

In October 1998, the Government published 'Planning for Sustainable Development: Towards Better Practice'.

Chapter 1 of this opens with the words: "The planning system has a vital part to play in ensuring that land and other resources are used more sustainably". The whole concept of sustainability now underpins much planning guidance in this country, particularly in terms of the location of new development. Much of the guidance in the document has been used to guide the production of the Local Plan, including sections on density, mixed use, developing brownfield sites. There are some detailed aspects, however, such as the section on energy efficiency, which are not appropriate to include within the Local Plan, and are better discussed in this guide.

Stroud District Council's Commitment to Sustainability

Stroud District Council is fully committed to putting into practice the principles of sustainability. The principles put forward by Gloucestershire's Agenda 21 initiative, 'Vision 21', in "Sustainable Gloucestershire - an agenda for urgent action by local government" have been adopted by the Council.

The key challenges and objectives of the strategy are:

1. Enhance the physical environment, biodiversity and natural resources
 - *Minimise the impacts on the natural environment*
 - *Enhance the rural environment to meet social and economic needs*
 - *Enhance the built environment to meet social and economic needs*
2. Introduce new value systems
3. Embrace the new economy, and new ways of working
4. Promote effective education, awareness, information and communication
5. Adopt new decision-making processes and structures

Those sustainability issues which are most appropriately dealt with in this guide are discussed below.

Sustainable Settlements

A sustainable settlement is one which provides as many opportunities as possible to reduce the length of journeys, particularly those undertaken by the private car. It is one which maximises the amount of energy and materials which it obtains from the immediate locality, and minimises its exports to the wider environment of pollution and waste products. Jobs and facilities will be located close to housing.

The design of new housing areas can contribute towards sustainability by providing for mixed use development, with workspaces, shops, schools and other facilities as well as housing. Dependence on cars can be further reduced by providing good access to public transport links, as well as attractive footpaths and cycleways. Further steps might include:

- *Garden space for vegetable growing and composting of waste.*
- *Recycling of domestic 'grey' water for non-food use*
- *Reedbeds for sewage treatment*
- *Public space and/or buildings to facilitate local produce markets, crèches, skill sharing and other community activities.*

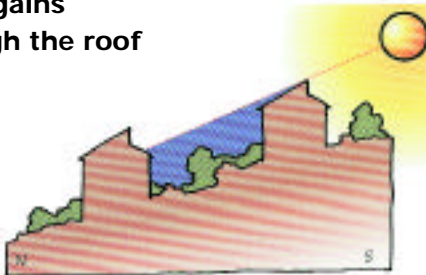
Energy efficiency

'Planning for Sustainable Development' contains a section on energy efficiency and particularly emphasises the ways in which sites and buildings can be designed in an energy efficient way. It is essential that all new housing is built to a high specification in terms of energy efficiency, and indeed this is a requirement of current Building Regulations (Part L, Conservation of Fuel and Power). This may be achieved by a combination of some or all of the following considerations:

- *thermal insulation of walls, floors and roofs;*
- *Draught proofing;*
- *Double or triple glazing of windows;*
- *Heating (and cooling) systems: application of up-to-date technology to ensure efficient energy use; use of renewable fuels including solar power;*

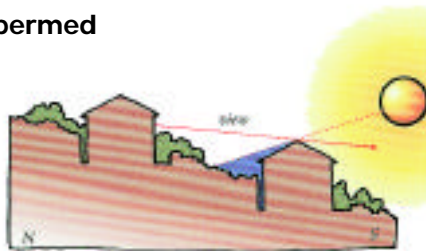
Passive Solar Design options on sloping sites

Solar gains through the roof



Tight spacing on a north-facing slope will cause severe overshadowing: the roof may be considered as a source of solar gain.

North facades earth bermed

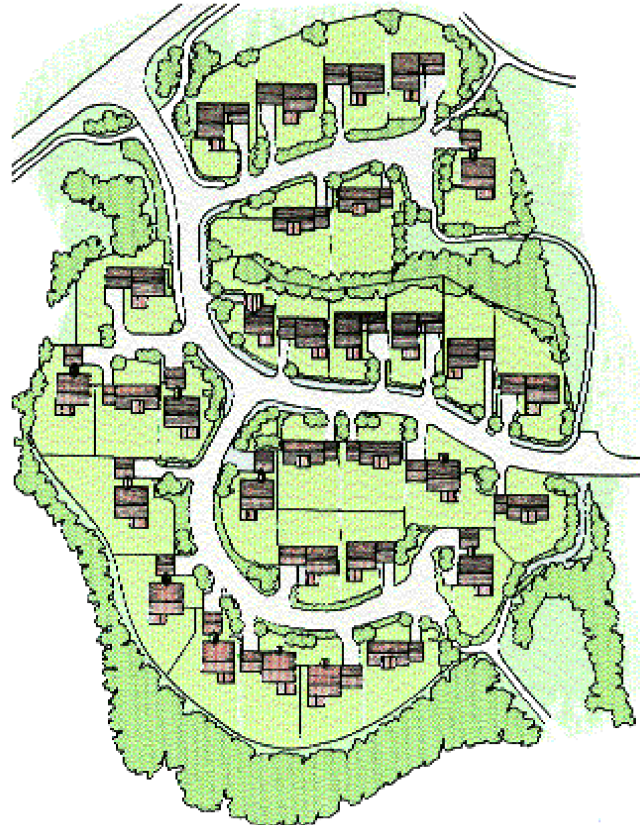


South-facing slopes allow tighter spacing without loss of sunshine: cutting into the slope reduces exposure on the north side.

- *Design, siting and orientation for passive solar gain;*
- *Use of earth sheltered housing, especially on sloping sites; inclusion of basements;*
- *Use of planting as windbreaks for shelter, as insulation, or for shade in Summer;*
- *Identifying opportunities for combined heat and power.*

In addition the 'embodied energy' of a development can be reduced by recycling of materials on site and sourcing bought-in materials as locally as possible.

Stroud District Council plans to establish a Millennium Social Housing project to build new very energy efficient houses as well as refurbishing others to a very high environmental standard.



The Willow Park development in Chorley, by architects TRADA. Note how the road layout facilitates the southerly orientation of dwellings.

Surface water treatment

With increased building comes an increase in the area of impermeable surfaces including roofs, roads and parking areas. This means that rainfall, rather than being absorbed into the ground to replenish the ground water supplies, is directed into storm water sewers and piped to rivers flowing out to sea. The implications of this include depletion of ground water reserves, sudden fluctuations in river levels and harmful flushing of pollutants into our watercourses. Where possible this should be alleviated by the incorporation into new developments of measures to slow down the run off of surface water and retain it in areas where it can infiltrate back into the ground without damage to property or threat of flooding. These include physical features such as grass swales, infiltration basins and detention ponds (normally dry outside of rainfall periods), retention ponds and wetlands, as well as porous paving surfaces.

Best Management Practice guidelines exist (contact the Environment Agency) explaining how to design such systems, which can be attractive features in their own right, enhancing the general environment and potentially increasing demand for nearby housing. As with all public space, there are associated maintenance requirements, but these can be offset against the reduction in maintenance required for conventional drainage systems. It is also possible to store rainwater in containers incorporated in the design of the house to allow use for activities such as car washing and garden watering. Such systems, if properly designed, can also act as heat stores, helping to regulate building temperatures.



Wildlife habitat and Biodiversity

The development of new housing frequently involves the loss of areas of wildlife habitat. Sites designated for particular interest (SSSIs, Nature Reserves etc) will generally be protected from development. Other areas which are not designated may nevertheless be of considerable value at a local level and for more common species. Wildlife habitat should not be considered in isolation, but seen as part of a network of similar sites. The importance of sites forming part of existing green 'corridors' linking to other areas of habitat should not be underestimated. Loss of a seemingly insignificant area may in fact result in isolation of other areas of habitat and even make existing populations of species unviable.

Areas identified as being of particular value at the survey and analysis stage should be retained wherever possible, and surrounding areas designed such that links are made to other areas of habitat, using new hedgerows, linear woodland, wetlands and such like. These areas will enhance the landscape setting of the housing and be a potential educational resource, as well as going some way to compensate for any loss of previously existing habitat. Wildlife areas should be generously proportioned to allow for the future growth of trees which may otherwise be perceived as a threat to buildings or to the public on paths and highways.

While considerable scope exists for new developments to incorporate measures to enhance wildlife habitat, certain habitats are virtually irreplaceable, and should be retained wherever possible. An example is ancient trees, which are important for highly specialised plant and animal communities which require hollows and dead wood to thrive. The loss of an ancient Oak tree cannot be compensated for by the planting of any number of young trees.

The developer should be aware of and have regard to the Gloucestershire Biodiversity Action Plan, launched April 2000. (Details available from www.biodiversity.freeserve.co.uk/info.html) which includes Action Plans for locally key habitats and species.

Use of local materials and renewable materials

The use of locally produced materials when building cuts down on damage to the environment caused by freight, keeps energy costs down, and supports the local economy. In Stroud District this is particularly applicable for timber and stone, as well as some metalwork. A directory of local sustainably produced timber is being compiled by The Touchwood Partnership in Stroud.

Where possible the use of renewable or recycled materials is preferred in order to protect limited resources. Renewable materials are also likely to harmonise with materials used in traditional buildings.

