

Sustainability standards for new development in Uttlesford



14 April 2009

Policies contained in the Essex Urban Place Supplement, adopted 13 March 2007, and the Energy Efficiency and Renewable Energy supplementary planning document, adopted 31 October 2007, require that new development in Uttlesford achieves these standards:

Sustainable construction - Code for Sustainable Homes level 3 (domestic), BREEAM 'very-good' (non-domestic) or equivalent.

Renewable energy - 10% of a development's annual energy needs are met by on-site renewable or low-carbon technologies for new buildings with over 1000 sqm floor area or developments of more than five dwellings. This requirement increases to 100% for development sites (or combination of adjacent development sites) over 50ha.

Minimum information requirements

	Over 1000 sqm floor area or developments of more than five dwellings		Under 1000 sqm floor area or developments of five dwellings or less	
	Sustainable construction	Renewable energy	Sustainable construction	Renewable energy
With planning application	Reference to standards, outline of approach, description of significant features that will contribute to achieving standard(s), drawings that show these features where they impact on design. (NB: UDC Sustainable Construction Checklist can be used to ensure minimum information requirements are met)			
Pre-commencement	CfSH/BREEAM design assessment calculation and report	Design SAP/SBEM calculation, technical details of proposed system(s), saving calculation following approved method	Design SAP/SBEM calculation and rating, details of other relevant features in design	N/A
Post-completion	CfSH/BREEAM post-construction assessment calculation and report	As-built SAP/SBEM calculation and technical details of system(s) installed, saving calculation following approved method	As-built SAP/SBEM calculation and rating, details of other relevant features incorporated	N/A

CfSH is the Code for Sustainable Homes.

BREEAM is the Building Research Establishment Environmental Assessment Method.

SAP is the Standard Assessment Procedure for Part L1 compliance with the Building Regulations 2006, which concerns domestic buildings.

SBEM is the Simplified Building Energy Method for Part L2 (non-domestic) compliance with the Building Regulations 2006 which concerns non-domestic buildings.

These assessments must be carried out by an accredited assessor (the BREEAM website includes a directory of accredited CfSH and BREEAM assessors). We recommend that sustainability be addressed as early as possible in the development process. Sustainability information provided

with the planning application should be included in the design and access statement or as a separate report, and if no information is submitted, the applicant will be asked for further details.

Provision of the minimum pre-commencement and post-completion information will be conditions of approval, as will achieving the standards themselves. As with our other policies, non-compliance with the standards or failure to provide adequate information is grounds for refusing planning permission, or enforcement, as the case may be.

The Code for Sustainable Homes is a points-based system of assessment. There are different categories from which points can be gained, and while there is tradability between them, there are minimum standards in some categories which must be achieved in order to reach each level. The Council has produced a checklist that highlights the relevant issues that should be addressed.

BREEAM is similar to CfSH in terms of assessment and content, except there are additional criteria, such as for transport. There are different BREEAM types for different kinds of non-domestic development, and bespoke systems can be created.

Renewable and Low Carbon Energy Systems

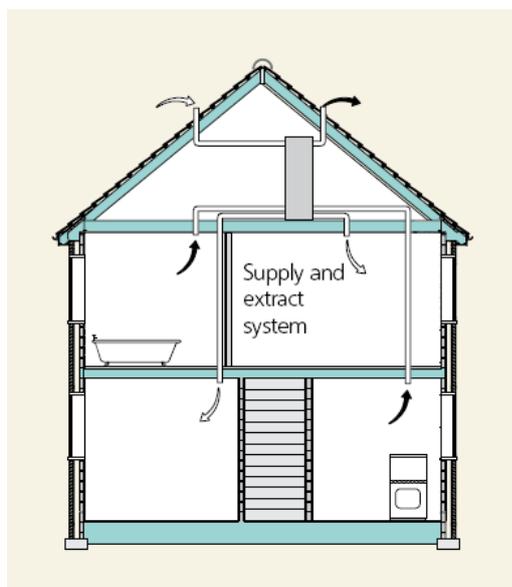
The technologies that will count towards the 10% on-site renewable or low carbon energy generation target, summarised below, and the approved 10% calculation methods for each are detailed in the Government publication – *Low and Zero Carbon Technologies: a Strategic Guide*. A link to this publication can be found at the end of this document. In addition, for dwellings we have now included we have also included whole house mechanical ventilation with heat recovery as an admissible technology – see the following note

System	Type	Provides	Suitability
Solar thermal systems	Renewable	Hot water	All buildings with sufficient solar access
Solar photovoltaics	Renewable	Electricity	All buildings with sufficient solar access
Wind turbines	Renewable	Electricity	Sites with good exposure to the prevailing wind (rural, edge of settlement) and sufficient average wind speed
Biomass boilers and stoves	Renewable	Space heating and hot water	All buildings, but more suitable for sites where mains gas is not available and with space for fuel delivery and storage
Ground cooling	Renewable	Space cooling	Buildings with a significant cooling load – usually non-domestic
Whole house mechanical ventilation with heat recovery	Low-carbon	Space heating	All buildings, but only admissible towards ‘10%’ requirement for dwellings
Air, ground and water source heat pumps	Low-carbon	Space heating	All buildings, but more suitable in areas where mains gas is not available
Combined heat and power	Low-carbon/renewable	Electricity, space heating and hot water	Large buildings or mixed-use sites linked to an energy centre via a local energy network.
Absorption cooling	Low-carbon/renewable	Space cooling	Large buildings or mixed-use sites linked to an energy centre via a local energy network.

NOTE: For renewable energy technologies we will accept a 10% reduction in CO₂ emissions as an alternate measure to 10% on-site generation of energy needs. For low-carbon technologies we will only accept a 10% CO₂ emissions reduction as a method of compliance with the requirement. This is to ensure the low-carbon technologies deliver genuine emissions savings compared to the conventional alternatives.

Whole house mechanical ventilation with heat recovery (MVHR)

To increase design flexibility for achieving the CfSH Level 3 'En1' standard of 25% reduction in CO₂ emissions compared to Building Regulation Part L1A 2006, Uttlesford District Council now includes whole house mechanical ventilation with heat recovery (MVHR) as a 'low carbon technology' that can be employed to satisfy the requirement for 10% onsite renewable or low carbon energy. This applies to dwellings only.



MVHR is a technology that is most appropriate for new dwellings where a building air-tightness of less than 5m³/m²/hr can be achieved, and adequate provision for ducting can be made. It involves installing supply and extract ducting to the various rooms of the dwelling, and an air handling unit with a heat exchanger where heat from the 'waste' air extracted from the house can be used to pre-heat the incoming fresh air from outdoors. The system also filters pollutants out of the incoming air, improving its quality.

Left: Diagram of whole house mechanical ventilation with heat recovery. © Energy Saving Trust

Our conditions for counting MVHR towards the '10%' requirement are that:

- The dwelling as built achieves air tightness better than 5m³/m²/hr (when pressurised to 50Pa compared to ambient, as shown by a standard pressure test).
- Rigid ducting (as opposed to flexible ducting) is used and space for this and the air handling unit is designed into the dwelling from the outset
- The MVHR achieves the Energy Saving Trust 'Best Practice' performance standard of having a specific fan power less than 1 watt/litre/second and a heat recovery efficiency of better than 85%.

Research by the BRE on behalf of the Energy Saving Trust shows that by using best practice MVHR in conjunction with good air tightness, additional insulation, minimal thermal bridging, an efficient boiler and best practice controls, the 25% Code Level 3 '25%' standard can be met.

For more information on MVHR and achieving the '25%' standard see the EST Best Practice in Housing publications listed at the end of this document.

A note on heat pumps

Part L1A (2005) of the building regulations introduces the requirement achieving a certain Target Emissions Rate (TER) via SAP methodology to prove a dwelling as designed and then built achieves compliance with regulations for conservation of fuel and power. Showing your Dwelling Emissions Rate (DER) is 25% lower than the TER for the building is a minimum requirement of achieving Code for Sustainable Homes Level 3.

$$\text{TER} = (C_H \times \text{fuel factor} + C_L) \times (1 - \text{improvement factor})^*$$

$$\text{Maximum CfSH Level 3 compliant DER} = \text{TER} \times (1 - 0.25)$$

Where:

- C_H is the annual CO₂ emissions for heating and hotwater for a dwelling of the same shape built to Part L 2002 minimum requirements per m² floor area
- C_L is the annual CO₂ emissions for internal fixed lighting per m² floor area
- The units for TER, DER, C_H and C_L are all kgCO₂/m²/year
- The improvement factor for Part L1A 2006 is 0.2 or 20%
- Fuel factors are in the table below*

<i>Heating Fuel</i>	<i>Fuel factor</i>
Mains gas	1.00
LPG	1.10
Oil	1.17
Grid electricity	1.47
Solid mineral fuel	1.28
Renewable energy including biomass	1.00
Solid multi-fuel	1.00

*From Approved Document Part L1A 2006

The fuel factor for an electrically heated property is 47% higher than for a gas heated property. Despite this, because of the carbon-intensive nature of direct electric heating (such as panel or storage heaters), it is still more difficult to make such a property comply with Part L1A or CfSH Level 3 than a gas or oil heated property. However, Part L1A puts electrically driven heat pumps in the same class as direct electric heating, despite having much lower emissions per unit of heat delivered. This loophole would allow a dwelling heated with a heat pump to have much lower insulation standards and higher CO₂ emissions than the same property heated with mains gas or oil, and still be able to comply with the 25% improvement standard. To close this loophole:

We require dwellings with a heat-pump specified as the primary heating system to achieve the same DER as if a mains gas-fired heating system (or if the dwelling is to be built in an area where mains gas is not available, an oil-fired heating system) had been specified and the 25% improvement on TER achieved.

One benefit of this standard for heat pumps is that it means the calculated improvement in DER over TER will exceed 25%, which will generate additional points in the CfSH methodology and in turn will make achieving the overall Level 3 standard easier.

Compliance with this restriction should be proved by providing variant SAP/SBEM calculations that show the appropriate benchmark figures.

Further information

Uttlesford District Council (www.uttlesford.gov.uk)

- [Uttlesford's planning policies for sustainability](#)
- [A study on the potential for renewable energy in Uttlesford](#)
(Includes maps of wind speed and mains gas availability)

Planning Portal (www.planningportal.gov.uk)

- [Full details of the Code for Sustainable Homes](#)

- [Part L of the Building Regulations: Approved Documents](#)
- [Low and Zero Carbon Technologies: A Strategic Guide](#)

Energy Saving Trust (www.energysavingtrust.org.uk/housingbuildings)

- [CE190 - Guidance on meeting a 10% onsite renewable energy requirement](#)
- [CE290 - Guidance on dwelling specifications that meet the CfSH level 3 energy standard](#)
- [GPG268 - Energy efficient ventilation in dwellings – a guide for specifiers](#)
- [GPG224 – Improving air-tightness in dwellings](#)
- [CE297 – Enhanced construction details](#)

These EST Best Practice in Housing publications are available for free from the publications section of their website and free hardcopies can be requested by calling 0845 120 7799.

Department for Communities and Local Government (www.communities.gov.uk)

- [Planning Policy Statement: Planning and Climate Change](#)

The Housing Corporation (www.housingcorp.gov.uk)

- [Cracking the Code: How to achieve Code level 3 and above](#)

BREEAM (www.breeam.org)