

Green Buildings – From Buckminster Fuller to Norman Foster

**Commissions in charge of the Workshop:
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1. Introduction

I am a real estate lawyer based in Leeds, England.

The concept of "green buildings" is a relatively new one in the UK with the majority of green policies having their roots in legislation from the EU.

One of the principal ways in which the EU and the UK government propose to tackle climate change and meet their greenhouse gas (GHG) emission reduction targets is through greater energy efficiency, including energy efficiency in buildings. The EU has a target of reducing GHG emissions across the whole of the EU by 20% below 1990 levels by 2020 (as part of the EU's 20-20-20 climate and energy package). Under the Climate Change Act 2008, the UK's target is to reduce GHG emissions by:

- 34% below 1990 levels by 2020.
- 80% below 1990 levels by 2050.

Energy efficiency is also a key part of EU and UK energy policy, which principally aim to ensure both security of supply and GHG emission reductions by improving energy efficiency and increasing renewable energy generation. The EU target is to increase energy efficiency across the EU as a whole by 20% by 2020. The Commission has set out details on how this target will be achieved and also agreed an indicative 2030 energy efficiency target.

Buildings are thought to account for approximately 40% of the EU's total energy consumption and 43% of the UK's total carbon dioxide emissions. Of these, domestic properties are responsible for approximately:

- 27% of the UK's total carbon dioxide emissions.
- 32% of the UK's total energy consumption.

Of the carbon dioxide emissions from the household sector:

- 53% comes from space heating.
- 20% comes from water heating.
- The remainder comes from lighting, appliances and cooking.

According to the government, delivering zero carbon buildings and the wider move towards a low carbon economy is going to require a revolution in the way buildings are designed, heated and powered.

2. How Green Buildings Are Defined in the UK

There is no fixed definition of "green buildings" but the current government has formed targets based upon buildings being classified as zero carbon.

A zero carbon building is one which has zero net emissions of carbon dioxide from all energy use over the course of a year (including energy used to provide electricity and heat to cool the building).

Achieving zero carbon status will require:

- The fabric of the building to achieve a very high level of energy efficiency (for example, through roof and wall insulation).
- The energy used in the building to come from renewable energy and other low-carbon sources (such as solar and wind power, combined heat and power, and district heating systems).

The government had previously committed to allow house builders to meet the zero carbon homes standard by supporting off-site carbon-abatement projects to offset carbon emissions that cannot be addressed through energy efficiency or renewables on-site (known as "allowable solutions").

Although the precise definition is yet to be finalised, the government consider that its zero carbon building is equivalent to the definition of nearly zero-energy building under the Energy Performance of Buildings Directive 2010

This only relates to new buildings. There are no proposals for making existing buildings zero carbon.

3. Trends Over the Last Decade

The Climate Change Act was introduced in the UK in 2008, creating a long-term, legally-binding framework for tackling climate change. It set a target of reducing carbon emissions by 80% compared to 1990 levels by 2050, with a reduction of at least 34% by 2020.

A strategy for how this was to be achieved was set out in The Carbon Plan published in December 2011. Buildings form a significant part of the plan as they account for around 45% of our total carbon emissions.

In December 2006, the Labour government committed that from 2016 all new homes would be 'zero carbon'. The Labour budget in 2008 announced the government's intention that all new non-domestic buildings should also be zero carbon from 2019. This commitment was confirmed by the Coalition government in December 2010.

4. National And/Or Local Objectives With Regard To Green Buildings?

The government has set targets, in England, for:

- All new homes to be zero carbon by 2016.
- All new non-domestic buildings to be zero carbon by 2019.

The government's developing policy on zero carbon homes is based on the following hierarchy:

- Make the fabric of the building energy efficient.
- Provide on-site low carbon heat and power.
- Use "allowable solutions" for residual carbon emissions

The Fabric Energy Efficiency Standard (FEES) is the maximum space heating and cooling energy demand for zero carbon homes. The Carbon Compliance limit is the maximum permitted amount of carbon dioxide arising from heating, cooling and lighting. The FEES and Carbon Compliance will be achieved through changes to Part L of the Building Regulations. Any remaining carbon dioxide emissions that cannot be achieved through the FEES and Carbon Compliance would be met through a system of allowable solutions, which would allow house builders to meet the zero carbon homes standard by supporting off-site carbon-abatement projects to offset carbon emissions that cannot be addressed through energy efficiency or renewables on-site.

The zero carbon homes policy (particularly on allowable solutions) has been the subject of controversy and delay. Organisations such as the Zero Carbon Hub have published a number of reports and recommendations, seeking to inform the government's approach, and the government has published various statements and consultations. In summary, the policy has developed as set out below.

In 2010, the Housing Minister published a ministerial statement setting out the coalition government's approach to zero carbon homes. He confirmed the

government's commitment to "ensuring that all new homes post-2016 can be zero carbon while ensuring that the costs of new build do not prevent appropriate and sustainable development." The Housing Minister invited the Zero Carbon Hub to investigate the best way to meet the zero carbon target for homes.

In 2011, the Zero Carbon Hub published Carbon compliance: setting an appropriate limit for zero carbon new homes, which includes the following findings:

- The government's proposal to cut carbon emissions for new homes from 2016 by 70% against 2006 standards will not be achievable for many types of dwelling.
- To meet the additional costs of compliance, house builders will need to achieve significant costs savings through reductions in land prices, in local authorities' planning requirements and in regulatory burdens.
- There should be an option to achieve carbon compliance for a housing development by reference to the aggregate limits of that development, rather than individual dwellings.

Consequently, in May 2011, the Housing Minister issued a ministerial statement setting out key policy decisions on aspects of the definition of zero carbon homes:

- Only carbon emissions that are within the scope of the Building Regulations will be covered, such as those from heating, ventilation, hot water, fixed lighting and building services. Emissions from household appliances used in homes will not be included.
- The FEES, based on the Zero Carbon Hub's research, will be used to ensure homes are energy efficient.
- The Zero Carbon Hub's recommendations on the maximum levels of on-site carbon dioxide (Carbon Compliance) will be used as a starting point for a consultation on changes to the Building Regulations. This may require the use of on-site renewable energy technologies (such as solar panels).
- An allowable solutions regime will be developed to make up the balance of carbon emission reductions that are not achievable on-site. The Minister invited the Zero Carbon Hub to investigate how this might work.

In July 2011, the Zero Carbon Hub published Allowable Solutions for Tomorrow's New Homes: Towards a Workable Framework, setting out its recommendations on an Allowable Solutions Framework. This would enable a developer to pay into near-site or off-site carbon reduction projects administered either by a local authority or a private third party.

In October 2012, the Zero Carbon Hub published a report, Allowable Solutions: evaluating opportunities and priorities, setting out six options for allowable solutions:

In August 2013, the government published the long-awaited consultation on the various options for Allowable Solutions for zero carbon homes

In June 2014, the government confirmed that it is committed to implementing a zero carbon standard for new homes from 2016 and will set a minimum energy performance standard through the Building Regulations.

In July 2014, the government published its response to its August 2013 consultation on allowable solutions. Key decisions include:

- A national framework for allowable solutions through the Building Regulations, instead of individual local authority policies.
- Developers will be able to choose between several options, including contracting with a third party to carry out carbon abatement measures or paying into a fund that invests in carbon abatement projects (subject to a price cap).
- An exemption for small sites.

Section 37 of the Infrastructure Act 2015 amends the Building Act 1984 to give the Secretary of State and Welsh Ministers the powers to make Building Regulations provisions in relation to allowable solutions that are taken by the developer or by a third party on behalf of the developer, or, alternatively by the developer paying into a fund that invests in carbon abatement projects. The Building Act 1984 gave the powers to make Building Regulations, but did not extend to providing for measures relating to buildings that are not in, on or connected to the building.

Section 37 also provides for:

- Administration of the carbon abatement funds into which allowable solutions payments can be made, including establishing a capped level of payment into a fund.
- Setting up and running a register of certificates showing compliance with the carbon emissions standard by use of allowable solutions.
- The government has said it will consult further on the detail of the criteria for allowable solutions, the small site exemption and the price cap for the option of paying into a carbon abatement fund. For more information, see Legal update, Zero carbon homes: government publishes consultation response and next steps on allowable solutions and Proposed exemption from allowable solutions for smaller developments below.
- Proposed exemption from allowable solutions for smaller developments

In November 2014, Department for Communities and Local Government (DCLG) consulted on proposals to exempt smaller home developers in England from the government's zero carbon homes policy (see Legal update, Government consults on small sites exemption from zero carbon homes policy).

Achieving the zero carbon homes target could be particularly challenging for small builders. Therefore, DCLG has decided that smaller domestic developments in England should not face the total cost burden. The proposals are:

- For an exemption for sites with ten domestic units or fewer, possibly with a maximum floor space per unit.
- That house builders on exempt smaller sites will still have to build to the minimum requirement set in Part L of the Building Regulations but will not have to support or carry out allowable solutions.
- For a five year exemption, followed by a review.
- The exemption will be structured to ensure that it does not constitute state aid.

The government has also introduced the Code for Sustainable Homes in respect of residential properties.

The Code for Sustainable Homes was introduced in 2007 and sets out a series of sustainable building standards (including energy efficiency) against which all new homes in England need to be rated. Its principal objective is to ensure that the building industry constructs new homes that use energy, water and materials more efficiently. It also provides a benchmark by which developers can assess and differentiate themselves within the housing market.

The Code should be read in conjunction with the accompanying Technical Guide, which sets out the detail of what is required to meet the performance standards in the Code.

The Code for Sustainable Homes consists of six levels based on a star rating. Level 6 is equivalent to a zero carbon home.

The ratings are based on nine design categories:

- Energy and carbon dioxide emissions.
- Water.
- Materials (sustainable construction materials).
- Surface water run-off.
- Waste.
- Pollution.
- Health and wellbeing: this includes the Lifetime Homes Standards, which are mandatory for level 6 of the Code .
- Management.
- Ecology.

Where there is a relevant requirement under the Building Regulations, the minimum standard in the Code will either equal or exceed the requirement in the Building Regulations.

The Code for Sustainable Homes is voluntary.

Where a home has been designed and built in accordance with the Code and assessed against it, a Code certificate will be provided. The Code certificate will show the home's rating on a scale of 1 to 6 stars, based upon its performance against the nine sustainability categories (see What is the Code? above). Otherwise, a statement of non-assessment (called a "nil-rated certificate") will need to be provided. There is no obligation to carry out a Code assessment.

The intention is that the Code will be used to provide anyone buying a new home with better information about the environmental impact of their new home and its potential running costs. The Code is intended to complement the system of energy performance certificates (EPCs) for new homes (see Practice note, Energy performance certificates). EPCs and the energy components in a Code certificate are based on the same methodology, and so an assessor preparing a Code certificate will use the EPC calculation (produced by an EPC assessor) for the Code energy assessment.

5. Differences for residential and non-residential (e.g. hotels, office buildings, schools/hospitals, industry)?

See the different efficient targets for commercial and non-commercial buildings referred to above. The government has also introduced a specific code for residential homes (Sustainable Homes Code).

There are also specific code for public sector housing (i.e. housing provided by local authorities) - With effect from April 2008, all new homes built by registered social landlords and others with Housing Corporation funding, as well as homes developed by English Partnerships (which is now part of the Homes and Communities Agency) or with direct funding from DCLG's housing growth programmes, must comply with at least level 3 of the Code.

The Housing Corporation has published a guide on how to tackle carbon dioxide emissions from housing association households and retrofit them to make them more energy efficient. The guide is aimed at social landlords and local authorities

6. Are there any public financial incentives (subsidies) for green construction?

a. Landlord's Energy Saving Allowance

The Landlord's Energy Saving Allowance (LESA) allows landlords in the private rented sector to claim income tax relief (or corporation tax relief, as applicable) for capital expenditure on various energy efficiency measures. LESA ends in April 2015 and is not available for expenditure incurred after that date.

The private rented sector has some of the least energy efficient housing stock. This is a particularly difficult sector in which to promote energy efficiency measures as usually it is the tenants who benefit and so there is little incentive for landlords to invest in improvements.

Expenditure on structural works to improve energy efficiency cannot usually be deducted when calculating taxable profits. However, expenditure on certain categories of energy-saving items will be eligible for relief from income tax and corporation tax for property businesses.

Landlords who pay income tax or corporation tax on profits from letting can apply for relief for capital expenditure on:

- Loft, cavity, solid wall and floor insulation.
- Draught proofing.
- Insulation of hot water systems.

The LESA allowable deduction is limited to a maximum of £1,500 per rented dwelling and is available for expenditure incurred before 1 April 2015.

Landlords who are subject to corporation tax may also be entitled to claim enhanced capital allowances for the installation of certain types of energy efficient plant or machinery (see Practice note, Enhanced capital allowances (ECAs) for investment in environmental technologies).

b. Stamp duty rebate

In 2013, the government announced that it would introduce a stamp duty rebate for home buyers worth up to £1,000, to spend on important energy-saving measures (or up to £4,000 for particularly expensive measures). This will be available to anyone moving house, regardless of whether they pay stamp duty

c. Reduced VAT rates for energy-saving materials

- For residential properties

A reduced VAT rate of 5% applies to the installation of certain energy-saving products and materials in residential properties, such as:

- Insulation.
- Draught stripping.
- Hot water and central heating controls.

The scheme applies to all households. Section 193 of the Finance Act 2013 amended Schedule 7A to the Value Added Tax Act 1994, to disapply the reduced VAT rate for the installation of energy-saving materials to buildings used solely for charitable purposes. However, the reduced VAT rate for energy-saving materials will continue to apply to residential buildings.

Further reduced VAT rates apply to grant-funded installations of energy-saving materials in vulnerable households, including:

- Central heating systems.
- Heating appliances
- Factory-insulated hot water tanks.

The reduced VAT rates only apply to energy-saving products and materials that are installed professionally. They do not apply to DIY installations.

In November 2015, the government indicated in the 2015 Autumn Statement and Spending Review that it will consult on legislation for the Finance Bill 2016 to ensure that the reduced rate of VAT on energy-saving materials is maintained in line with EU law following a June 2015 decision that the UK's application of the reduced rate breaches EU law (see Legal update, 2015 Autumn Statement and Spending Review: key environmental announcements: Reduced VAT rates for energy-saving materials and Infringement proceedings for breach of the VAT Directive 2006 below).

7. Contractual Issues – Green Leases

The term green lease is often used as a general term to refer to several different types of document or clause, covering different types of environmental obligations. Broadly, a green lease is a series of provisions within, or associated with, a commercial real estate lease, that encourage or require the landlord and tenant to reduce the environmental impact of the premises.

a. Carbon footprint or environmental footprint?

Green leases are most often discussed in the context of improvement to a building's energy efficiency. This is because reducing greenhouse gas (GHG) emissions in order to combat climate change is a high priority for the UK both at the international and national level. However, green leases can go far beyond energy efficiency to include the wider environmental impacts and sustainability of a building, including:

- Water management (for example, water use efficiency, fittings).
- Waste management (for example, minimising waste, recycling facilities).

- Sustainable materials for reparations and alterations (for example, using energy efficient, recycled, non-polluting or local materials).
- Green transport (for example, showers and cycle racks, car-share schemes).

b. Changing the landlord and tenant relationship

A lease is the contract that formalises the relationship between the owner and an occupier of a building.

Traditionally, the structure of a lease requires the landlord and the tenant to comply with different obligations. The tenant pays the rent and service charge and complies with its obligations relating to its occupation of the building. The landlord complies with obligations relating to the services of the building and grants the tenant quiet enjoyment of the premises. The landlord and tenant will each have their own separate commercial and CSR objectives.

However, where a landlord and tenant want to add green lease provisions to their lease arrangements, they will have a new, joint objective to minimise the environmental impact of the premises. This shared focus will require a collaborative approach, in which communication, education and co-operation are key.

Introducing green lease clauses will impact on a number of different areas of the lease, including service charge provisions, consent for alterations, reinstatement at the end of the term and remedies for breach.

c. What can a green lease achieve?

It may seem that green leases are only appropriate for the newest and greenest of buildings, and that there is not much place for them with older, less environmentally-friendly buildings. However, a green lease can have an even more important role to play with a less green building.

"Greening" the relationship between landlord and tenant will enable the building to be occupied and managed in a more environmentally-friendly fashion, so reducing the building's environmental footprint.

If the building is designed and already operating at a high green standard, a green lease will mostly be about preserving that standard. Where a building is designed and operating at a lower environmental standard, there is room for improvement through changes in landlord and tenant behaviour, some of which will cost little or nothing. Again, the key is a co-operative relationship between landlord and tenant.

d. Light or dark green lease?

Green lease clauses are often roughly divided into "light green", "medium green" and "dark green". The shades of green reflect the wide range of different types of green lease provision that might be used, whether they are legally binding or not, and the extent of the burden they place upon the parties. This

terminology reflects the spectrum of clauses that can be used. There is no specific cut-off point where, for example, a lease stops being light green and becomes medium green.

Light green clauses are likely:

- Not to be legally binding.
- To require a limited commitment to environmental issues (for example, the tenant should do nothing that might prejudice the energy performance of the premises).
- To be limited to improving energy efficiency.

Dark green clauses are likely to:

- Be legally binding (although breach would not result in forfeiture of the lease, but is more likely to be dealt with by alternative dispute resolution).
- Require a more significant level of commitment to environmental issues (for example, that the landlord and tenant achieve specified energy efficiency or waste targets).
- Cover a wide range of environmental issues (see Carbon footprint or environmental footprint? above).

In practice, it is difficult to produce a standard set or sets of green lease clauses because of the wide range of age and type of buildings and the different priorities, commercial aims and budgets of owners and occupiers. In most cases, the parties will adopt a "pick'n'mix" approach to suit their own particular circumstances and objectives. At the moment, the end result is likely to sit at the light green end of the spectrum.

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