

## Sustainable Construction Technical Advice Note CHECKLIST 3: Large Residential Development (10 units and above) Sustainability Checklist

Issue	Requirement	Check (Yes, No or N/A)	Design Stage Evidence	Construction Stage Evidence	Details/Comments
<b>The following are required in all cases unless exceptional circumstances:</b>					
<b>Energy Efficiency</b>	19% improvement of CO <sub>2</sub> emissions: DER over TER in SAP data <sup>1</sup>		Design stage SAP data showing DER <b>19%</b> less than TER entirely due to energy efficiency (or <b>39%</b> overall improvement)	As built stage SAP data showing DER <b>19%</b> less than TER entirely due to energy efficiency (or <b>39%</b> overall improvement)	
<b>Green Energy</b>	A further 20% improvement of CO <sub>2</sub> emissions: DER over TER in SAP data <sup>1</sup>		Design stage SAP data showing DER <b>20%</b> less than TER entirely due to on site renewable energy (or <b>39%</b> overall improvement)	As built stage SAP data showing DER <b>20%</b> less than TER entirely due to on site renewable energy (or <b>39%</b> overall improvement) and photographic evidence of installation	
<b>Passive House Standard</b>	Full passive house certification for 5% <sup>2</sup> of units and for at least 1 unit		PHPP report demonstrating design on target for passive house certification covering: space heating demand; airtightness; u-values; overheating; renewables; primary energy	Passive house certificates for completed passive houses	
<b>Electric Vehicle Charging</b>	All homes with on-plot or other suitable car parking to have EV charge point <sup>3</sup>		Design stage plans and specifications	Photographic evidence of installed product	
<b>Waste</b>	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 <sup>4</sup>		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		SWMP evidence 50% waste to be diverted	SWMP evidence 50% waste diverted.	

	construction waste generated by the project diverted from landfill.				
<b>Materials</b>	Strategy for use of any 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	
<b>Water Use</b>	No more than 110 litres/person/day predicted mains water consumption <sup>5</sup>		Design stage water calculator	As built stage water calculator	
<b>Adaptation to Climate Change</b>	Retain existing mature trees, hedges or water features or other native habitats		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 in heatwaves.	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 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	
<b>The following are encouraged:</b>					

<b>Energy Efficiency</b>	A greater than 19% improvement of CO <sub>2</sub> emissions: DER over TER in SAP data <sup>1</sup>		Design stage SAP data	As built stage SAP data	
<b>Green Energy</b>	A greater than 10% improvement of CO <sub>2</sub> emissions: DER over TER in SAP data <sup>1</sup>		Design stage SAP data	As built stage SAP data	
<b>Passive House</b>	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	
<b>Materials</b>	Alternatives to plastic windows and doors		Annotated plans and specifications 1:10 or 1:20 scale drawings of specimen windows and doors	Photographic evidence of installed product	

1. This is generated in the design stage SAP data calculation that is already required for building regulations.
2. At least 1 dwelling and nos. rounded up to nearest whole unit, so e.g. 5% of 30 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 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.
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/>

### **Standard Conditions for Large Residential Development (10 units and above)**

- I. Prior to the commencement of the development hereby permitted detailed information in a design stage sustainable construction report in the form of:
  - a) design stage SAP data
  - b) passive house certificates
  - c) Site Waste Management Plan
  - d) design stage BRE water calculator
  - e) product specifications
  - f) Grown in Britain or FSC certificates;
  - g) sustainable material strategy
  - h) building design details
  - i) layout or landscape plansdemonstrating that the dwelling has:
  - a) reduced predicted CO<sub>2</sub> emissions by at least 19% due to energy efficiency and;
  - b) reduced predicted CO<sub>2</sub> emissions by a further 20% due to on site renewable energy compared with the maximum allowed by building regulations
  - c) EV charge point for every home
  - d) 5% of dwellings and at least one dwelling are passive house certified
  - e) predicted water consumption no more than 110 litres/person/day
  - f) separate internal bin collection for recyclables
  - g) SWMP and at least 50% of construction waste diverted from landfill;
  - h) private garden compost binand evidence demonstrating:
  - i) sustainable drainage, enhanced green infrastructure and GI linkage and adaptation to climate change
  - j) selection of sustainable materialsshall be submitted to and approved in writing by the Local Planning Authority. The development shall be built in accordance with these agreed details.

Reason: To ensure development demonstrates a high level of sustainable performance to address mitigation of and adaptation to predicted climate change.

2. Prior to the occupation of the dwelling hereby permitted detailed information in a post construction stage sustainable construction report in the form of:
- a) as built stage SAP data
  - b) passive house certificates
  - c) Site Waste Management Plan
  - d) as built stage BRE water calculator
  - e) product specifications
  - f) Grown in Britain or FSC certificates;
  - g) sustainable material strategy
  - h) building design details
  - i) layout or landscape plans

demonstrating that the dwelling has:

- a) reduced predicted CO<sub>2</sub> emissions by at least 19% due to energy efficiency and;
- b) reduced predicted CO<sub>2</sub> emissions by a further 20% due to on site renewable energy compared with the maximum allowed by building regulations
- c) EV charge point for every home
- d) 5% of dwellings and at least one dwelling are passive house certified
- e) predicted water consumption no more than 110 litres/person/day
- f) separate internal bin collection for recyclables
- g) SWMP and at least 50% of construction waste diverted from landfill;
- h) private garden compost bin

and evidence demonstrating:

- i) sustainable drainage, enhanced green infrastructure and GI linkage and adaptation to climate change.
- j) selection of sustainable materials

shall be submitted to and approved in writing by the Local Planning Authority. The development shall be occupied in accordance with these agreed details and these details will hereafter be retained.

## **GLOSSARY**

### **BRE**

The Building Research Establishment (BRE) is a multi-disciplinary, building science centre which 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 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<sub>2</sub> 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

### **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 document that describes, in detail, the amount and type of waste from a construction project and how it will be reused, recycled or disposed of.

### **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.