

# **Sustainable Buildings**

## **Supplementary Planning Guidance**

**Adopted 22<sup>nd</sup> April 2003**

**Cheltenham Borough Council**

# SUPPLEMENTARY PLANNING GUIDANCE

## SUSTAINABLE BUILDINGS

### 1 INTRODUCTION

- 1.1 This guidance relates to policy CP 1, in the Cheltenham Borough Local Plan Second Review Revised Deposit Draft (2004).

### 2 BACKGROUND

- 2.1 All development will have some environmental impact. This supplementary planning guidance is intended to ensure that healthy and highly efficient buildings are created, using materials and methods, which have a reduced impact on the environment. This means considering environmental impacts during the whole lifecycle of a building, from site identification through the construction process, to the building's normal operating conditions, and then to the end of its proposed lifespan. All developments should encourage long periods of use.
- 2.2 This guidance covers the design of buildings and the construction process, and is intended for use by builders, developers and site designers. Further supplementary planning guidance – *Sustainable Developments* covers the development of sites in a sustainable way.

### 3 POLICY CONTEXT

#### Cheltenham Borough Local Plan

- 3.1 Policy CP 1, Cheltenham Borough Local Plan Second Review Revised Deposit Draft states:

**”Development will be permitted only where it takes adequate account of the principles of sustainable development. In particular, development should:**

- (a) conserve or enhance natural resources and environmental assets; and**
- (b) give priority to the use of previously developed land; and**
- (c) make the most efficient and effective use of land”.**

- 3.2 Other local plan policies will be relevant, see Cheltenham Borough Local Plan Second Review (draft 2004).

#### Waste Local Plan

- 3.3 Policy 35 of the Revised Deposit Gloucestershire Waste Local Plan, requires information on waste generated by developments to be prepared as part of planning applications. The Borough Council will request developers to submit a waste minimisation strategy where appropriate.

### 4 WHAT ARE THE ISSUES?

- 4.1 In minimising adverse environmental impacts, both global and local environmental issues should be considered:

- **Global issues** include reducing fossil fuel consumption and the release of greenhouse gases, maintaining natural species and using eco-friendly materials.
- **Local issues** include the use of greenfield land, conserving wildlife habitats, and the recycling of construction waste.

## **5 GENERAL PRINCIPLES**

5.1 All new building projects should seek to:

- keep energy use to a minimum;
- avoid unnecessary waste, and aim to reduce the amount sent to landfill sites by using good on-site housekeeping arrangements;
- minimise the use of new materials, especially those produced unsustainably;
- maximise the use of recycled materials;
- minimise local disturbance during the construction process; and
- protect habitats and ground water from contamination.

### **Re-using existing buildings**

5.2 The manufacture and transport of new building materials has a significant environmental impact. Re-using existing buildings should be a priority. Most buildings can be refurbished, reducing the need for new construction materials.

5.3 When using an existing building it is important to consider the building's character carefully. Advice is available from English Heritage who have recently published advice, 'Building regulations and historic buildings: Balancing the needs of energy conservation with those of building conservation – an interim guidance note on the application of the revised part L of the building regulations'.

5.4 Advice should be sought from the Borough Council's Heritage and Conservation Manager, who will advise whether buildings are listed.

5.5 Look for opportunities to:

- improve the energy efficiency of the building, making sure that the energy used to upgrade it is offset by energy savings during the building's use; and
- remove any hazardous materials, such as asbestos.

### **Designing for lower energy use**

5.6 Energy in the UK is largely derived from fossil fuels (coal, oil or gas) used directly at home or by power stations to create electricity. These are also a major source of the greenhouse gases causing global warming.

5.7 The building regulations aim to reduce the amount of energy used in buildings, and hence lower the running costs, using standard assessment procedures (SAP) ratings. These give dwellings a rating based on the amount of energy needed for heating. It is possible to design new housing with zero heating requirements – contact Building Research Establishment (see contacts list) about their Eco-homes scheme

5.8 The SAP rating will be influenced by the position of the building, its orientation to the sun, the heating type, insulation and floor area.

### **Renewable energy**

5.9 Energy supplied from renewable sources, such as water or solar power, should be considered. This could include:

- Combined heat and power or conventional boilers powered by sustainably sourced wood pellets
- An on-site wind turbine
- Heat pumps for space heating
- Photovoltaic panels for electricity and water heating.

Contact Severn Wye Energy Agency (see contacts list) for more information and advice on grants.

### **Heating and insulation**

5.10 Heating systems and their controls have a direct impact on energy use.

- Standard boilers are only about 70% per cent efficient. Condensing boilers cost more to buy initially but are about 90 per cent efficient.
- Install timers and room thermostats as well as thermostatic radiator valves to avoid heating empty rooms. Put reflecting panels or foil behind radiators to radiate heat into the room and reduce heat loss, through walls. Ensure user-friendly controls and clear instructions.
- Lag hot water pipes and the hot water tank.
- Upgrade loft and roof space insulation to 250 mm, aiming for 500mm
- Insulate cavity walls with blown fibre, as foam is not sustainable.
- Fit draught excluders to windows and doors to minimise heat loss.
- Provide facilities for heat exchange and consider fitting water-heating systems, which can be integrated, with solar water heating.

### **Lighting and ventilation**

- Make maximum use of natural lighting and ventilation, using rooflights to supplement natural lighting from windows where appropriate.
- Atria and glazed courtyards in large buildings will also increase natural lighting levels.
- Minimise the use of air conditioning and mechanical ventilation. If used, ask for a low energy system with heat exchange facilities.
- Install building management systems in larger buildings, linking control systems to external conditions.
- Use timing and intensity controls for lighting, and whenever possible use low energy light fittings and bulbs, and low energy appliances.

### **Water**

- Minimise mains water use by installing 'grey water' systems. This uses rainwater for toilet flushing and external plant watering.
- Fit low flush WC's and flow restrictors to taps.
- Install electrical appliances with low water requirements, for example washing machines.
- Use soakaways to handle roof water where ground conditions permit.

5.11 Further guidance on the use and control of water in developments is set out in supplementary planning guidance –*Sustainable Drainage Systems*.

### **Roofs**

5.12 Pitched roofs have significant advantages over flat roofs.

- They generally require less maintenance.
- They are ideal for solar panels if they face between 15° and 40° of due south.
- Additional rooms can be created in the roof space.
- Steeper pitched roofs facing prevailing winds can break up wind flow.

### **Walls**

- Ideally, thermal insulation should be above current building regulation standards.
- Sound insulation is important in high-density developments, such as terrace housing, flats and mixed-use schemes.

## **Windows**

- Large south facing windows maximise heat and light from the sun, but should be balanced against the need for privacy in dwellings.
- North facing windows should be kept to a minimum and should be used for natural lighting and ventilation only.
- Double, or even triple glazing is desirable in most new developments. However, if an older building is involved consider its character carefully.
- Low emissivity glass can reduce heat loss.
- The choice of window frame materials should consider thermal efficiency, environmental impact during manufacture and potential lifetime.

## **Conservatories and porches**

- Locate conservatories on south, west or east walls. They should not be heated and the walls between the conservatory and main building will require insulation. Use shading and natural ventilation to prevent overheating.
- Lobbies and entrance porches reduce heat loss through external doors.

## **Floor plans**

- Living and working rooms should face south to maximise energy from the sun whilst utilities, stairs, halls, storage areas and bathrooms should generally face north.
- Design flexible spaces promoting social interaction which are easily adapted to changing needs in the future. Altering the location of stairs and service ducts is expensive, so plan for these carefully.
- Provide convenient, secure cycle storage within commercial and domestic buildings.
- Provide storage for recyclable materials.
- Ensure access for disabled and wheelchair users.

## **Substructures and basements**

5.13 Basements can provide extra room space making efficient use of building plots. Substandard living accommodation will be avoided if building regulations are complied with.

- Avoid large areas of cut or fill as surplus material may require transport.
- Consider the impact on surface water drainage and the existing water table.
- Avoid damage to tree roots by designing foundations which are not too close to trees.
- 'Partial depth' basements provide better natural lighting, ventilation and damp-proofing than conventional basements.

## **Noise**

- Assess the impact of noise from internal or external plant and equipment. Ensure the building does not create a local noise nuisance.

## **Environmentally friendly building materials**

5.14 Sustainable buildings will maximise the use of recycled, reused and durable materials. They should minimise the use of new materials, especially those containing toxic substances or produced from non-renewable materials, and should be easy to maintain.

- If extending or altering a building it is possible to recycle many materials: steel or cast iron beams, structural timbers, doors and shelving, slates and roofing

tiles, bricks, glass, bathroom fittings and stone walling. Surplus hardcore from demolished buildings may be suitable for use in constructing access roads.

- Because of the energy used in transport it is important to use locally sourced building materials, either new or reclaimed. For sources of local materials refer to the Gloucestershire Building Materials Directory (see section 6 – Further Information).
- Some plastics and PVC (especially polystyrene beads) form highly toxic waste, release poisonous gases in fires or contain CFC's. Alternatives like silicone rubber or thermoplastics are available, and there are also some timber product alternatives.

### **Flooring materials**

- Be aware of the potential risks of flooring materials containing formaldehyde.
- Choose organic materials including cork tiles, wooden floors, floorboards or parquet flooring (check for formaldehyde in the adhesive).
- Coir matting, linoleum and seagrass are sustainable alternatives to carpets.

### **Timber**

- Avoid using imported tropical hardwoods, for example mahogany or teak from unmanaged rainforests.
- Ask for wood or timber with the FSC trademark (Forest Stewardship Council) which guarantees the materials are from sustainably managed forests.
- Use plywood or certified chipboard which avoids the risk of poisonous fumes.
- Avoid using chemically treated timber.

### **Decorating finishes**

- Use paints and varnishes with a low solvent content, avoiding the volatile organic compounds (VOCS) found in many high-gloss paints and varnishes, which are toxic. Look for the most 'natural' products around.
- Seek professional help if you intend to remove old lead-based paints.
- Be sure to dispose of paints and similar materials carefully. **Do not** dispose of unused paint into drains.

5.15 Wallpaper is a truly organic substance, and more sustainable than vinyl wall coverings.

## **6 FURTHER INFORMATION**

### **Guidance**

Building Research Establishment,  
Garston,  
Watford  
WD2 7JR  
**01923 664258**

Gloucestershire Energy Efficiency  
Advice Centre **0800 51012**

Severn Wye Energy Agency  
**01594 545360**

The Renewable Energy Company,  
Stroud House, Russell Street,  
Stroud,  
Gloucestershire  
GL5 3AN  
**01453 756111**

Association for Environment Conscious  
Building,  
Nant-y-Garreg, Saron, Llandysul,  
Carmarthenshire  
SA44 5EJ  
**01559 370908**

Gloucestershire Waste Exchange,  
Waste Research Centre,  
Cheltenham,  
GL50 4AZ

The Construction Industry Research and  
Information Association,  
6 Storey's Gate, Westminster,  
London  
SW1P 3AU

**01242 543277**

Touchwood Partnership  
Stroud Valleys Project,  
Kendrick Hall, Kendrick Street,  
Stroud  
GL5 1AA

**01453 756064**

English Heritage  
Customer Services Department  
PO Box 569  
Swindon SN2 2YP  
**0870 333 1181**

**02072 228891**

Energy 21  
PO Box 154,  
Stroud  
GL5 4YS

**01453 752277**

Future Foundations  
Sustainability South West  
4<sup>th</sup> Floor  
100 Temple Street  
Bristol BS1 6AE

### **Useful Websites**

- [www.cheltenham.gov.uk](http://www.cheltenham.gov.uk)
- [www.bre.co.uk](http://www.bre.co.uk)
- [www.swea.co.uk](http://www.swea.co.uk)
- [www.unit-e.co.uk](http://www.unit-e.co.uk)
- [www.aecb.net](http://www.aecb.net)

## **7 CONTACTS**

7.1 The following officers of Cheltenham Borough Council will be able to offer further advice on the issues set out in this guidance:

Development Control Duty Officer  
**01242 775090**

Strategic Land Use Officer  
**01242 264382**

Building Control Duty Officer  
**01242 775136**

Assistant Director Green Environment  
**01242 774640**

Sustainability Manager  
**01242 264166**

Environmental Protection Manager  
**01242 774997**

Heritage and Conservation Manager  
**01242 264174**