South Downs National Park Authority

Sustainable Construction Supplementary Planning Document

ADOPTION VERSION AUGUST 2020

CONTENTS

INTRODUCTION

Policies covered:

- **Policy SD2:** Ecosystem Services
- **Policy SD48:** Climate Change and Sustainable Use of Resources
- **Policy SD22:** Parking Provision (as it relates to electric vehicle charging)
- **Policy SD3:** Major Development

Background

1.1 The South Downs Local Plan (SDLP) was adopted on 02 July 2019. One of the nine Local Plan objectives is 'to adapt well to and mitigate against the impacts of climate change and other pressures'.

The need to mitigate climate change by reducing greenhouse gas emissions

1.2 This accords with the overwhelming national and international consensus that radical measures are required across the whole of society to reduce man-made greenhouse gas emissions. In late 2018, the UN Intergovernmental Panel on Climate Change (IPCC) issued a stark warning. It established that achieving the ambitions of the Paris Climate Agreement, by limiting warming to 1.5°C to avoid the most catastrophic impacts of climate change, will require action at an unprecedented pace and scale.

1.3 Deep cuts in greenhouse gas emissions from the global economy are required by 2030, with net zero emissions by 2050. This enormous challenge can only be tackled by governments, businesses and civil society working together to take ambitious action to radically reduce emissions.

1.4 On 24 June 2019 the UK became the first major economy in the world to pass laws to end its contribution to global warming by 2050. The target will require the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels.

1.5 Currently the built environment is responsible for approximately 25% of carbon dioxide emissions so it is imperative that this becomes an even greater focus for reducing emissions in that sector. While the planning system is not able to greatly influence the vast majority of buildings which have already been built, it is important to ensure that where the planning system has influence, such as with new development, that it is as sustainable as possible and avoids the need for future expensive retrofitting to make buildings more sustainable.

The need to adapt to predicted climate change impacts

1.6 The climate is changing. Even if the world manages to limit greenhouse gas emissions sufficiently to cap global temperature rise to below 1.5°C, further climatic changes are still inevitable in the future as, according to the Met Office, approximately 1.0°C of global temperature rise has already occurred. The UK needs to manage the growing risks from climate change.

1.7 The Government climate change predictions in the UK Climate Projections 2018 report predict hotter, drier summers; wetter winters and more extreme weather events such as storms with attendant localised heavy rainfall.

1.8 Adaptation to predicted climate change therefore needs to encompass planning for higher risk of surface water flooding, more prolonged droughts, leading to water stress on people, environments and wildlife; and more frequent heatwaves leading to increased health impacts on the population, especially on the more vulnerable groups, such as the elderly.

Purpose of this SPD and document structure

1.9 This document is designed to provide further guidance and to set out what the Authority's expectations are for different forms of development when applying the Local Plan policies SD48 and SD22, (See Chapter 2). Table 1, on page 6, provides a summary of the main sustainable construction requirements under both 'mitigation' to climate change (i.e. ways of reducing greenhouse gas emissions - mainly CO_2) and adaptation to predicted climate change. These requirements are set out for the 5 development types covered by this document.

1.10 In Chapter 3, sustainable requirements for 'major development' as defined by strategic development policy SD3 are set out.

1.11 Chapters 2 and 3 contain both guidance for the developer on each issue and some prescriptive expectations. These latter are set out in bold text and are preceded by the words 'The requirement is…'. Although the measures will be expected in the vast majority of cases, where there are genuine and evidenced technical reasons or significant viability consequences, the Authority will consider these matters on a case by case basis and may waive certain requirements.

1.12 This document will be a 'material consideration' in the determination of planning applications where polices SD2 (criteria e), SD48, SD22 or SD3 apply. SD2 is a core policy in the Local Plan and criteria e of policy SD2 provides the overarching approach to climate change which other policies, such as SD48, carry through in a more specific way. Policies SD2, SD3, SD22 and SD48 can all be found in Appendix 1 of this document.

1.13 A separate Technical Advice Note which provides guidance on how applicants should apply Local Plan policy SD2, relating to Ecosystem Services, is on the Authority website:

https://www.southdowns.gov.uk/planning/supplementary-documents/

1.14 The document also provides guidance (in chapters 2 and 3) for applicants and their consultants in the form of the evidence needed to comply with Local Plan policies and some technical information on different methods of meeting those requirements.

1.15 Appendices 2-6 provide sustainability checklists for the different development types which apply policy SD48 and policy SD22, where it relates to Electric Vehicle charging facilities. Appendix 7 provides a sustainability checklist for 'Major Development' where policy SD3 is applied.

1.16 Acronyms and technical terms are explained in the Glossary at the end of the document. Words which feature in the glossary are indicated with a letter [G] the first time they appear.

Development types

1.17 The Authority strongly supports the need to retrofit existing building stock to make it more energy and water efficient. However, unless there is a major refurbishment or an extension to

a non-residential property is proposed, the planning authority has very limited influence over existing building stock and consequently this document does not address this specific issue..

1.18 Policy SD48 needs to be applied proportionately which means that some development, including residential extensions will be exempt from the requirements of this SPD completely, whilst larger residential developments will be expected to achieve higher sustainable performance standards than single dwellings, minor non-residential development will not be expected to meet the BREEAM[G] standards, whereas major non-residential development will need to meet BREEAM New Construction (NC) 'excellent' standards.

1.19 For the purposes of this Supplementary Planning Document the definition of 'dwellings' includes self-contained tourist accommodation.

1.20 Single Dwelling development includes:

All new single dwelling applications and applications for residential conversions (from a non-residential use to a single home).

1.21 Small Residential development includes:

All new developments and residential conversions of two or more homes (that are not defined as 'multi-residential development' below) and less than ten homes.

1.22 Major Residential development includes:

All new developments and residential conversions of ten homes or more (that are not defined as 'multi-residential development' below).

1.23 Minor non-residential development includes:

All new non-residential development which provides additional floor space above 250 sqm but below 1000 sqm of floor space and on a development site below 0.5ha.

1.24 Major Non-Residential development includes:

All new non-residential development which either provides additional floor space of at least 1000 sqm or is on a development site of at least 0.5ha.

1.25 Major Multi-Residential development includes:

All new non-residential development which either provides additional floor space of at least 1000 sqm or is on a development site of at least 0.5ha and is 'Multi-Residential' as defined by the Building Research Establishment (BRE)[G] which can include: student halls of residence; care homes; sheltered housing; and other multi-residential buildings that have communal areas making up more than 10% of the total net internal floor area.

1.26 Major development defined for Policy SD3 is set out in policy SD3 of the Local Plan https://www.southdowns.gov.uk/wp-content/uploads/2019/07/SD_LocalPlan_2019_17Wb.pdf

		Development type				
Local Plan Policy	**Sustainability issue**	**Single Dwelling** (1 unit)	**Small Residential Development** (2-9 units)	**Large Residential Development** (10 homes and above)	**Minor Non-Residential Development** (≥ 250m^2 ≤ 1000m^2 & < 0.5ha)	**Major Non- & Multi-Residential Development** (>1000m^2 or > 0.5ha)
Climate Change Mitigation						
SD48.2i SD48.2ii	**Energy Efficiency CO_2 reductions**	19%	19%	19%	19%	BREEAM New Construction (NC) excellent
SD48.3	**On-site Green Energy CO_2 reductions**	20%	20%	20%	20%	20%
SD48.3	**Passive Design**	Passive House principles encouraged	Passive House principles encouraged	10% of homes passive house certified.	Passive House principles encouraged	Passive House principles encouraged; BREEAM NC Ene 04 (passive design analysis) credit expected
SD22.2 SD48.3	**EV Charge Points**	Required	Required	Required	At least 1 required where at least 10 car spaces.	Required. At least 1 & cabling for 1 in 5 spaces
SD48.3	**Waste**	Recycling domestic waste kitchen bins; Compost bin	Recycling domestic waste kitchen bins; Compost bins	Recycling domestic waste kitchen bins; Compost bins; Site Waste Management Plan (SWMP) 50% waste diverted	Sustainable waste measures required	BREEAM NC Excellent; At least 2 of the BREEAM NC Wst 01 credits SWMP
SD48.3	**Materials**	Use of greener materials[G]	Use of greener materials. Grown in Britain[G]/FSC[G] timber	Use of greener materials. Grown in Britain/FSC timber	Use of greener materials. Grown in Britain/FSC timber	BREEAM NC excellent with at least half Material credits achieved. Grown in Britain/FSC timber
Adaptation to Climate Change						
SD48.2ii	**Water Use**	No more than 110 litres/p/day	No more than 110 litres/p/day	No more than 110 litres/p/day	Water efficient measures required	BREEAM NC excellent
SD48.3 SD2 SD4.1d SD4.4 SD5e SD9 SD45 SD49 SD50	**Adaptation to Climate Change**	Landscape Water use	Multi-functional SuDS[G]; Green Roofs encouraged; Tree cover retained and enhanced; Low water Landscape Design.	Multi-functional SuDS; 10% Green Roofs; Tree cover retained and enhanced; Low water Landscape Design.	SuDS	Multi-functional SuDS; Tree cover retained and enhanced; Low water Landscape Design. 10% Green Roofs BREEAM NC: At least 1 flood resilience Pol 03 credit and 2 SuDS Pol 03 credits; and the Wst 05 credit

Table 1: Summary of Requirements for each development type

Technical Guidance: Policy SD48

ENERGY EFFICIENCY

All Residential Development (Application of Policy SD48.2i)

2.1 **The requirement is for the energy efficiency of each home to result in the predicted carbon dioxide emissions to be at least 19% lower than that allowed by the current (2013) building regulations standard.**

2.2 The building regulations standard is calculated in a method called 'SAP'[G] (Standard Assessment Procedure) which will already need to be carried out to comply with building regulations for energy. SAP will generate a 'target emission rate' (TER)[G] for each new dwelling which is expressed in kilogrammes of CO2 emissions for every square metre of the home for a year (kg/m2/yr). This is the maximum level of CO2 emissions allowed by the building regulations.

2.3 When the home is designed, the predicted CO2 emissions are calculated by SAP. This is the dwelling emission rate (DER)[G] (also expressed in kilogrammes of CO2 emissions for every square metre of the home for a year (kg/m2/yr)). The DER must be no greater than the TER to meet building regulations.

2.4 To meet the Local Plan Policy SD48 the DER in the SAP calculation needs to be at least 19% lower than the TER by improving the energy efficiency of the building. This would be secured by planning condition.

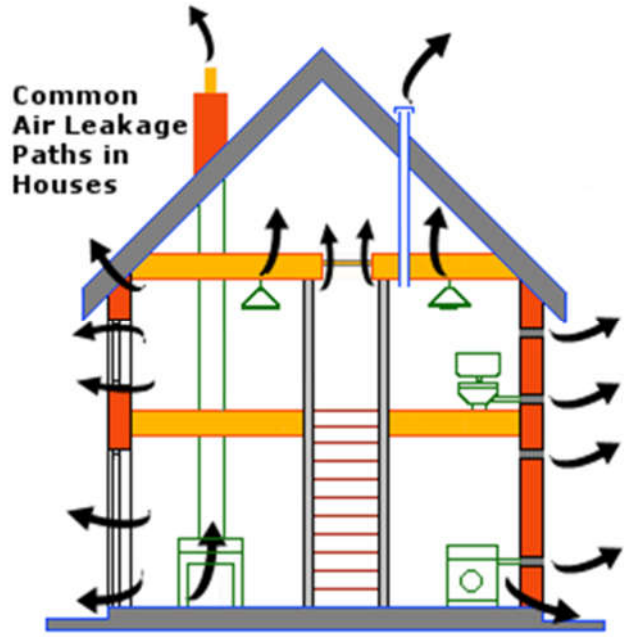
2.5 SAP assessments are carried out at both the design stage and the post construction stage and planning conditions (for large residential developments) may ask for compliance with the 19% CO2 reduction through energy efficiency improvement to be demonstrated at both the design stage (before the commencement on site) and post construction stage (prior to occupation of each dwelling).

Energy efficiency measures for homes

2.6 The energy efficiency of buildings should start with the efficiency of the building elements to reduce energy demand and reduce heating bills. This includes the insulation levels of walls, floors, roofs, windows and doors. These can vary depending on the materials used and the thickness of those materials and the surface areas of those elements.

2.7 For instance, standard double glazed windows typically have an insulation standard (called a 'u-value') of 1.40 W/m²K, whereas the best practice (passive house standard) windows are triple glazed and can be as low as 0.70 W/m²K, which is effectively twice as efficient as the standard windows at preventing heat moving through the glass (and frames) to the outside of the house. https://www.self-build.co.uk/what-are-u-values/

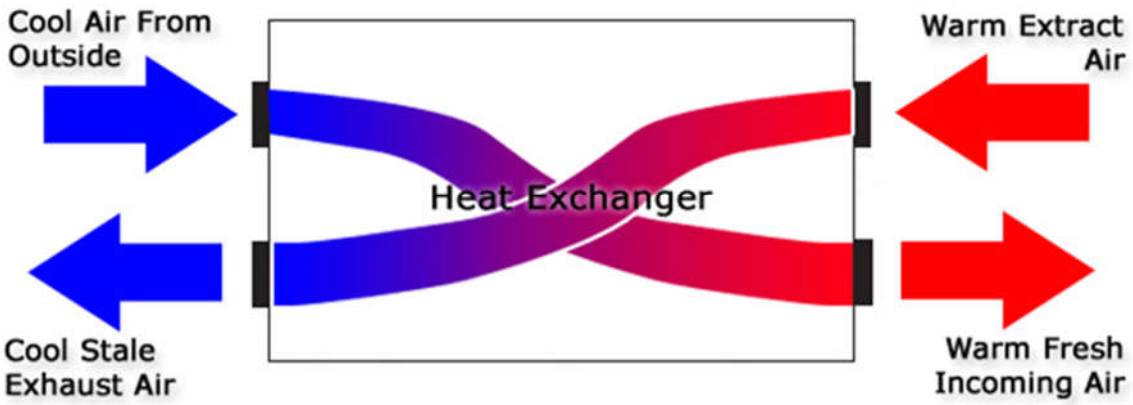
2.8 Another important consideration is the airtightness of the home. Old homes are relatively draughty and heat escapes through cracks and openings in the walls, floor and roof. New homes are built at much better airtightness levels, but the lower the airtightness measure the more energy efficient the home will be.



Air leakage in homes (Source: Energy Saving Trust)

2.9 Airtightness is measured in cubic metres (m3) of air that can escape per hour for every square metre (m2) of the surface area of the walls, floor and roof, assuming an internal air pressure of 50 Pascals. Typical new homes are built at around 4 to 5 m3/m2/hr. Best practice (passive house) airtightness standards are below 1 m3/m2/hr.

2.10 When airtightness is at a good level (3 m3/m2/hr or below) some further measures to ensure good ventilation in the home are usually necessary to ensure that the quality of internal air is acceptable to human health. In winter months the best way to do this is through the use of a mechanical ventilation and heat recovery system (MVHR). This expels stale air from the home and brings fresh air from outside but warms the fresh air with the warmth of the stale air leaving, so saving energy. Although running a MVHR system uses some extra electricity the net carbon saving (of pre-heating fresh air entering the building in winter) more than outweighs this.



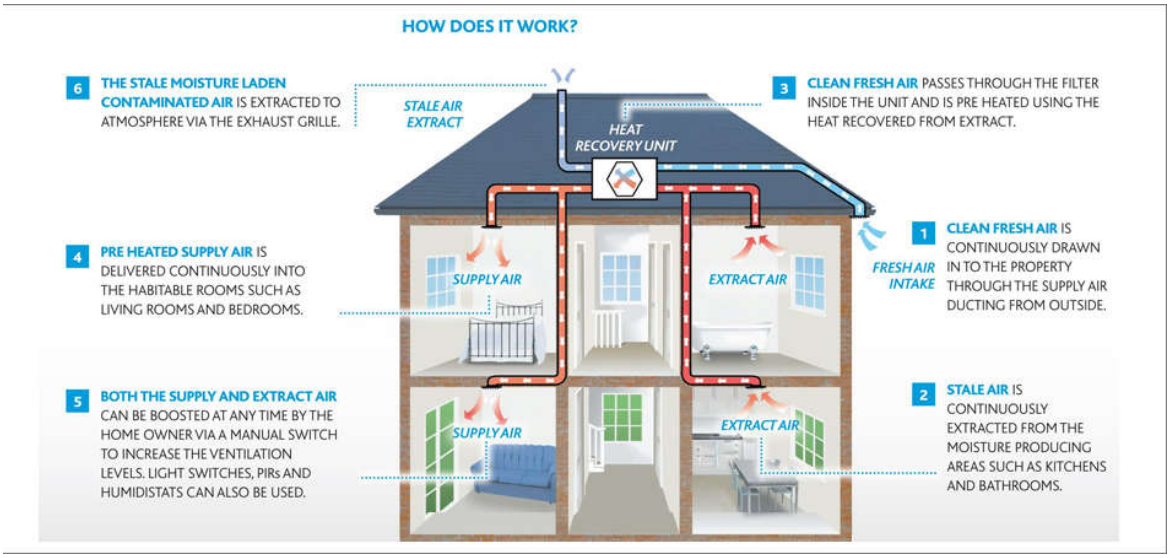
The principles of a heat exchanger (Source: Energy Saving Trust)

More information on airtightness in homes can be found here:
https://www.homebuilding.co.uk/a-guide-to-airtightness/

2.11 Reducing thermal bridging in the design of the home will also aid energy efficiency. Thermal bridges are essentially places in the home where insulation is not continuous and so heat loss is much higher in that specific spot. The architect or home designer needs to minimise these thermal bridge points as much as possible.

For more information: https://www.bre.co.uk/certifiedthermalproducts/page.jsp?id=3073

2.12 Recovering and recycling heat energy from warm parts of the house (especially unwanted moist air in bathrooms and kitchens) is a good way of increasing the energy efficiency of the space heating system in the home. This is achieved using mechanical ventilation with heat recovery (MVHR). This will use some electricity but the amount of heat energy saved more than makes up for this.



MVHR in a home with a heat exchanger (or recovery unit) (Source: AC Architects)

For more information on MVHR see: https://www.homebuilding.co.uk/a-guide-to-ventilation/

Minor Non-Residential Development (Application of Policy SD48.3)

2.13 The requirement is for the energy efficiency of the development to result in the predicted carbon dioxide emissions to be at least 19% lower than that allowed by the current (2013) building regulations standard.

2.14 A sustainability assessment at the design stage should set out what energy efficient measures are being proposed and provide a target for energy efficiency. This is best demonstrated using the SBEM[G] (Simplified Building Energy Model) and which will be needed for building regulations. In SBEM the Building Emissions Rate (BER)[G] will be calculated from the design proposals and can be compared with the maximum building regulations standard allowed (called the Target Emission Rate (TER)). A minimum improvement of 10% will be expected, so the BER should be at least 19% lower than the TER.

2.15 SBEM assessments are carried out at both the design stage and the post construction stage and planning conditions may ask for compliance with the 19% CO2 reduction through energy efficiency improvement to be demonstrated at both design stage (before commencement on site) and post construction stage (prior to occupation).

2.16 Energy efficiency measures for non-residential buildings are the same in principle as those referred to for dwellings as set out in paragraphs 2.6-2.12 above. Insulation and air tightness levels are critical. The operational use of the building will influence how heat leakage can be minimised by design. For instance where there is likely to be frequent main door use, a buffer zone with a second exterior door or doors could be a good solution.

2.17 Larger scale MVHR systems than those suitable for homes may be appropriate for non-residential buildings but the principle is the same.

2.18 For more information on MVHR see

https://www.carbontrust.com/resources/guides/energy-efficiency/heat-recovery/

Major Non-Residential and Multi-Residential development (Application of Policy SD48.2.ii)

2.19 The requirement is that all Major development will need to meet the mandatory Ene 01 (Reduction of energy use and carbon emissions) at BREEAM excellent standard through the energy efficiency of the buildings.

2.20 BREEAM is the Building Research Establishment (BRE) Environmental Assessment Method and BREEAM NC is for New Construction. The latest version of this is BREEAM NC 2018. The BREEAM assessment covers the following nine sustainable topics:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution

BREEAM assessors are licenced by the BRE and design stage or 'interim' and post construction stage certificates are awarded by the BRE. Pre-assessment estimates can be generated by the BREEAM assessors at the early design stage to show how the targeted standard, such as BREEAM 'excellent', can be achieved. More information on BREEAM can be found here:

https://www.breeam.com/

2.21 Credits are awarded for each issue and these credits are converted into points, with a theoretical maximum of 100 points. To achieve the BREEAM 'excellent' standard, the scheme must achieve at least 70 points. Which particular credits are targeted is largely a matter of choice although at BREEAM 'excellent' standard certain credits are mandatory, such as the 4 credits out of 9 available required under Ene 01.

2.22 The Ene 01 issue awards credits according to how well the development design performs in the BRE Energy Performance Ratio which is a calculation which considers the following three metrics of modelled performance:

- The building's heating and cooling demand
- The building's primary energy consumption
- The total CO_2 equivalent emissions

ON-SITE LOW CARBON ENERGY (Application of Policy SD48.3)

All Development

2.23 The requirement is that all dwellings will need to demonstrate a 20% reduction in predicted carbon emissions through the use of on-site low or zero carbon energy generation.

2.24 If there are legitimate, fully evidenced and agreed technical or physical design reasons why the 20% reduction figure is not feasible in full in any particular case, this will be considered pragmatically by the Authority.

2.25 The way of assessing this will again be with reference to 'SAP' for residential development and 'SBEM' for non- and multi-residential development as with the energy efficiency requirements above (in paras 2.2-2.3 and paras 2.14-2.15 respectively). The dwelling emission rate (DER) improvement or Building Emission Rate (BER) (compared with the target emission rate (TER) set by building regulations), after applying reductions due to on-site low or zero carbon energy generation, will need to be at least 20% lower.

2.26 SAP and SBEM assessments are carried out at both the design stage and the post construction stage and planning conditions may ask for compliance with the CO_2 reduction through on-site low or zero carbon energy to be demonstrated at the design stage (before the commencement on site) for all development and also at the post construction stage (prior to occupation of each dwelling) for large residential and major non-residential development.

2.27 According to UK Power, a medium household gas use is around 12,000 kWh per year and medium household electricity use is around 3,100 kWh. With the recent decarbonisation of the national power grid the amount of carbon dioxide emitted by electricity and gas use per kWh is now nearly the same.

Solar Photovoltaic Panels

2.28 To reduce or off-set CO_2 emissions generated by the use of mains electricity the most cost efficient method of reducing CO_2 emissions is often by installing photovoltaic (PV) solar panels or tiles.

2.29 The installation of PV on the roof of most new houses should achieve the 20% CO_2 reduction figure in almost all cases. For non-residential buildings this will be more variable, according to available roof area and the predicted building use. PV systems are described in terms of the amount of power they generate (kWp). Domestic PV arrays typically range from 1 to 4kWp which might require a roof area of approximately 8- 28 sqm respectively. This may be a conservative estimate of the power generated per square metre and the efficiency of PV is improving every year.

2.30 As an illustration, an average detached house with 28.8 sqm of solar panels on a south facing roof will have a power rating of around 4.0kWp which will generate about 3400kWh of electricity a year. This compares with the average annual electricity use per household of 3100kWh and is likely to represent around 20-30% of total emissions for that house.

2.31 In the National Park, in some circumstances, there may be visual impact considerations that make solar panels inappropriate. This may be because of the sensitivity of the site and the potential visual impact on the landscape. Where PV is visible from the public realm, building integrated systems (for instance set within the roof or as rain screen cladding on walls) are

preferred to bolt on panels. Where visual impact is an issue (such as in conservation areas) PV tiles may be more acceptable than PV panels and panels on ancillary buildings such as garages, stores and sheds may be less prominent. For more innovative solar panels and tiles, e.g. see, for example:

http://www.gb-sol.co.uk/default.htm

2.32 The cost of PV has been dropping rapidly in recent years and the efficiency of the panels and tiles is increasing every year. For more information on solar panels see:

https://www.which.co.uk/reviews/solar-panels/article/solar-panels/how-does-solar-pv-work

PV glazing in a discreet location

Ground mounted PV on a large plot

Rain screen cladding PV on an office building

Low visual impact PV tiles on a slate roof

ROOF ANGLE	WEST						SOUTH						EAST
	90°	75°	60°	45°	30°	15°	0°	15°	30°	45°	60°	75°	90°
90°	56	60	64	67	69	71	71	71	71	69	65	62	58
80°	63	68	72	75	77	70	80	80	79	77	74	69	65
70°	69	74	78	82	85	86	87	87	86	84	80	76	70
60°	74	79	84	87	90	91	93	93	92	89	86	81	76
50°	78	84	88	92	95	96	97	97	96	93	89	85	80
40°	82	86	90	95	97	99	100	99	98	96	92	88	84
30°	86	89	93	96	98	99	100	100	98	96	94	90	86
20°	87	90	93	96	97	98	98	98	97	96	94	91	88
10°	89	91	92	94	95	95	96	95	95	94	93	91	90
0°	90	90	90	90	90	90	90	90	90	90	90	90	90

Solar collection efficiency due to orientation and roof angle

2.33 As can be seen from the table above the ideal roof would be facing due south and would be at an angle of 30-40 degrees. Angles facing due east or west will have only approximately 85% of the solar collection efficiency which means that approximately 18% more solar panels are needed to generate the same amount of electricity.

2.34 The Energy Saving Trust gives a useful guide on approximate sizing for solar panels for different house types making a 20% allowance for unsuitable installation area (e.g. where there is overshadowing) and assumes only half of the available roof area is used.

https://www.pvfitcalculator.energysavingtrust.org.uk/Documents/150224_SolarEnergy

2.35 Where there is likely to be significant overshadowing from existing or proposed large trees or from neighbouring structures, PV may be much less feasible.

Solar thermal heating

2.36 While solar photovoltaic panels use the energy from the sun to generate electricity, solar thermal panels use the sun to heat up water and therefore usually offset carbon emissions due to mains gas water heating. Now that electricity and gas unit emissions are nearly equivalent, the emissions due to mains gas, typically used for space and water heating, are becoming more significant. Solar thermal panels are less effective in the winter months but can often provide all the hot water needed in the summer months.

2.37 The way a solar thermal panel works is quite simple. It absorbs the heat from the sun with panels that are called collectors. The heated water or heat-transfer fluid then runs from the collectors to the hot water cylinder.

Solar photovoltaic panels (left) and solar thermal panels (right)

Solar Photovoltaic - Thermal

2.38 Solar Photovoltaic-Thermal (PV-T) is a hybrid solar panel combining the functionality of solar thermal collectors and solar PV in one panel. The panels create not only electricity but also produce hot water for use in the home.

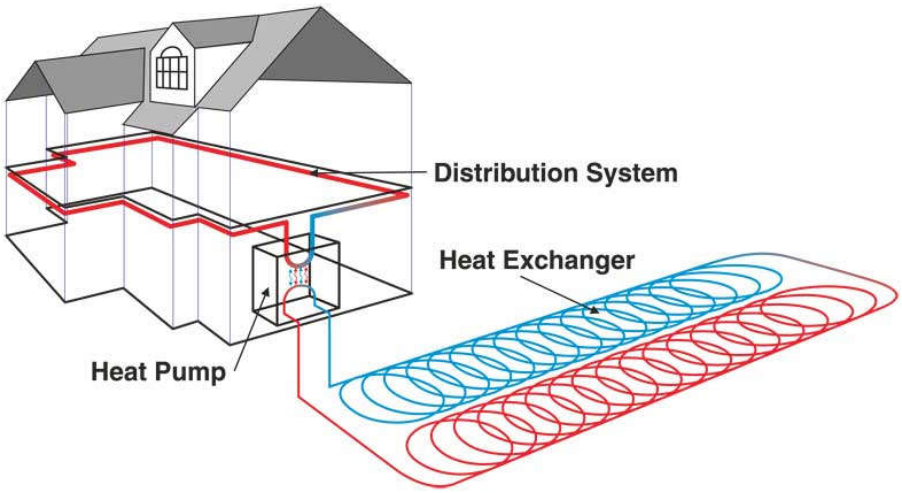
2.39 As with PV, where there is likely to be significant overshadowing from existing or proposed large trees or from neighbouring structures, solar water heating may be much less feasible.

Heat Pumps

2.40 Heat pumps have some impact on the environment as they need electricity to run, but the heat they extract from the ground, air, or water is constantly being renewed naturally. The ratio of electrical energy needed to run the pump to the amount of heat energy produced for the building is called the Coefficient of Performance (CoP).

2.41 Heat pumps work well with underfloor heating as this requires lower temperatures than traditional wet radiators. Where underfloor heating is installed it should be accompanied by the use of individual digital and programmable room thermostats, to minimise wasted heat in unused rooms.

Ground Source Heat Pumps



The principles of a ground source heat pump

2.42 Ground source heat pumps (GSHPs) use pipes that are buried underground to extract heat from the ground, which is then used to heat radiators, underfloor or warm air heating systems and hot water in your home. A ground source heat pump circulates a mixture of water and antifreeze around a loop of pipe, called a ground loop, which is buried outside. Heat from the ground is absorbed into the fluid and then passes through a heat exchanger into the heat pump. As the ground stays at a fairly constant temperature under the surface, the heat pump can be used throughout the year.

2.43 The length of the ground loop depends on the size of the home or building and the amount of heat needed to heat it. Longer loops can draw more heat from the ground, but need more space to be buried in. The ground loop area needs to be free of trees and underground structures. If space is limited, a vertical borehole can be drilled instead but this is more expensive and usually requires a licence form the Environment Agency.

2.44 With a large water body close by a water source heat pump can operate in a similar way to a ground source heat pump, extracting heat energy from the water.

Air Source Heat Pumps

Air Source heat pump (Source: self-build.co.uk)

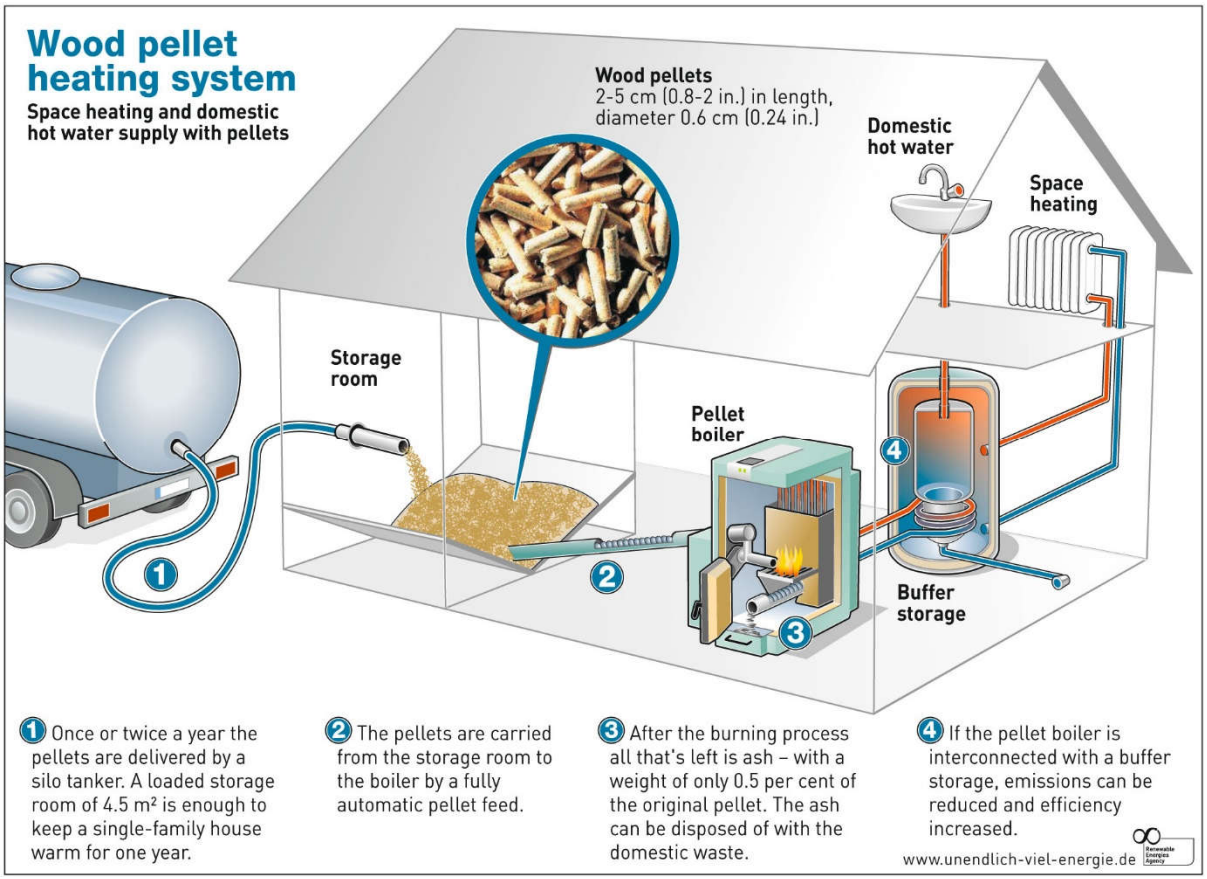
2.45 Air source heat pumps (ASHPs) absorb heat from the outside air in the same way that a fridge extracts heat from its inside. It can get heat from the air even when the temperature is as low as -15°C. This heat can then be used to heat radiators, underfloor heating systems, or warm air convectors and hot water in the home or non-residential building. In a well-insulated property, air-source heat pumps can provide all the heating needs by themselves. For non-residential buildings in particular, ASHPs can also provide cooling in summer. Air source heat pumps tend to displace gas energy in homes and either gas or electrical energy in other buildings.

2.46 Air source heat pumps need to be sited sensitively as they can have a negative visual impact and may have a modest noise impact.

Biomass

2.47 Timber pellets, chips or logs can be used to fuel boilers for water and space heating. A domestic unit with space for storing fuel may occupy the same space as a single garage and delivery implications will also need to be carefully considered. Large non-residential buildings would require larger scale units in proportion to the space heating demand of the building. A flue will also be needed which could be accommodated in a chimney or may need to be installed above the roof line which in more sensitive locations may have visual impact implications.

2.48 For the reasons above, biomass heating systems are less appropriate where space on plot and access to plot is limited or constrained but conversely may be very appropriate on easily accessible and larger plots and in rural off-gas grid areas, subject to visual impact considerations.



A wood pellet heating system (Source: Renewable Energy Vermont)

2.49 All biomass stoves in new development in the National Park will need to be 'Ecodesign Ready Stoves'. Ecodesign is the European-wide programme to lower particulate matter (PM) emissions. It is due to come into force for stoves in the UK in 2022. Stove Industry Alliance (SIA) Ecodesign Ready stoves will meet the Ecodesign requirements and are available now. The PM emissions limit for Ecodesign is 55% lower than for Department for Environment, Food and Rural Affairs (DEFRA) exempt stoves.

See http://www.stoveindustryalliance.com/ecodesign-ready-stoves-and-air-quality/

The EcoDesign mark is awarded to wood burning appliances that are verified by HETAS[G] as meeting the five fundamental requirements of the Regulation (EU) 2015/1185 24/5/2015 for efficiency and emissions.

https://www.hetas.co.uk/ecodesign-ready/.

Hydro Electric Power

2.50 Water power requires a convenient source of running water and will usually require permission from the Environment Agency.

Wind Energy

2.51 Small scale wind generation attached to buildings is unlikely to be acceptable from a visual point of view in the National Park in most cases and is associated with potential structural damage risks to those buildings. Free standing wind turbines are also problematic due to their likely significant visual impact in the National Park and are unlikely to be supported for this reason.

2.52 Domestic scale wind energy is generally considered inappropriate in built up areas as the wind is either too weak or unpredictable.

Government Financial Incentives

2.53 For more information on Government financial incentives for generating electrical energy such as the 'Smart Export Guarantee' and for generating renewable heat, such as the 'Renewable Heat Incentive', contact the Energy Saving Trust.

https://www.energysavingtrust.org.uk/

PASSIVE DESIGN (Application of Policy SD48.3)

Passive design is an approach aimed at reducing the energy demand of a building significantly and is applicable to all types of building use (not just homes). Passive House (or 'Passivhaus') certification requires strict adherence to the design principles and standards laid down by the Passivhaus Trust:

http://www.passivhaustrust.org.uk/

All large residential development (10 dwellings and above)

2.54 The requirement is for at least 10% of all dwellings to be passive house certified.

2.55 Passive house homes are built and certified to a very high energy efficiency standard and typically will use 75% less energy than standard newly built homes. Very high insulation rates, very low air tightness values and minimised thermal bridging[G] together with the use of good passive solar energy and mechanical ventilation and heat recovery (MVHR) are all part of the passive house approach.

2.56 There is no architectural style associated with passive house homes and many examples of traditionally inspired and contemporary designed passive house homes exist.

Traditional style passive house cottages, Norfolk and 2019 Stirling Prize winning 93 passive house homes, Norwich (Source: Passivhaus Trust)

Minor Residential Non-Residential Development

2.57 Minor non-residential development (between 2 and 9 homes) will be encouraged to follow passive design principles to reduce both heating and cooling demands.

Major Non-Residential and Multi-Residential Development

2.58 Major non- and multi-residential applications will be expected to achieve the relevant BREEAM passive design analysis credit which is currently 1 no. Ene 04 (Low Carbon Design) credit in the 2018 version of BREEAM NC but otherwise the equivalent in future updates.

Wereham Village Hall, Norfolk (Passive house certified) (Source: Passivhaus trust) and 2 passive houses in Petersfield

ELECTRIC VEHICLES (Application of Policy SD22)

All residential development

2.59 The requirement is that all new dwellings with a suitable car parking space have an electric charge point provided.

2.60 A 'suitable car parking space' would include on-plot spaces, spaces within nearby car parking courts, and then, only when the previous two locations prove unfeasible, on-street spaces with sufficient space to allow good pedestrian access around a charge point.

Electric charging on plot and electric charging in a car park

2.61 Charging cars at home overnight using a dedicated charge point is generally cheaper and more convenient for consumers and ensures that EVs can play a full part in our future smart and flexible energy system. For these reasons, today the majority (around 80%) of all electric car charging happens at home and Government expects the home to be central to the future charging system.

Minor Non-Residential and Multi-Residential development

2.62 The requirement is that developments with at least 10 car spaces should have at least 1 electric charge point.

Major Non-Residential and Multi-Residential development

2.63 The requirement is that developments with at least 10 car spaces should have at least 1 electric charge point and the ducting infrastructure for at least every 1 in 5 spaces.

Technical Guidance

2.64 The charge points must have a minimum power rating output of 7kW, be fitted with a universal socket that can charge all types of electric vehicle currently on the market and meet relevant safety and accessibility requirements. Further technical information including 'Electric vehicle charging in residential and non-residential buildings' and 'Annex C Draft Technical Guidance' or subsequent Government guidance that supersedes this can be found here:

https://www.gov.uk/government/consultations/electric-vehicle-chargepoints-in-residential-and-non-residential-buildings

WATER CONSUMPTION

All Residential Development (Application of Policy SD48.2. ii)

2.65 The requirement is that all new dwellings, and residential conversions must meet the higher water consumption figure allowed by Government which is a predicted internal and external mains water consumption of 110 litres/person/day.

2.66 This standard is relatively easy to achieve through the selection of water efficient fittings (such as aerated taps) and appliances (such as water efficient dishwashers and washing machines).

2.67 The completion of a water calculator (e.g. http://www.thewatercalculator.org.uk/) is needed to demonstrate the 110 or below target is being reached. This is already required for building regulations (which currently requires a maximum of 125 litres/person/day).

2.68 Further water efficiency measures beyond this including grey water recycling and rain water harvesting will be **encouraged.**

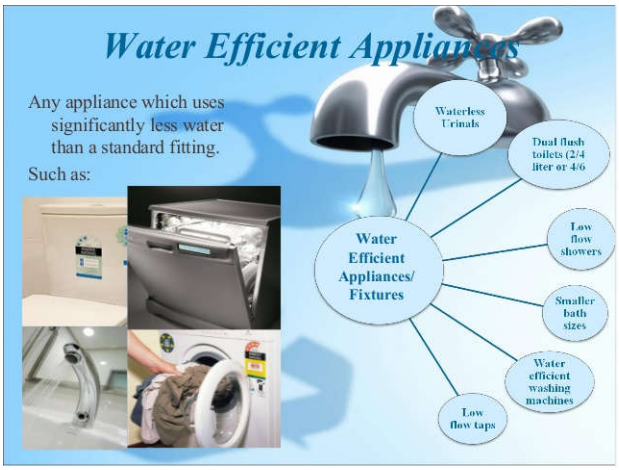
Minor Non-Residential Development

2.69 Water efficient measures will be **encouraged,** such as the use of water efficient fittings and fixtures and appliances; water monitoring via sub-metering; and water leak detection.

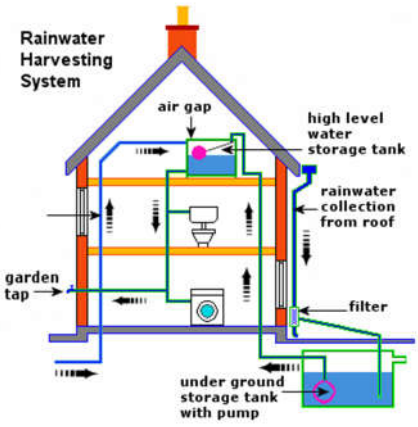
Major Non-Residential and Multi-Residential Development (Application of Policy SD48.2.iii)

2.70 The requirement is that Major non- and multi-residential applications will need to meet at least 2 credits (25% improvement on baseline based on Part G of building regulations) in the water consumption issue (Wat 01). This is mandatory at BREEAM New Construction 'excellent' standard.

2.71 Further water efficiency measures beyond this including water monitoring via sub-metering; water leak detection; and grey water recycling and rain water harvesting will be encouraged.



Water efficient fixtures and appliances



Rainwater harvesting (Source: Taylors of Bath)

2.72 A rainwater harvesting system is essentially a method of rainwater collection and it works by filtering rainfall and storing this rainwater in a rainwater tank, usually underground. The water can then be used to flush toilets, for washing machines, washing cars and for garden irrigation saving significant mains water consumption.

2.73 Greywater is waste water from bathroom sinks, showers, baths, and washing machines. It is filtered and treated and can then be used for flushing toilets and for outside irrigation.

2.74 For more information on saving water: http://www.energysavingtrust.org.uk/home-energy-efficiency/saving-water

WASTE (Application of Policy SD48.3)

2.75 Construction waste and the operational waste generated by buildings in use have significant impacts on greenhouse gas emissions in the built sector.

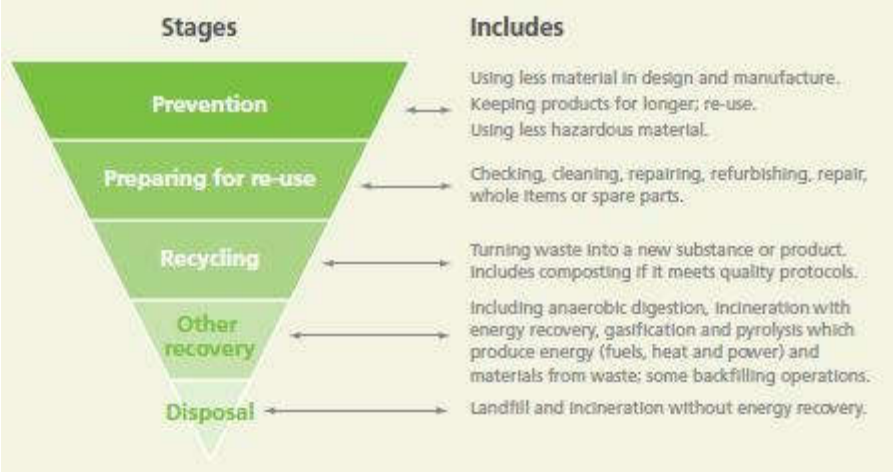
All Residential Development

2.76 **The requirement is that homes (normally in kitchens) should be fitted with separate bins in line with the recycling and waste collection policy of the local authority (the district, borough or city council in which the site sits) and a compost bin should be provided for any ground floor private garden of 50m2 or above.**

2.77 Segregated kitchen bins make it convenient and simple for occupants to contribute fully to the recycling of domestic waste.

Segregated kitchen waste bins

Segregated construction waste



The waste hierarchy (Source: DEFRA)

Where there is a Local Authority collection scheme (with a collection frequency of at least fortnightly) the applicant should provide:

- A combination of internal storage capacity provided in an adequate internal space meeting least one of the following requirements (depending on the waste collection service which is locally prevalent):
- Recyclable household waste is sorted after collection and a single bin of at least 30 litres is provided in an adequate internal space, OR;

Materials are sorted before collection and at least three separate bins are provided with a total capacity of 30 litres. Each bin must have a capacity of at least 7 litres and be located in an adequate internal space.

2.78 Applicants should find out from their local authority what nature of collection service is provided.

Waste Authority	Waste collection frequency	Recycling collection frequency	Garden waste collection frequency	Glass box collection frequency
Winchester	2 weeks	2 weeks	2 weeks	1 month
E Hants	2 weeks	1 month	2 weeks	1 month
Chichester	2 weeks	2 weeks	N/A	N/A
Horsham	2 weeks	2 weeks	N/A	N/A
Mid-Sussex	2 weeks	2 weeks	N/A	N/A
Lewes	1 weeks	2 weeks	N/A	N/A
Wealden	2 weeks	2 weeks	2 weeks	N/A
Brighton & Hove	2 weeks	2 weeks	N/A	N/A
Adur & Worthing	1 week	2 weeks	1 week	N/A
Arun	1 week	2 weeks	N/A	N/A

Waste Collection Service for each Authority across South Downs National Park (as at 2020)

Major Residential Development (at least 10 units)

2.79 Major Residential development should demonstrate best practice through the efficient management of waste during construction. This consists of measures to minimise construction waste and also to maximise diversion of remaining waste from landfill.

2.80 **The requirement is that Applicants will be expected to produce a Site Waste Management Plan (SWMP)[G] (which may include mobile recycling plant) and to demonstrate that at least the following minimum percentage by weight or by volume of non-hazardous construction waste generated by the project has been diverted from landfill.**

Type of waste	Minimum Volume	Minimum Tonnage
Non-demolition	50%	60%
Demolition	50%	60%
Excavation	N/A	N/A

Source: Table 10.2 from BREEAM NC 2018

Minor Non-Residential Development

2.81 Applicants are encouraged to minimise construction waste and to maximise diversion of remaining waste from landfill.

2.82 **The requirement is that a statement setting out the applicant's approach to minimising construction waste will be expected.**

Major Non-Residential and Multi-Residential Development

2.83 **The requirement is that Major non-residential and multi-residential development applicants will be expected to achieve at least 2 of the BREEAM New Construction Wst 01 (Construction Waste Management) credits or future equivalents.** (see BREEAM table 10.2 above).

2.84 BREEAM Wst 03 (Operational Waste) credit is mandatory for BREEAM excellent.

MATERIALS (Application of Policy SD48.3)

2.85 Materials and products used in building, such as steel, plastic and aluminium, are created by a production process of raw material extraction, raw material process, melting, manufacture to final products and transportation to a building site. Each of the steps consumes energy, which is also expressed in terms of carbon emissions. Total carbon emissions of all building materials and products and the construction involved to put them together is known as building's embodied carbon. Some estimates suggest embodied carbon accounts for about 20% of the carbon emissions from the building sector.

2.86 Applicants are encouraged to:

- re-use materials, such as existing stone on site or other materials reclaimed from existing buildings (such as bricks or timber) on or near site or use substituted materials in priority to primary aggregate.
- use recycled materials where appropriate, such as crushed bricks or concrete for hard-core. http://www.greenspec.co.uk/building-design/reclaimed-materials/
- use low carbon alternatives to standard building products where possible and appropriate, such as low carbon bricks or 'green concrete' straw bales or 'hempcrete'.
- use timber from well managed sources, ideally from Grown in Britain sources https://www.growninbritain.org/ or failing that, using FSC certified timber or equivalent. https://www.fsc-uk.org/en-uk/about-fsc/what-is-fsc
- use timber from a local source in lieu of Grown in Britain or FSC certified if provenance of this timber can be assured through written documentation.
- use locally-sourced materials where possible due to the need to reduce carbon miles inherent in transporting materials from afar.

2.87 Applicants are discouraged from using plastic building elements such as window frames, doors, barge boards and fascias etc. Although in theory some of these plastic elements can be recycled, in practice this rarely happens, which means the high embodied carbon cost is never recouped.

Single Dwelling Development

2.88 The use of low carbon and well managed materials is encouraged.

Multiple Homes and Major Non-Residential and Multi-Residential Development

2.89 The use of low carbon and well managed materials is **expected**.

2.90 The requirement is that Applicants should set out what measures they are taking to maximise the use of green materials and that all construction timber is 'Grown in Britain' certified, or where this is not feasible, FSC certified.

All Non-residential and Multi-Residential Development

2.91 The use of low carbon and well managed materials is **expected**.

2.92 The requirement is that Applicants should set out what measures they are taking to maximise the use of green materials (with reference to BREEAM New Construction credits for Major development) and that all construction timber is 'Grown in Britain' certified, or where this is not feasible, FSC certified.

'Grown in Britain' timber

FSC' timber

Recycled bricks

ADAPTATION TO CLIMATE CHANGE

Predicted Climate Change for the South Downs

2.93 Development needs to adapt to predicted climate change, which in the South Downs National Park consists of:

- wetter, warmer winters, leading to increased flood risk;
- hotter, drier summers, leading to water scarcity, drought and placing greater strain on wildlife and human health;
- rising sea levels, with more coastal erosion and a greater risk of coastal flooding;
- more frequent extreme events, such as heatwaves, gales, storms, tidal surges and intense rainfall.

All Development (Application of Policies SD2, SD4.1d, SD4.4, SD5e, SD9, SD45, SD48.3, SD49, SD50)

2.94 The requirement is to provide an ecosystem services statement (as already required in policy SD2) which includes proportionately, the following adaptation to climate change measures:

a) To conserve or enhance wildlife in the national park:

- Where possible, retain existing 'green and blue infrastructure' on the site (mature trees and especially natives); native habitats (such as heathland or woodland); natural water features;
- Enhance and connect green and blue infrastructure by connecting habitats across the site (e.g. native woodland or heathland);
- the selection of native species of plants and trees; other plants which attract pollinating insects; and the creation of natural water features.

b) To reduce the effects of storm water runoff:

- Provide sustainable drainage systems (SuDS), such as permeable paving for drives (e.g. free draining gravel); green roofs; rain water harvesting, rain gardens, swales etc. Where there is space for ground level open to air, multi-functional SuDS, these should be designed by multi-disciplinary teams to address run-off volumes, and enhancements in water quality, biodiversity and landscape amenity

Rain garden in suburban street with street trees

c) To reduce the effects of summer heatwaves:

- Provide shade with deciduous trees.
- Ensure buildings are designed to minimise overheating (e.g. orientation and size and over shading of windows and good insulation). The Passivhaus Standard defines overheating as when indoor temperatures exceed 25°C. The Passivhaus Planning Package verification page reports a percentage of hours in a year that exceeds 25°C in the design model PHPP. For certification purposes, the limit is 10% of the annual hours. However, it is better to aim for below 5% of occupied hours and ideally 0% if possible to ensure the best summer comfort.
- Provide water features near buildings, where appropriate.
- Consider green roofs and green walls.
- Design natural ventilation systems for homes.

d) To reduce the effects of summer droughts:

- Reduce mains water consumption.
- Select native trees and plants more adaptable to prolonged dry spells.
- Design drought resistant gardens and open spaces.

2.95 Multiple home developments are likely to have more opportunities than most single dwelling schemes. The 'landscape led approach' in the national park will mean applicants will need to identify significant opportunities to enhance the landscape and wildlife of sites and their immediate surroundings which will inform their landscape strategies.

Green wall on multi-storey car park, Warwick (Source: Architect's Journal)

Minor Non-Residential Development

2.96 The measures for adapting to climate change for residential development would equally apply (but proportionately) to minor non-residential and multi-residential development. SuDS; measures for conserving and enhancing landscape and wildlife; providing urban cooling through design and green and blue infrastructure; adapting to drought through water efficiency; and drought resistant planting will all be expected.

All Large Residential and Major Non-Residential Development

2.97 The requirement is that at least 10% of the total roof area of the development (including all sheds, garages and outbuildings) should consist of green roofs unless there are clear landscape or urban design reasons making this inappropriate.

Green roofs on bike stores and car barns

Green roofs on sheds and commercial buildings

Major Non-residential and Multi-Residential Development

2.98 The requirement is that the adaptation to climate change strategy for major non- and multi-residential applications will need to demonstrate how the development proposals will contribute to measures adapting to predicted climate change as above (for all development) but also meet specific BREEAM NC credits (or their updated equivalents).

2.99 The 'landscape led approach' in the national park will mean applicants will need to identify significant opportunities to enhance the landscape and wildlife of sites and their immediate surroundings which will inform their landscape strategies The cooling effects of landscape design will also need to be considered as well as the use of locally native plant selection and other drought resistant landscape design elements.

2.100 Development will be expected to achieve the credit in **Wst 05** Adaptation to Climate Change (or future equivalent), as well as at least one of the two available flood resilience and two SuDS credits in **Pol 03** (or future equivalents).

Further Guidance

2.101 Green roofs should be implemented in accordance with the GRO Green Roof Code (2014) or subsequent update.

https://livingroofs.org/wp-content/uploads/2016/03/grocode2014.pdf

2.102 Further technical guidance can be found on the Green Roof Guidelines website

http://www.greenroofguide.co.uk/

2.103 See also The SDNPA Design Guide Supplementary Planning Document.

https://www.southdowns.gov.uk/planning/supplementary-documents/

3. TECHNICAL GUIDANCE FOR POLICY SD3: MAJOR DEVELOPMENT

Definition of 'Major Development'

3.1 Major development in the National Park will be refused under paragraph 172 of the National Planning Policy Framework (NPPF) and Policy SD3 other than in exceptional circumstances and where it can be demonstrated to be in the public interest. Policy SD3 of the Local Plan gives advice on what constitutes 'major development' for the purposes of the NPPF (see Appendix 1). This generally tends to be the largest and most significant proposals in the National Park.

One Planet Living

3.2 Policy SD3 requires all major development which is deemed acceptable under the definition of this policy to meet One Planet Living standards of sustainable performance devised by Bioregional

https://www.bioregional.com/one-planet-living

3.3 Development proposals should be sustainable as measured against the following factors:

- Zero Carbon
- Zero Waste
- Sustainable Transport
- Sustainable Materials
- Sustainable Water
- Land Use and Wildlife
- Culture and Community
- Health and Wellbeing

ZERO CARBON

3.4 There are several definitions of 'Zero Carbon' development. Two definitions from the UK Green Building Council (UK GBC) relate firstly to 'operational energy' only and secondly to a 'whole life' assessment.

https://www.ukgbc.org/ukgbc-work/net-zero-carbon-buildings-a-framework-definition

3.5 Net zero carbon – 'operational energy' is defined by the UK GBC as:

"When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset."

3.6 Net zero carbon – 'whole life' is defined by the UK GBC as:

"When the amount of carbon emissions associated with a building's embodied and operational impacts over the life of the building, including its disposal, are zero or negative."

3.7 For the purposes of this Supplementary Planning Document, 'zero carbon' will be defined as being restricted to operational energy.

3.8 It should be understood that the operational energy of a building includes all energy including non-regulated energy such as for cooking and appliances.

3.9 Although construction impacts on greenhouse gas emissions are not part of the SDNPA definition of 'zero carbon' there will be separate requirements (later in this chapter) to maximise the use of low carbon and environmentally-friendly construction materials and to minimise waste, both of which will reduce the embodied energy and carbon of development.

3.10 Therefore, **the requirement is to ensure that the amount of carbon emissions associated with the building's operational (regulated and unregulated) energy on an annual basis is zero or negative.**

3.11 In practice this needs to involve:

a) Calculating the dwelling emission rate (DER) or building emission rate (BER) in SAP and SBEM for residential and non-residential buildings respectively to ensure that they are zero or below zero to demonstrate all regulated energy emissions are eliminated.

b) A calculation of the building's non-regulated emissions will then need to be made and these reduced to zero by on-site measures such as zero carbon energy production if possible.

c) If (b) is shown to be impossible in full for genuine site or development reasons the shortfall in emissions can be offset by agreed off-site carbon reduction measures on public or community buildings OR

d) An agreed financial contribution to SDNPA for carbon reduction projects elsewhere.

ZERO WASTE

Non- residential and Multi-Residential development

3.12 **The requirement is that a site waste management plan (SWMP) is carried out and that at least 3 out of 4 BREEAM NC Wst 01 Construction waste management credits, the Wst 02 Use of recycled and sustainably sourced aggregates and the Wst 03 Operational waste credits are achieved** (or equivalents if BREEAM scheme updated).

Residential development

3.13 **The requirement is that Applicants will be expected to produce a Site Waste Management Plan (SWMP) and to demonstrate that at least the following minimum percentage by weight or by volume of non-hazardous construction waste generated by the project has been diverted from landfill**

Type of waste	Minimum Volume	Minimum Tonnage	Type of waste
Non-demolition	85%	90%	Non-demolition
Demolition	85%	95%	Demolition
Excavation	95%	95%	Excavation

Source: Table 10.2 from BREEAM NC 2018

3.14 The requirements for separated waste and recycling storage in kitchens required to satisfy policy SD48 will also apply in the case of 'major development' as described in para 2.77.

SUSTAINABLE TRANSPORT

3.15 The requirement is for:

a) **A transport assessment and travel plan for the development (always required for development at this scale in any case)**

b) **EV Charge Points for all residential units, visitor spaces and at least 1 charge point for every 5 car spaces in non-residential development The charge points must have a minimum power rating output of 7kW, be fitted with a universal socket that can charge all types of electric vehicle currently on the market and meet relevant safety and accessibility requirements.**

c) **At least 1 commercial rapid charge point in an accessible location on or within 500m of the site.**

d) **The creation of an ambitious network of safe, convenient and attractive routes for non-motorised transport users, connecting the site to existing and/or future routes around the site and to local facilities and services.**

e) **The provision of a car club with at least 1 car club car per 30 dwellings or at a level to be agreed with the Authority.**

f) **The support of local public transport and its facility to serve the residents or occupants of the development.**

g) **Non-residential development (with at least 10 employees) to provide cycle user showers and changing facilities as well as secure cycle storage proportionate to scale of the development in accordance with BREEAM NC Tra 02.**

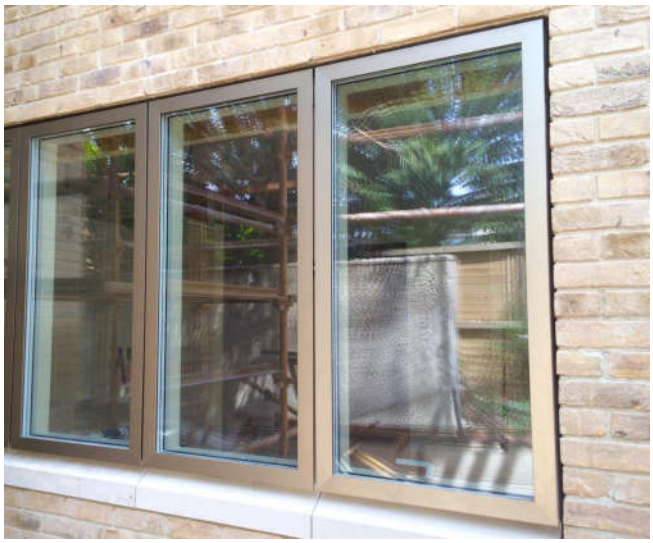
SUSTAINABLE MATERIALS

3.16 Construction materials need to minimise environmental impacts including their embodied greenhouse gas emissions.

3.17 The requirement is for a sustainable materials report which should include an account of alternative, recycled and substituted materials used on site and consider alternatives to plastic windows and doors and other elevational elements such as rainwater goods and barge boards, fascias etc. All timber should be 'Grown in Britain' certified or FSC certified.

UPVC windows

Traditional style timber windows



Anodized aluminium windows

Painted aluminium and timber composite windows

SUSTAINABLE WATER

Residential Development

3.18 The requirement is for all homes to have a predicted mains water consumption figure of less than 90 litres/person/day.

Non-Residential Development

3.19 The requirement is for buildings to achieve all 5 standard BREEAM NC Wat 1 credits as well as at least half or remaining BREEAM Water credits.

LAND USE AND WILDLIFE

All Development

3.20 The requirement is for generously dimensioned green infrastructure links across the site linking to surrounding habitats and based on what the evidence shows is locally characteristic, including green roofs for at least 80% of roof area.

3.21 If there are design reasons agreed by the SDNPA why this is deemed inappropriate, then the 80% figure can be reduced. Similarly, if it is agreed that roof area is needed for solar collection for e.g. PV then the 80% figure can be reduced accordingly.

Non-Residential Development

3.22 The requirement is for the development to meet both BREEAM LE 01 credits where applicable and all remaining Land Use and Ecology credits.

CULTURE AND COMMUNITY

3.23 The requirement is for:

a) **Comprehensive community involvement in the design of the development at project 'vision' and masterplan stages.**

b) **The provision of some form of publically accessible community facilities on site, proportionate to the size of development.**

c) **Creation of a community project aimed at development residents/occupants such as community based management of communal gardens/ set up of community food project/other green infrastructure management project**

d) **Provision of comprehensive user guides for all building users covering building services, energy and water saving, community groups, local facilities, transport options and other relevant issues.**

HEALTH AND WELLBEING

Residential Development

3.24 The requirement is for best practice environmental quality of buildings (which should include daylight/ventilation/thermal comfort/overheating risk/acoustics) which should be converted into actual metrics agreed with the Authority.

3.25 Opportunities for on-site or close local food growing opportunities should be provided.

Non- Residential and Multi-Residential Development

3.26 The requirement is that at least half of all the available BREEAM NC Health and Wellbeing credits should be achieved.

All development

3.27 The requirement is that a Post Occupancy Evaluation of a representative sample of all house types and orientations or non-residential uses should be funded by the applicant. This should cover energy and water use, indoor air quality, thermal comfort and user feedback on a range of issues including environmental quality (daylight/ventilation/thermal comfort/acoustics).

APPENDIX 1:
RELEVANT LOCAL PLAN POLICIES

Core Policy SD2: Ecosystem Services

1. Development proposals will be permitted where they have an overall positive impact on the ability of the natural environment to contribute goods and services. This will be achieved through the use of high quality design, and by delivering all opportunities to:
   a) Sustainably manage land and water environments;
   b) Protect and provide more, better and joined up natural habitats;
   c) Conserve water resources and improve water quality;
   d) Manage and mitigate the risk of flooding;
   e) Improve the National Park's resilience to, and mitigation of, climate change;
   f) Increase the ability to store carbon through new planting or other means;
   g) Conserve and enhance soils, use soils sustainably and protect the best and most versatile agricultural land;
   h) Support the sustainable production and use of food, forestry and raw materials;
   i) Reduce levels of pollution;
   j) Improve opportunities for peoples' health and wellbeing; and
   k) Provide opportunities for access to the natural and cultural resources which contribute to the special qualities.
2. Development proposals must be supported by a statement that sets out how the development proposal impacts, both positively and negatively, on ecosystem services.

Core Policy SD3: Major Development

1. In determining what constitutes major development the National Park Authority will consider whether the development, including temporary events should they be deemed to constitute development, by reason of its scale, character or nature, has the **potential** to have a significant adverse impact on the natural beauty, wildlife or cultural heritage of, or recreational opportunities provided by, the National Park. The potential for significant adverse impact on the National Park will include the consideration of both the impact of cumulative development and the individual characteristics of each proposal and its context.
2. Planning permission will be refused for major developments in the National Park except in exceptional circumstances, and where it can be demonstrated they are in the public interest. Consideration of such applications should include an assessment of:
   a) The need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
   b) The cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and
   c) Any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
3. If it is considered that exceptional circumstances exist and development would be in the public interest, all opportunities to conserve and enhance the special qualities should be sought. Development proposals should be sustainable as measured against the following factors:
   - Zero Carbon
   - Zero Waste
   - Sustainable Transport
   - Sustainable Materials
   - Sustainable Water
   - Land Use and Wildlife
   - Culture and Community
   - Health and Wellbeing

Development Management Policy SD22: Parking Provision

1. Development proposals for new, extended or re-located public parking will be permitted provided that they are located in or adjacent to the settlements listed in Policy SD25: Development Strategy, or have a strong functional link to an established cultural heritage, wildlife or landscape visitor attraction, provided that:
   a) There is evidence that overriding traffic management or recreation management benefits can be achieved;
   b) It is a component of a strategic traffic management scheme which gives precedence to sustainable transport; and
   c) The site is close to and easily accessible from main roads by appropriate routes, and well connected to the PRoW network.
2. Development proposals will be permitted if they provide an appropriate level of private cycle and vehicle parking to serve the needs of that development in accordance with the relevant adopted parking standards for the locality. Wherever feasible, electric vehicle charging facilities must also be provided.
3. All new private and public parking provision will:
   a) Be of a location, scale and design that reflects its context; and
   b) Incorporate appropriate sustainable drainage systems.
4. All new public parking provision will comply with the following:
   a) Wherever feasible, electric vehicle charging facilities must be provided. Where located with potential for onward travel by mobility scooter, this should include charging facilities for such scooters; and
   b) Where located with good accessibility to the bridleway network, include provision for horse box parking.

Strategic Policy SD48: Climate Change and Sustainable Use of Resources

1. The Authority will encourage all new development to incorporate sustainable design features, as appropriate to the scale and type of development.
2. All development proposals will be required to achieve the minimum standards as set out below unless it can be demonstrated that doing so is not technically feasible or would make the scheme unviable:

   Residential:

   i. Energy efficiency: 19% carbon dioxide reduction improvement against Part L (2013)[96] through the energy efficiency of the building and;

   ii. Water: Total mains consumption of no more than 110 litres per person per day[97].

   Non-residential and Multi-residential[97]:

   i. Major: Building Research Establishment Environmental Assessment Method (BREEAM) Excellent[98]

3. All development proposals, including retrofitting, will be required to demonstrate, proportionately, how the development addresses climate change mitigation and adaptation through the on-site use of zero and/or low carbon technologies, sustainable design and construction, and low carbon materials.
4. Major development proposals should also include an energy assessment to demonstrate how carbon dioxide emissions are to be minimised on-site.

Other Local Plan Policies, relating to Adaptation to Climate Change:
SD4 Landscape Character and SD5 Design, SD9 Biodiversity and Geodiversity, SD45 Green Infrastructure, SD49 Flood Risk Management, SD50 Sustainable Drainage Systems
SD4.1 SD4.4, SD5e, SD9, SD45, SD49 and SD50 require GI and Blue Infrastructure enhancement and SuDS.

APPENDIX 2: SINGLE DWELLING SUSTAINABILITY CHECKLIST

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Details/Comments
The following are required unless exceptional circumstances are demonstrated:				
Energy Efficiency	A **19%** improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **19%** less than TER entirely due to energy efficiency (or **29%** overall improvement)	
Green Energy	A further **20%** improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **20%** less than TER entirely due to on site low/zero carbon energy (or **39%** overall improvement)	
Electric Vehicle Charging	All homes with on-plot or other suitable car parking to have EV charge point[3]		Design stage plans and specifications	
Waste	Separate internal bins in line with the recycling and waste collection policy of the local authority		Product specification and confirmation of relevant Waste Authority collection service	
	Provide compost bin where private garden[3]		Product specification and location on landscape plan	
Water Use	No more than 110 litres/person/day predicted mains water consumption[4]		Design stage water calculator	
The following are expected where feasible and appropriate:				
Adaptation to Climate Change	Retain existing mature trees, hedges or water features or other native habitats and select native trees and plants		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	
	Provide sustainable drainage systems, such as permeable paving for drives (e.g. free draining gravel); green roofs; swales etc.		Layout plan to show all proposed SuDS features	

	Provide shade with deciduous trees		Landscape or layout plan to indicate where existing or proposed deciduous trees to provide shade to garden space or to internal living spaces vulnerable to overheating.	
	Building design minimises overheating		Building design such as orientation, generous window reveals, natural ventilation, brise soleil	
	Design drought resistant gardens		Landscape plan	
The following are encouraged:				
Energy Efficiency	A greater than 19% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	
Green Energy	A greater than 20% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	
Adaptation to Climate Change	New water feature, e.g. pond		Landscape plan	
	Reduce mains water use below 110 litres		Design stage water calculator	
	Green roofs or green walls		In landscape plan	
Materials	Use of any substituted, re-used, recycled or other green materials in construction		Written account	
	Alternatives to plastic windows and doors		Written evidence	
	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for listed building elements	
Passive House	Passive house principles or full certification		Building design to meet passive house metrics or design on target for passive house certification	

1. This is generated in the design stage SAP data calculation that is already required for building regulations.
2. A minimum power rating output of 7kW, untethered Mode 3 or equivalent charge point, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.
3. Compost bin only expected if garden size at least 50 sqm
4. This is found using a water calculator e.g. http://www.thewatercalculator.org.uk/

APPENDIX 3:
SMALL RESIDENTIAL DEVELOPMENT*
SUSTAINABILITY CHECKLIST

*(2-9 homes)

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Details/Comments
The following are required unless exceptional circumstances are demonstrated::				
Energy Efficiency	A 19% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **19%** less than TER entirely due to energy efficiency (or **39%** overall improvement)	
Green Energy	A further 20% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **20%** less than TER entirely due to on site low/zero carbon energy (or **39%** overall improvement)	
Electric Vehicle Charging	All homes with on-plot or other suitable car parking to have EV charge point[2]		Design stage plans and specifications	
Waste	Separate internal bins in line with the recycling and waste collection policy of the local authority		Product specification and confirmation of relevant Waste Authority collection service	
	Provide compost bin where private garden[3]		Product specification and location on landscape plan	
Materials	Use of any substituted, re-used, recycled or other green materials in construction		Written account	

	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for building elements	
Water Use	No more than 110 litres/person/day predicted mains water consumption[4]		Design stage water calculator	
The following are expected where feasible and appropriate:				
Adaptation to Climate Change	Retain existing mature trees, hedges or water features or other native habitats and select native trees and plants		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	
	Provide sustainable drainage systems, such as permeable paving for drives (e.g. free draining gravel); green roofs; swales etc.		Layout plan to show all proposed SuDS features	
	Provide shade with deciduous trees		Landscape or layout plan to indicate where existing or proposed deciduous trees to provide shade to garden space or to internal living spaces vulnerable to overheating.	
	Building design minimises overheating		Building design such as orientation, generous window reveals, natural ventilation, brise soleil	
	New water feature, e.g. pond		In landscape plan	
	Design drought resistant gardens		Landscape plan	
	Provide green infrastructure links across the site		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	
The following are encouraged:				
Energy Efficiency	A greater than 19% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	
Green Energy	A greater than 10% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	
Materials	Alternatives to plastic windows and doors		Written evidence	

Adaptation to Climate Change	Reduce mains water use below 110 litres		Design stage water calculator	
	Green roofs or green walls		Landscape plan	
Passive House	Passive house principles or full certification		Building design to meet passive house metrics or design has passive house certification	

1. This is generated in the design stage SAP data calculation that is already required for building regulations.
2. A minimum power rating output of 7kW, untethered Mode 3 or equivalent charge point, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.
3. Compost bin only expected if garden size at least 50 sqm
4. This is found using a water calculator e.g. http://www.thewatercalculator.org.uk

APPENDIX 4:
LARGE RESIDENTIAL DEVELOPMENT*
SUSTAINABILITY CHECKLIST

*(10 homes and above)

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Construction Stage Evidence	Details/Comments
The following are required unless exceptional circumstances are demonstrated:					
Energy Efficiency	19% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **19%** less than TER entirely due to energy efficiency (or **39%** overall improvement)	As built stage SAP data showing DER **19%** less than TER entirely due to energy efficiency (or **39%** overall improvement)	
Green Energy	A further 20% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data showing DER **20%** less than TER entirely due to on site low/zero carbon energy (or **39%** overall improvement)	As built stage SAP data showing DER **20%** less than TER entirely due to on site low/zero carbon energy (or **39%** overall improvement) and photographic evidence of installation	
Passive House Standard	Full passive house certification for 10%[2] of units		PHPP report demonstrating design on target for passive house certification covering: space heating demand; airtightness; u-values;	Passive house certificates for completed passive houses	

			overheating; renewables; primary energy		
Electric Vehicle Charging	All homes with on-plot or other suitable car parking to have EV charge point[3]		Design stage plans and specifications	Photographic evidence of installed product	
Waste	Separate internal bins in line with the recycling and waste collection policy of the local authority		Product specification and confirmation of relevant Waste Authority collection service	Photographic evidence of installed product	
	Provide compost bin where private garden[4]		Product specification and location on landscape plan	Photographic evidence of installed product	
	Site Waste Management Plan and at least 50% by weight or by volume of non-hazardous construction waste generated by the project diverted from landfill.		SWMP evidence at least 50% of construction waste to be diverted	SWMP evidence 50% waste diverted.	
Materials	Strategy for use of any substituted, re-used, recycled or other green materials		Provide written strategy	Evidence how strategy carried out in the completed construction	
	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for building elements	Written evidence of Grown in Britain or FSC certification	
Water Use	No more than 110 litres/person/day predicted mains water consumption[5]		Design stage water calculator	As built stage water calculator	
Adaptation to Climate Change	retain existing mature trees, hedges or water features or other native habitats (where possible) and select native trees and plants		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	As built Layout plan showing all retained and removed trees, hedges, water features or other native habitats.	
	Provide SuDS systems for all hard surfaces		Layout plan to show all proposed SuDS features	As built Layout plan showing all SuDS features	

	Provide shade with deciduous trees		Landscape or layout plan to indicate where existing or proposed deciduous trees to provide shade to garden space or to internal living spaces vulnerable to overheating.	Confirm no changes or provide evidence of changes	
	Building design minimises overheating		Building design such as orientation, generous window reveals, natural ventilation, brise soleil	Confirm no changes or provide evidence of changes	
	New water features, e.g. pond		Landscape plan	Confirm no changes or provide evidence of changes	
	At least 10% of total roof area to be provided as green roofs. Green walls where appropriate		Landscape plan	Confirm no changes or provide evidence of changes and provide management plan	
	Reduce mains water use		Design stage water calculator	As built water calculator	
	Select native trees and plants		Landscape plan	Landscape plan	
	Design drought resistant gardens		Landscape plan	Landscape plan	
	Provide green infrastructure links across the site		Landscape plan	Landscape plan	
The following are encouraged:					
Energy Efficiency	A greater than 19% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	As built stage SAP data	
Green Energy	A greater than 10% improvement of CO_2 emissions: DER over TER in SAP data[1]		Design stage SAP data	As built stage SAP data	
Passive House	Passive house principles or full certification for the remainder of the units		Building design to meet passive house metrics or design has passive house certification	As built design meets passive house metrics or design has passive house certification	

Materials	Alternatives to plastic windows and doors		Written evidence	Written evidence	

1. This is generated in the design stage SAP data calculation that is already required for building regulations.
2. Nos. rounded up to nearest whole unit, so e.g. 10% of 15 dwellings = 1.5, so 2 dwellings required to be passive house certified.
3. A minimum power rating output of 7kW, untethered Mode 3 or equivalent charge point, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.
4. Compost bin only expected if garden size at least 50 sqm
5. This is found using a water calculator e.g. http://www.thewatercalculator.org.uk/

APPENDIX 5:
MINOR NON-RESIDENTIAL DEVELOPMENT*
SUSTAINABILITY CHECKLIST

*(floor space more than 250 m², less than 1000 m² and a site area of less than 0.5ha)

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Details/Comments
The following are required unless exceptional circumstances are demonstrated:				
Energy Efficiency	**19**% improvement of CO_2 emissions: BER over TER in SBEM data[1]		Design stage SBEM data showing BER **19%** less than TER entirely due to energy efficiency (or **39%** overall improvement)	
Green Energy	A further **20**% improvement of CO_2 emissions: BER over TER in SBEM data[1] through on-site low/zero carbon energy		Design stage SAP data showing BER **20%** less than TER entirely due to on site low/zero carbon energy (or **39%** overall improvement)	
Electric Vehicle Charging	All development with at least 10 car spaces to have at least one EV charge point[2]		Design stage plans and specifications	
Waste	Strategy for reducing construction and operational waste		Provide written strategy	
Materials	Strategy for use of any substituted, re-used, recycled or other green materials		Provide written strategy	
	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for building elements	
The following are encouraged:				

Adaptation to Climate Change	Retain existing mature trees, hedges or water features or other native habitats and select native trees and plants		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	
	Provide SuDS systems for all hard surfaces		Layout plan to show all proposed SuDS features	
	Provide shade with deciduous trees		Landscape or layout plan to indicate where existing or proposed deciduous trees to provide shade to garden space or to internal living spaces vulnerable to overheating.	
	Building design minimises overheating		Building design such as generous window reveals, natural ventilation, brise soleil	
	New water features, e.g. pond		In landscape plan	
	Green roofs or green walls		Landscape plan	
	Natural ventilation (opening windows)		Building design	
	Reduce mains water use		Water calculator	
	Design drought resistant gardens		Landscape plan	
	Provide green infrastructure links across the site		Landscape plan	
Passive House	Passive house principles or full certification		Building design to meet passive house metrics or design has passive house certification	
Water Use	Water efficient measures		Set out water efficient measures such as water efficient fittings and appliances, leak detection	
Materials	Strategy for use of any re-used, recycled or other green materials		Provide written strategy	
	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for listed building elements	

1. This is generated in the design stage SBEM data calculation that is already required for building regulations.

2. A minimum power rating output of 7kW, untethered Mode 3 or equivalent charge point, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.

APPENDIX 6:
MAJOR NON-RESIDENTIAL DEVELOPMENT*
SUSTAINABILITY CHECKLIST

*floor space of 1000 m^2 or more is provided or a site of 0.5ha or more

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Construction Stage Evidence	Details/Comments
The following are required unless exceptional circumstances are demonstrated:					
Energy Efficiency	BREEAM NC excellent mandatory		BREEAM interim certificate showing BREEAM excellent rating.	BREEAM post construction certificate showing BREEAM excellent rating.	
Green Energy	A **20%** improvement of CO_2 emissions: BER over TER in SBEM data[1] through on-site low/zero carbon energy		Design stage SBEM data showing BER before & after inclusion of low/zero carbon energy - this to be at least **20%** improvement over TER	As built stage SBEM data showing BER before & after inclusion of low/zero carbon energy - this to be at least **20%** improvement over TER.	
Passive Design	BREEAM NC Ene 04 (passive design analysis) credit*		BREEAM design stage assessment showing credit achieved	BREEAM post construction stage assessment showing credit achieved	
Electric Charging	On-site car parking to have cable routes for an EV charge point for one in five spaces		Design stage plans and specifications	Photographic evidence of installed product	
Water Use	BREEAM 2no. Wat 01 credits*		BREEAM design stage assessment showing credits achieved	BREEAM post construction stage assessment showing credits achieved	

Waste	At least 1 of the BREEAM NC Wst 01diversion of resources from landfill credits*		BREEAM design stage assessment showing credit achieved	BREEAM post construction stage assessment showing credit achieved	
Materials	At least 2 out of available 4 Mat 03 measuring responsible sourcing credits*.		BREEAM design stage assessment showing credits achieved	BREEAM post construction stage assessment showing credits achieved	
	Strategy for use of any substituted, re-used, recycled or other green materials		Provide written strategy	Evidence how strategy carried out in the completed construction	
	Selection of certified 'Grown in Britain' or FSC timber in construction		Confirmation Grown in Britain or FSC certified timber to be specified for building elements	Written evidence of Grown in Britain or FSC certification	
Adaptation to Climate Change	1 flood resilience and 2 SuDS BREEAM NC Pol 03 credits*		BREEAM design stage assessment showing credits achieved	BREEAM post construction stage assessment showing credits achieved	
	BREEAM NC Wst 05 credit*		BREEAM design stage assessment showing credit achieved	BREEAM post construction stage assessment showing credit achieved	
The following are expected where feasible and appropriate:					
Materials	Alternatives to plastic windows and doors		Written evidence	Written evidence	
Adaptation to Climate Change	Retain existing mature trees, hedges or water features or other native habitats and select native trees and plants		Layout plan showing all proposed retained and removed trees, hedges, water features or other native habitats	As built Layout plan showing all retained and removed trees, hedges, water features or other native habitats.	
	Provide SuDS systems for all hard surfaces		Layout plan to show all proposed SuDS features	As built Layout plan showing all SuDS features	
	Provide shade with deciduous trees		Landscape or layout plan to indicate where existing or proposed deciduous trees to provide shade to garden	Confirm no changes from design stage or provide evidence of changes	

			space or to internal living spaces vulnerable to overheating.		
	Building design minimises overheating		Building design such as generous window reveals, natural ventilation, brise soleil	Confirm no changes from design stage or provide evidence of changes	
	New water features, e.g. pond		In landscape plan	Confirm no changes from design stage or provide evidence of changes	
	At least 10% of total roof area green roofs Green walls where appropriate		Landscape plan	Confirm no changes from design stage or provide evidence of changes and provide management plan	
	Natural ventilation (opening windows)		Building design	Confirm no changes from design stage or provide evidence of changes	
	Reduce mains water use		Water calculator	As built water calculator	
	Select native trees and plants		Landscape plan	Landscape plan	
	Design drought resistant gardens		Landscape plan	Landscape plan	
	Provide green infrastructure links across the site		Landscape plan	Landscape plan	
The following are encouraged:					
Passive House Standard	Passive house principles or full certification		Building design to meet passive house metrics or design has passive house certification	Building design to meet passive house metrics or design has passive house certification	

*Or equivalent in future BREEAM updates

1. This is generated in the design stage SBEM data calculation that is already required for building regulations.
2. A minimum power rating output of 7kW, untethered Mode 3 or equivalent charge point, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.

APPENDIX 7:
MAJOR DEVELOPMENT*
SUSTAINABILITY CHECKLIST

*As defined by SDNP Local Plan Policy SD3

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Construction Stage Evidence	Details/Comments
The following are required in all cases unless exceptional circumstances:					
Zero Carbon	Zero Carbon homes and/or non-residential buildings		Design stage SAP/SBEM data[1] showing DER/BER - this to be at least **100%** improvement over TER plus further reduction to meet non-regulated energy emissions	As-built stage SAP/SBEM data[1] showing DER/BER - this to be at least **100%** improvement over TER plus further reduction to meet non-regulated energy emissions	
Zero Waste	Residential: Site Waste Management Plan committing to % compliance as per para 3.13 of SPD; compost bins[3] and segregated kitchen waste Non-residential:		Residential: Site Waste Management Plan; compost bins[3] and segregated kitchen waste bins to be provided Non-residential: BREEAM design stage assessment showing credits achieved	Residential: Site Waste Management Plan demonstrating % compliance as per para 3.13 of SPD; compost bins[3] and segregated kitchen waste bins provided Non-residential: BREEAM post construction stage assessment showing credits achieved	

	BREEAM NC* 3 no. Wst 01; 1 no. Wst 02 and 1no. Wst 03 credits.				
Sustainable Transport	Transport Assessment and Travel Plan; 1no. rapid EV charger; non-motorised transport network enhancements; public transport support. Residential: All dwellings to have EV charge point[2] Non-residential: an EV charge point[2] for one in five spaces; cyclist facilities		Transport Assessment and Travel Plan Design stage plans and specifications	Photographic evidence of installed products	
Sustainable Materials	Sustainable Materials Report demonstrating low carbon and environmentally friendly materials (substituted, re-used, recycled and locally sourced) including alternatives to uPVC building products (windows, doors, rainwater goods, fascias and sockets etc.); Grown in Britain certified timber (FSC or equivalent where G in B not feasible)		Sustainable Materials Report, elevational details	Updated Sustainable Materials Report, elevational details. Grown in Britain (or FSC where this not feasible) certificates	
Sustainable Water	Residential:		Residential: Design stage water calculator[4]	Residential: As built stage water calculator[4]	

	Homes to have predicted mains water use below 90 litres/person/day Non-residential: All 5 BREEAM NC 2018 Wat 1 credits and at least half remaining Water credits*		Non-residential: BREEAM design stage assessment showing credits achieved	Non-residential: BREEAM post construction stage assessment showing credits achieved	
Land Use and Wildlife	All development: Generous green infrastructure including at least 80% available roof area green roof. Non-residential: Both BREEAM NC 2018 LE 01 credits*		Plans showing GI and green roofs and green roof calculation Non-residential: BREEAM design stage assessment showing credits achieved	As built showing GI and green roofs and green roof calculation Non-residential: BREEAM post construction stage assessment showing credits achieved	
Culture and Community	Community involvement in critical design stages		Community design workshops	Report on community involvement	
	Community facilities provision		Planning Statement, masterplan	Completion of community facility buildings/structures on site	
	Community Project		Planning Statement	Fully funded project agreed with SDNPA	
	User Guides		Planning Statement	Provision of user guides	
Health and Wellbeing	Residential development: Best practice environmental quality of development		Residential: Agreed metrics and targets for daylight/ventilation/thermal comfort/overheating/acoustics	Residential: Report on measured representative sample of completed buildings using agreed metrics and targets	

	Non-residential: At least half of BREEAM NC 2018 Hea credits*		Non-residential: BREEAM design stage assessment showing credits achieved	Non-residential: BREEAM post construction stage assessment showing credits achieved	
	All development: A Post Occupancy Evaluation report		POE brief agreed with Authority	POE submitted at least 1 year after occupation and less than 3 years after	

*Or the equivalent in an updated BREEAM version.

1. This is generated in the design stage SAP/SBEM data calculation that is already required for building regulations.
2. A minimum power rating output of 7kW, untethered Mode 3 or equivalent chargepoint, fitted with a universal socket that can charge all types of electric vehicle currently on the market and meets relevant safety and accessibility requirements.
3. Compost bin only expected if garden size at least 50 sqm
4. This is found using a water calculator e.g. http://www.thewatercalculator.org.uk/

GLOSSARY

BRE
The Building Research Establishment (BRE) is a multi-disciplinary, building science centre with is focused on how to improve buildings and infrastructure, through research and knowledge generation. The BRE is the owner of the BREEAM assessment method.

BREEAM NC
The Building Research Establishment Environmental Assessment Method (BREEAM) New Construction (NC) is an assessment method covering a wide range of sustainable performance issues in new development, namely: Management, Health and Wellbeing, Energy, Transport, Water, Materials, Land Use and Ecology and Pollution, There are different standards relating to the percentage of points achieved, namely Pass (30%), Good (45%), Very Good (55%), Excellent (70%) and Outstanding (85%).

DER and TER
The Dwelling Emission Rate (DER) and the Target Emission Rate (TER) are the headline CO_2 figures which SAP Calculations measure. These figures will determine whether a new dwelling passes or fails on its carbon emission targets set within Part L of the building regulations.

EV
Electric Vehicle

FSC
The Forest Stewardship Council (FSC) is an international non-profit, multi-stakeholder organization that promotes responsible management of the world's forests. FSC runs a global forest certification system with two key components: Forest Management and Chain of Custody.
https://www.fsc-uk.org/en-uk

HETAS
Heating Equipment and Testing Approval Scheme
https://www.hetas.co.uk/ecodesign-ready/

'GREENER MATERIALS'
This is a catch all term used in the summary table (*Table 1*) to describe materials that are re-used; recycled; have lower embodied carbon than standard products; are sourced locally; include timber from locally certified and well-managed sources; and where possible does not include plastic building elements such as windows, doors, barge boards etc.

GROWN IN BRITAIN

The Grown in Britain brand identifies wood that has been grown in Britain from well managed forests and assured through a certification scheme. https://www.growninbritain.org/

PASSIVE HOUSE CERTIFICATION & PHPP

All proposed Passivhaus (or 'passive house') designs for residential or non-residential buildings must undergo energy modelling conducted via the Passivhaus Planning Package (PHPP.) Tests ensure these targets are met, completing the quality assurance process. A certificate is only issued if the exactly defined criteria have been met without exception. Learn more about the different classes & certification process for Passivhaus buildings. For more general information on passive house buildings see http://www.passivhaustrust.org.uk/

SAP

The Standard Assessment Procedure (SAP) is the methodology used by the Government to assess and compare the energy and environmental performance of dwellings in Part L of the building regulations.

SBEM

Simplified Building Energy Model (SBEM) is a software tool developed by BRE that provides an analysis of a building's energy consumption. It is used for non-residential buildings like SAP is for new homes.

SWMP

A Site Waste Management Plan (SWMP) is a planning document that must be created prior to the start of construction where required. It must:

•Identify each type of waste expected to be produced during the project

•Estimate the quantity of each type that will be produced

•Identify the planned waste management action proposed for each different type, including on- or off-site reuse, on- or off-site recycling, or disposal

During the project, the principal contractor must monitor the plan and update it with details of the waste of each type actually produced, along with the action taken and any removal activity.

https://www.designingbuildings.co.uk/wiki/Site_waste_management_plan_SWMP

SuDS

Sustainable Drainage Systems (SuDS) are designed to reduce the potential impact of new and existing developments with respect to surface water drainage discharges. The Authority expects there to be an emphasis on multi-functional SuDS which also have water quality, biodiversity and amenity enhancement values wherever possible.

THERMAL BRIDGING

A thermal bridge, also called a cold bridge, heat bridge, or thermal bypass, is an area or component of an object which has higher thermal conductivity than the surrounding materials, creating a path of least resistance for heat transfer. These are weak points in a building in terms of heat loss, e.g. where windows meet walls, but can be minimised through good design details and construction practices.