found to adapt to inevitable changes to our climate.

The Town and Country Planning Association guide: 'Climate Change Adaptation by Design' asserts the imperative for adaptation to heat risk is greatest in the south and south east. They recommend street trees and green infrastructure for shading and cooling as part of a strategy of adaptation.

In the Good Practice Guide for Sustainable Communities: 'Adapting to Climate Change Impacts' sponsored by DEFRA, GOSE the EA et al, recommendations for planting to provide summer shade and reduce building temperatures is an adaptation measure designed to mitigate against rising temperatures, poor thermal comfort and heat stress in urban areas.

Support for climate change mitigation and adaptation measures is expressed in the following policy documents:

- PPS1 Supplement: Planning & Climate Change¹⁷ sets out how the Planning System should shape sustainable communities that are resilient to the climate change
- The refreshed 2020 Community Strategy pledges to plant

¹⁵ 'Climate Change Adaptation by Design' from the Town & Country Planning Association. http://www.tcpa.org.uk/downloads/20070523_CCA_lowres.pdf

¹⁶ 'Adapting Cities for Climate Change: the role of Green Infrastructure' www.sed.manchester.ac.uk/research/cure

¹⁷ (Supplement to) Planning Policy Statement 1: Planning and Climate Change (consultation document) p 13., www.communities.gov.uk/pub/142/ConsultationPlanningPolicyStatementPlanningandClimateChangeSupplementtoPlanning1_id1505142.pdf



**3.3.3.
How can
contributions
be
calculated?**

**Contribution
calculator**

street and woodland trees to increase the total number; ensure climate change is a strategic consideration of the Local Development Framework and prepare for the impact of climate change for example by planting drought-resistant trees.

A Scrutiny Report on Street Trees¹⁸ by Brighton & Hove City Council noted the benefits to the city provided by street trees: providing canopies for shade; contributing to biodiversity; and helping to reduce air and noise pollution. It recommended that current good practice in encouraging street tree planting in major new developments across the city be continued.

As the data presented below indicates for new developments in Brighton & Hove to mitigate urban heat island effect, **a financial contribution of £14,000 per hectare is recommended.**

Contributions will be secured via Section 106 agreements and abide by Brighton & Hove City Council's management of such agreements. Developers can make a contribution so that tree and/or shrub planting can be delivered by the council via planting schemes.

This contribution is in addition to any requirements for tree planting set out in the Trees and Development Sites SPD, the upcoming Nature Conservation and Development SPD and other relevant LDF documents.

Green planted areas and trees are known to reduce the urban heat island effect. Research undertaken by the University of Manchester indicates that a 10% increase in the existing greencover of the city would help to protect the city against projected temperature changes. No equivalent study has been undertaken for Brighton & Hove, but a similar approach was taken to indicate the scale of planting that would be necessary to stabilise temperatures in the city.

Within the city's built up area there is just under 6,400,000m² of greenspace¹⁹. Taking the University of Manchester's 10% suggested increase as a baseline this would require an

¹⁸ July 2007 'Report of the Street Trees Scrutiny Panel' B&HCC. www.brighton-hove.gov.uk/

¹⁹ Preliminary findings of the B&H Open Space Audit.



additional 640,000m² of greencover. Using trees to create this cover (considering average 10m² canopy spreads) the city would need 64,000 to be planted over the next 50 years.

Considering that there were an estimated 121,180 dwellings inside the city's built up urban area in 2006²⁰, that the average costs of planting and aftercare of a single street tree is £430 and that the average density of new residential development in the city is 67 dwellings per hectare²¹ this would incur a contribution of approximately £14,000 per hectare from all developments (residential as well as other types) to fund planting schemes to mitigate the effects of higher summer temperatures.

In Brighton & Hove, developer contributions to mitigate the impact of 'urban heat island effect' will be secured via Section 106 agreements. The city council will oversee planting and aftercare in the vicinity of the development site.

Contributions will be secured by the local planning authority and monitored by the Section 106 officer. The Arboricultural Services team will manage implementation of contributions.

Implementation emerged as a key concern of participants in the Sustainable Building Design SPD Issues & Options consultation.

There is much about sustainable building design that is new to the UK context, particularly the construction industry. Monitoring emerges as a key tool in assessing effectiveness of and compliance regarding recommended standards as well as steering future revisions of this SPD and other relevant LDF documents and policies.

The Brighton & Hove Sustainability Checklist has been devised to provide the basic means for such assessments, particularly in the case of residential developments which are required to include a completed checklist for validation purposes. The council's Planning Strategy and Monitoring Team will conduct the monitoring and work closely with Development

3.4. Implementation and monitoring

²⁰ PHRG dwelling-led projections, October 2006, 2004b fertility/mortality.

²¹ Land use change statistics (LUCS 21A) Department for Communities and Local Government, October 2006.



Control to assess compliance.

3.5. Detailed policy guide

EU Directive 2002/91/EC on the energy performance of buildings requires an energy-rating certificate to be displayed in all public buildings. The aim is to give building owners and occupiers an incentive to improve energy performance.

Document can be viewed and downloaded from

www.managenergy.net/products/R210.htm

3.5.1 International documents (in alphabetical order)

Kyoto Protocol is an international agreement to reduce greenhouse gas (GHG) emissions. The UK has committed to a 12.5% reduction by 2012. Document can be viewed and downloaded from unfccc.int/kyoto_protocol/items/2830.php

EU Emissions Trading Scheme (2007 Spring European Council meeting) commits to cutting greenhouse gas emissions to 30% by 2020 with the UK signing up to a target of 15% of energy to come from renewable sources by 2020. Document can be viewed and downloaded from

www.defra.gov.uk/news/latest/2008/climate-2301.htm

EU Renewable Energy Roadmap proposes that to establish a mandatory (legally binding) target of 20% for renewable energy's share of energy consumption in the EU by 2020. Document can be viewed and downloaded from ec.europa.eu/energy/energy_policy/doc/03_renewable_energy_roadmap_en.pdf

3.5.2. National documents (in alphabetical order)

Building a Greener Future: policy statement sets out the Government strategy for moving to zero carbon housing by 2016. Further information is available on

www.communities.gov.uk/publications/planningandbuilding/building-a-greener

Code for Sustainable Homes is the single national standard to guide industry in the design and construction of sustainable homes. Its key aim is to drive continuous improvement, greater innovation and exemplary achievement in sustainable home building. Document and technical guide can be viewed and downloaded from

www.planningportal.gov.uk/england/professionals/en/1115314116927.html



Energy White Paper 2003: Our Energy Future - Creating a Low Carbon Economy states that 'UK will achieve CO₂ emission reductions of at least 60 per cent by 2050 and real progress by 2020'. Document can be viewed and downloaded from www.dti.gov.uk/energy/policy-strategy/energy-white-paper-2003/page21223.html

Energy Review 2006: The Energy Challenge sets out the path for the country to overcome the challenges of climate change and security of energy supplies. Document can be viewed and downloaded from www.dti.gov.uk/energy/review/page31995.html

Home Information Packs (HIP) were launched in August 2007. A HIP is a set of documents providing important information about a property such as searches, copies of the deeds and information regarding its energy efficiency. The Energy Performance Certificate is one of a series of required documents that sellers are required provide when they put their property in the market. Further information is available on www.homeinformationpacks.gov.uk

Microgeneration Strategy: Power from the people aims to create conditions under which microgeneration becomes a realistic alternative or supplementary energy generation source for the householder, the community and for small businesses. Document can be viewed and downloaded from www.dti.gov.uk/energy/sources/sustainable/microgeneration/strategy/page27594.html

Nottingham Declaration on Climate Change is a voluntary pledge to address the issues of climate change. It represents a high-level, broad statement of commitment that any council in the UK can make to its own community. The declaration was originally launched in October 2000 at a conference in Nottingham with 200 leaders, chief executives and senior managers of UK local government. More information is available on www.est.org.uk/housingbuildings/localauthorities/NottinghamDeclaration/

Planning and Compulsory Purchase Act 2004 sets out the duty of local planning authorities to 'exercise their functions



with the objective of contributing to the achievement of sustainable development'. Document can be viewed and downloaded from

www.opsi.gov.uk/acts/acts2004/20040005.htm

Planning Policy Guidance (PPG) 24 (Noise) states that 'the impact of noise can be a material consideration' in the determination of planning applications'. Document can be viewed and downloaded from

www.communities.gov.uk/index.asp?id=1144098

Planning Policy Statement (PPS) 1 (Sustainable Development)

states 'sustainable development is the core principle underpinning land use planning'. It sets out overarching policies on how sustainable patterns of development will be implemented through the planning system. Document can be viewed and downloaded from

www.communities.gov.uk/index.asp?id=1143805

Supplement to Planning Policy Statement 1 (Planning and Climate Change)

sets out how spatial planning should contribute to reducing emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation). Document can be viewed and downloaded from

www.communities.gov.uk/documents/planningandbuilding/pdf/ppsclimatechange

Planning Policy Statement (PPS) 3 (Housing) requires that 'high quality housing that is well-designed and built to a high standard is delivered via the planning system'. Document can be viewed and downloaded from

www.communities.gov.uk/index.asp?id=1504592

Planning Policy Statement (PPS) 6 (Town Centres) urges local authorities 'to deliver more sustainable patterns of development, ensuring that locations are fully exploited through high-density, mixed-use development and promoting sustainable

transport choices, including reducing the need to travel and providing alternatives to car use'. Document can be viewed and downloaded from

www.communities.gov.uk/index.asp?id=1501955



Planning Policy Statement (PPS) 9 (Biodiversity) states that 'planning decisions should aim to maintain, and enhance, restore or add biodiversity and geological conservation interests'. Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1143832

Planning Policy Statement (PPS) 10 (Waste) states that 'good design and layout in new development can help to secure opportunities for sustainable waste management, including kerbside collection and community recycling as well as for larger waste facilities'. Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1143834

Planning Policy Statement (PPS) 22 (Renewable Energy) supports the development of renewable energy, improvements in energy efficiency and the development of combined heat and power. It encourages planning to facilitate renewable energy developments and contribute to all elements of the Government's sustainable development strategy. Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1143908

Planning Policy Statement (PPS) 22 (Renewable Energy) Companion Guide offers practical advice as to how development of renewable energy schemes can be implemented on the ground. Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1502772

Planning Policy Statement (PPS) 23 (Pollution Control) highlights the need to 'limit and, where possible, reduce the adverse impact of light pollution, e.g. on local amenity, rural tranquillity and nature conservation. Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1143916

Planning Policy Statement (PPS) 25 (Flood Risk) requires that local planning authorities help to reduce 'flood risk to and from new development through location, layout and design, including the application of a sustainable approach to drainage'.



Document can be viewed and downloaded from www.communities.gov.uk/index.asp?id=1504639

Planning Policy for Sustainable Buildings – guidance for Local Development Frameworks contains a set of suggestions and guidance which reflect emerging and current good practice in sustainable construction, particularly in the delivery of key policy objectives in areas such as energy, water and use of materials. Further information is available on www.lga.gov.uk

Securing the future: delivering UK sustainable development strategy has as one of its guiding principles 'Living Within Environmental Limits' which entails 'respecting the limits of the planet's environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations'. Document can be viewed and downloaded from www.sustainable-development.gov.uk/publications/uk-strategy/index.htm

UK Fuel Poverty Strategy focuses primarily on measures to improve energy efficiency and reduce the costs of fuel for fuel poor households, since the income measures which form part of a long term solution are being addressed in wider poverty and social exclusion policies. The strategy sets out the path to end to the blight of fuel poverty for vulnerable households by 2010. The strategy and its annual reviews can be viewed and downloaded from www.dti.gov.uk/energy/fuel-poverty/strategy/index.html

UK Strategy for Combined Heat and Power to 2010 sets out a framework to support the growth of CHP capacity in the UK and to enable the CHP industry to meet the challenges ahead. The strategy can be viewed and downloaded from www.chpa.co.uk/news/reports_pubs/government_reports/chp-strategy.pdf

Working with the grain of nature: a biodiversity strategy for England sets out the Government's vision for conserving and enhancing biological diversity in England, together with a programme of work to achieve it. It includes the broad aim that planning, construction, development and regeneration should have minimal impacts on biodiversity and enhance it



3.5.3. Regional documents
(in alphabetical order)

wherever possible. The strategy also has as priority policy issues the aims of ensuring biodiversity is enhanced as a consequence of development and to maximise opportunities to improve the biodiversity performance of new buildings. More information is available on www.defra.gov.uk/wildlife-countryside/biodiversity/biostrat/index.htm

South East Plan (SEERA 2008) is the Regional Spatial Strategy for South East England. It sets the spatial framework for the region as a whole, and the amount of land that needs to be allocated for different uses, including housing and employment, from 2006 to 2026. There are various policies that are relevant to this SPD:

- NRM1 (Sustainable water resources)
- EN1 (Development design for energy efficiency and renewable energy)
- EN2 (Combined Heat and Power)
- EN4 (Sub-regional targets)
- EN6 (Development criteria)
- W2 (Sustainable design, construction and demolition)
- M1 (Sustainable construction)

Document can be viewed and downloaded from www.southeast-ra.gov.uk/southeastplan

Regional Economic Strategy (RES) 2006-2016 sets out reduce the rate of increase in the region's ecological footprint, stabilise it and seek to reduce it by 2016. The Strategy contains targets for reducing CO2 emissions and water consumption, increasing the contribution of renewable energy, minimising waste and enhancing biodiversity. In it Brighton & Hove is identified as one of eight 'Diamonds for Investment and Growth' expected to drive the sustainable economic and community growth agenda in the region. Targets are currently being worked out including commitment to delivering levels of sustainable building standards in advance of national timetable. The RES can be viewed and downloaded from www.seeda.co.uk/res/RES_2006-2016/index.asp Information on the Diamonds of Growth is available on www.southeastdiamonds.org.uk

3.5.4. Affordable Warmth: A Fuel Poverty Strategy for residents of



Local documents
(in alphabetical order)

Brighton & Hove sets out the path towards eradicating fuel poverty in the city by the year 2010. Document can be viewed and downloaded from www.brighton-hove.gov.uk/downloads/bhcc/energy/Strategy-Affordable-Warmth.pdf

Brighton & Hove Adopted Local Plan provides a framework for guiding development in the city and determining what development is acceptable. There are a number of policies that are particularly relevant to sustainable building design:

- TR1 (Development and the demand for travel)
- TR14 (Cycle access and parking)
- SU1 (Environmental impact assessment)
- SU2 Efficiency of development in the use of energy, water and materials
- SU3 Water resources and their quality
- SU4 Surface water run-off and flood risk
- SU5 Surface water and foul sewage disposal infrastructure
- SU9 Pollution and nuisance control
- SU10 Noise nuisance
- SU11 Polluted land and buildings
- SU13 Minimisation and re-use of construction industry waste
- SU14 Waste management
- SU16 Production of renewable energy
- QD1 Design - quality of development and design statements
- QD3 Design - efficient and effective use of sites
- QD14 Extensions and alterations
- QD15 Landscape design
- QD16 Trees and hedgerows
- QD17 Protection and integration of nature conservation features
- QD18 Species protection
- QD27 Protection of amenity
- QD28 Planning Obligations
- HO5 Provision of private amenity space in residential development
- HO13 Accessible housing and lifetime homes

Document can be viewed and downloaded from www.brighton-hove.gov.uk/index.cfm?request=b1000164

Community Strategy: Creating the City of Opportunities sets



out the vision and plans of the agencies, organisations and communities who work together through the 2020 Community Partnership to improve the quality of life in this city. The strategy pledges to reduce CO₂ emissions in the city by 3.5% each year (2003-2004 baseline). Document can be viewed and downloaded from www.brighton-hove.gov.uk/web/sites/site2020/holdingpage/files/communityStrategy.pdf

Construction & Demolition Waste Supplementary Planning Document (SPD) 03 sets requirements and provide those involved in construction and demolition, with practical ideas as to how waste can be reduced, re-used and recycled. Document can be viewed and downloaded from www.brighton-hove.gov.uk/index.cfm?request=c1147827

Housing Strategy aims, among other things, to raise housing quality toward a decent home for all, make homes warm, energy efficient and more affordable and promote health, well-being and learning through appropriate housing solutions. Document can be viewed and downloaded from [www.brighton-hove.gov.uk/downloads/bhcc/Housing Strategy 2004-2007 \(2003-04 Data Update\).pdf](http://www.brighton-hove.gov.uk/downloads/bhcc/Housing_Strategy_2004-2007_(2003-04_Data_Update).pdf)

Microgeneration Planning Advice Note (PAN) provides information on how to incorporate domestic scale power and heat generation from sustainable sources into developments and issues that may be relevant when submitting planning or building control applications. Document can be viewed and downloaded from www.brighton-hove.gov.uk/index.cfm?request=c1156023

Sustainability Strategy – Local Agenda 21 for Brighton & Hove sets out the council's commitment to take action for a more sustainable future and contains Action Plans that help the Local Strategic Partnership in setting priorities for the Community Strategy. Document can be viewed and downloaded from www.brighton-hove.gov.uk/downloads/bhcc/environment/sus_strat.pdf

Sustainable Building Guidance sets out the Housing Repairs & Maintenance teams' commitment to work in partnership with



3.6. Glossary

city council tenants and other stakeholders to incorporate many different aspects of sustainability into housing maintenance projects. Document can be viewed and downloaded from www.brighton-hove.gov.uk/downloads/bhcc/housing/council_housing/sustainable_building_guidance.pdf

Biodiversity refers to the whole variety of life encompassing all genetics, species and ecosystem variations, including plants and animals.

BREEAM is a family of assessment methods and tools designed to help construction professionals understand and mitigate the environmental impacts of the developments they design and build. It is developed and monitored by the Building Research Establishment.

Brownfield refers to previously developed land. Site containing permanent structures and associated development, which can be re-developed for other uses before greenfield sites.

Climate Change accounts for long-term changes in temperature, precipitation, wind and all other aspects of the Earth's climate. Often regarded as a result of human activity and fossil fuel consumption.

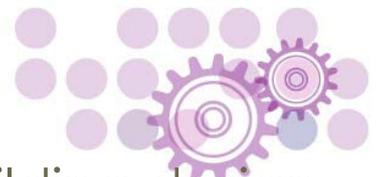
CO₂ (carbon dioxide) is a chemical compound present in the Earth's atmosphere at a low concentration of approximately 0.038% and is an important greenhouse gas.

Code for Sustainable Homes see Detailed Policy Guide above.

Community Strategy is prepared by a local authority to improve local quality of life and aspirations, under the Local Government Act 2000.

Conditions (or 'planning condition') are requirements attached to a planning permission to limit, control or direct the manner in which a development is carried out.

Considerate Constructors Scheme assesses performance of construction professionals against the eight point Code of Considerate Practice which includes the categories



Considerate, Environment, Cleanliness, Good Neighbour, Respectful, Safe, Responsible and Accountable.

Conversions generally refer to the physical work necessary to change of use of a building from a particular use, classified in the use classes order, to another use. It can also mean the sub-division of residential properties into self-contained flats or maisonettes.

Development is defined under the 1990 Town and Country Planning Act as 'the carrying out of building, engineering, mining or other operation in, on, over or under land, or the making of any material change in the use of any building or other land'. Most forms of development require planning permission (see also 'permitted development').

Design statement contains supporting written submission that highlights the key design features of a development proposal and explains how the design takes account of its context in relation to the natural landscape and / or neighbouring buildings and other features.

Energy Saving Trust (EST) Best Practice sets energy efficiency standards that go beyond building regulations for use in the design, construction and refurbishment of homes. These standards provide an integrated package of measures, covering fabric, ventilation, heating, lighting and hot water systems for all aspects of new build and renovation. The Trust provides a series of free resources including best practice guides, training seminars, technical advice and online tools, are available to help meet these standards. Further information is available at www.energysavingtrust.org.uk

Energy Saving Trust (EST) Home Energy Report is available for anyone who completes the Home Energy Check tool available in the EST website (www.energysavingtrust.org.uk/proxy/view/full/165/homeenergycheck). The resulting report contains a number of recommendations for improving the energy performance of a home.

Environmental Impact Assessment (EIA) is a systematic procedure to determine the likely significant effects of a proposed development project on the environment. The EIA is prepared by and is the responsibility of the applicant and the resulting documentation is termed an 'Environmental



Statement'. The EIA aims to ensure the likely environmental effects of proposed developments are highlighted at an early stage in the process to assist the decision-making authority in determining planning permission.

Extensions are additions to existing buildings on a particular site.

General Permitted Development Order (GPDO) is a set of regulations made by the government which grants planning permission for specified limited or minor forms of development.

Greenfield is a site that has not been previously been built on (includes areas such as playing fields, allotments and countryside).

Greenhouse Effect / Global Warming is the gradual heating of the Earth due to greenhouse gases, leading to climate change and rising sea levels. Renewable energy, energy efficient buildings and sustainable travel are examples of ways to help avert the greenhouse effect.

Greenhouse Gases are naturally occurring examples include water vapour, carbon dioxide, methane, nitrous oxide and ozone. Some human activities increase these gases, including fossil fuel combustion within motor vehicles and some power stations.

Groundwater is an important part of the natural water cycle present underground, within strata known as aquifers.

Industrial Waste is that originating from a factory or industrial process.

Issues & Options accounts for the "pre-submission" consultation stages on Local Development Framework documents with the objective of gaining public consensus over proposals ahead of adoption.

Landfill (including land raising) is the permanent disposal of waste into the ground, by the filling of man-made voids or similar features, or the construction of landforms above ground level (land-raising).

Lifetime homes refers to housing built to standards to cater for various lifestyle stages, e.g. wider corridors to cater for



pushchairs and wheelchairs, scope for adaptations for disability needs, needs of the elderly, etc.

Local Development Framework (LDF) is a non-statutory term used to describe a folder of documents, which includes all the local planning authority's local development documents. An LDF steers development in a particular location and is comprised among other things of Development Plan Documents (which form part of the statutory development plan), Supplementary Planning Documents.

Low Carbon technologies use grid electricity or mains gas to generate heat or power more efficiently. They are called low carbon because they result in lower CO₂ emissions than using mains gas or electricity. These include: geothermal and ground sourced heat pumps (which require electricity to operate pumps); fuel cells (which require electricity to create hydrogen); gas fired CHP; or other district heating systems. The latter two are sometimes referred to as decentralised or localised energy, as they create heat and/or power local to where they are used. These technologies are sometimes referred to as microgeneration, producing heat or energy locally on a small scale.

Material considerations are those which relate to the use and development of land is capable of being a planning consideration. Whether a particular consideration falling within that broad class is material in any given case will however depend on the circumstances. Material considerations must be genuine planning considerations, i.e. they must be related to the purpose of planning legislation, which is to regulate the development and use of land in the public interest. They must also fairly and reasonably relate to the application concerned. Material considerations may include the government's national and regional planning guidance and material representations from interested parties. Whether such matters are material in a particular case is ultimately a matter decided through the law courts.

Mixed use developments contain two or more uses e.g. residential, employment, leisure, community uses.

Nature conservation is the protection, management and promotion of wildlife habitat for the benefit of wild species, as well as the communities that use and enjoy them.



New build refers to properties that will be purchased for the first time from the builder or developer.

Open Space denotes all space of public value, including public landscaped areas, playing fields, parks and play areas, and also including not just land, but also areas of water such as rivers, canals, lakes and reservoirs, which can offer opportunities for sport and recreation or can also act as a visual amenity and a haven for wildlife.

Operational waste is refuse from household collection rounds, waste from street sweepings, public litter bins, bulky items collected from households and businesses and wastes which users themselves take to waste recovery centres and "bring sites".

Out-of-Centre means in retailing terms, a location that is clearly separate from the primary shopping area of a town centre but not necessarily outside the urban area.

Permitted Development (or Permitted Development Rights) refers to development, including changes of use, which is allowed (by virtue of Government Legislation) without the submission of a planning application to the Local Planning Authority (see also deemed consent).

Planning Advice Note (PAN) offers detailed advice and information on implementing policies in the Local Plan, and outline national and regional policy.

Planning & Compulsory Purchase Act 2004 updates elements of the 1990 Town & Country Planning Act. The Planning and Compulsory Purchase Act 2004 introduces a statutory system for regional planning; a new system for local planning; reforms to the development control and compulsory purchase and compensation systems; and removal of crown immunity from planning controls.

Planning Condition is that attached to a planning permission.

Planning Obligations / Section 106 Agreements (under the 1990 Town & County Planning Act), are legal agreements that secure measures and/or controls that could not be achieved by the imposition of planning conditions.

Planning Permission is a formal approval sought from a



council, often granted with conditions, allowing a proposed development to proceed. Permission may be sought in principle through outline planning applications, or be sought in detail through full planning applications.

Planning Policy Guidance (PPG) were issued by central government setting out its national land use policies for England on different areas of planning. These are gradually being replaced by Planning Policy Statements.

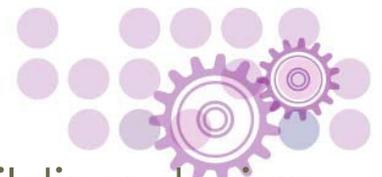
Planning Policy Statement (PPS) are issued by central government to replace the existing Planning Policy Guidance notes in order to provide greater clarity and to remove from national policy advice on practical implementation, which is better expressed as guidance rather than policy.

Regional Spatial Strategy (RSS) (South East Plan for South East region) is strategy for how a region should look in 15 to 20 years time and possibly longer. The Regional Spatial Strategy identifies the scale and distribution of new housing in the region, indicates areas for regeneration, expansion or sub-regional planning and specifies priorities for the environment, transport, infrastructure, economic development, agriculture, minerals and waste treatment and disposal. Most former Regional Planning Guidance is now considered RSS and forms part of the development plan. Regional Spatial Strategies are prepared by the Regional Planning Body SEERA.

Renewable Energy is that which occurs naturally and repeatedly in the environment – e.g. energy from the sun, wind, water, land, plant material, as opposed to energy derived from non-renewable resources such as that from 'fossil fuels' e.g. coal and oil. Combustible or digestible waste materials are also regarded as renewable sources of energy.

Section 106 Agreement, see planning obligations.

Strategic Environmental Assessment (SEA) is an environmental assessment of certain plans and programmes, including those in the field of planning and land use, which complies with the EU Directive 2001/42/EC. The environmental assessment involves the preparation of an environmental report; carrying out of consultations; taking into account of the environmental report and the results of the consultations in decision making; provision of information when the plan or



programme is adopted; and showing that the results of the environment assessment have been taken into account.

Supplementary Planning Document (SPD) is a Local Development Document that may cover a range of issues, thematic or site specific, and provides further detail of policies and proposals in a 'parent' Development Plan Document.

Sustainable development is that which meets the needs of the present without compromising the ability of future generations to meet their own needs (a widely-accepted definition taken from 'Our Common Future' also known as 'The Brundtland Report') – the Report of the 1987 World Commission on Environment and Development. The key elements of sustainable development are social progress which recognises the needs of everyone, effective protection of the environment, prudent use of natural resources and maintenance of high and stable levels of economic growth and employment. It also implies more equitable access to these elements of sustainable development within current and future generations and the global implications of development.

Zero carbon development is one that achieves zero net CO₂ emissions from energy use on site, on an annual basis.

Zero carbon technologies harness non fossil fuel energy to create heat or generate electricity, i.e. sun, wind, and water. They are called zero carbon because they produce no carbon dioxide (CO₂) emissions when producing heat or power. These are also referred to as 'renewable' energy sources (solar thermal, photovoltaics, wind turbines, hydropower and combined heat and power using renewable fuels such as biomass, biodiesel or renewable gas). These technologies are sometimes referred to as microgeneration, producing heat or energy locally on a small scale.

Waste Minimisation / Reduction is the most desirable way of managing waste, by avoiding the production of waste in the first place.



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