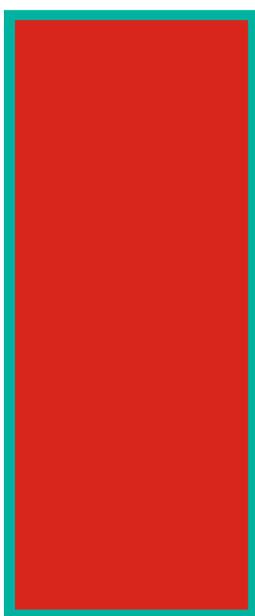
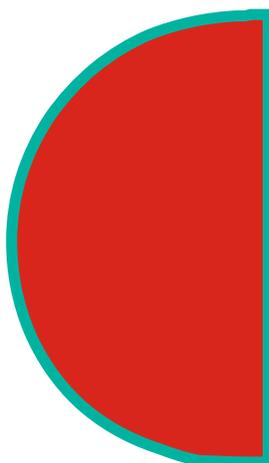
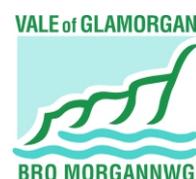


Supplementary Planning Guidance

SUSTAINABLE DEVELOPMENT



*The Vale of Glamorgan
Adopted Unitary Development Plan
1996 - 2011*





*The Vale of Glamorgan UDP
Supplementary Planning Guidance*

SUSTAINABLE DEVELOPMENT



Rob Quick, B.A. (Hons), Dip. TP, MRTPI.
Director of Environmental & Economic Regeneration

Rob Thomas, B.Sc. (Hons), M.Sc., MRTPI.
Head of Planning & Transportation

The Vale of Glamorgan Council. © 2006

2. *The Vale of Glamorgan UDP Supplementary Planning Guidance*
Sustainable Development



SUSTAINABLE DEVELOPMENT

<i>CONTENTS</i>	<i>Page</i>
1. Background	5.
2. Status of the Guidance	5.
3. What is Sustainable Development?	5.
4. Sustainable Development in the Vale of Glamorgan	6.
5. Statement of Sustainability	6.
6. What are the Benefits of Sustainable Development?	7.
7. Incorporating Sustainable Development within a Development	7.
8. Planning Policy Context	8.
Sustainability Guidelines	
9. Site Assessments	11.
10. Site Layout	11.
11. Transport and Movement	11.
12. Sustainable Energy Use in Buildings	12.
13. Renewable Energy Sources	15.
14. Energy Efficiency and Material Choice	16.
15. Street Lighting	17.
16. Water Conservation	17.
17. Sustainable Drainage	17.
18. Waste Management	20.
19. Landscape, Trees and Ecology	21.
20. Further Information and Advice	23.
Appendices	25.
Appendix A - Sustainability Checklist	
Appendix B - Summary of the Representations received and the Council's Responses	



SUSTAINABLE DEVELOPMENT

1. BACKGROUND

The purpose of this guidance is to raise awareness of how the development of land can contribute towards sustainability, through encouraging a holistic approach to construction and by reducing the impact of a development during its lifetime.

The guidance covers a wide range of sustainability issues relating to land-use planning, accessibility, energy efficiency, drainage and water conservation, waste management, landscape and biodiversity. Advice is also given on the implementation of renewable energy systems, and the planning considerations of such development. In addition to providing examples of good practice, the guidance also gives advice on where further sources of information can be found.

Whilst providing a broad perspective on sustainable development, the guidance does not cover social and economic aspects of sustainable development that are addressed through other parts of the Vale of Glamorgan Adopted Unitary Development Plan 1996 - 2011 (UDP) such as policies that encourage economic development and ensure the provision of affordable housing.

2. STATUS OF THE GUIDANCE

This Supplementary Planning Guidance (SPG) has been prepared in the context of Planning Policy Wales (March 2002) as additional information to the UDP and is non-statutory in nature. Only the policies in the Development Plan can have the special status afforded by S54A of the Town and Country Planning Act, 1990 (As Amended), in determining planning applications. However, the Welsh Assembly Government advises that Supplementary Planning Guidance (SPG) may be a material consideration, the weight afforded to it being increased if it has been prepared in consultation with the general public and interested parties and if it has been the subject of a Council resolution.

In accordance with this advice and the Council's guidelines for the production of SPGs, Council Cabinet considered the content of the SPG on the 27th July 2005, at Scrutiny Committee on 5th September 2005 and Planning Committee on 29th September 2005. This was followed by a six-week consultation with both statutory and non-statutory consultees between the 30th September 2005 to the 11th November 2005. A summary of the representations received, and the Council's response to these representations is given at Appendix A.

All representations made to the draft SPG and recommended changes were endorsed by Council Cabinet on the 15th February 2006, Scrutiny Committee on the 7th March and Planning Committee on the 9th March 2006.

3. WHAT IS SUSTAINABLE DEVELOPMENT?

In 1987 the Brundtland Report, also known as *Our Common Future*, alerted the world to the urgency of making progress towards economic development that could be sustained without depleting natural resources or harming the environment. This report provided a key statement on sustainable development, defining it as:

"Development which meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Brundtland Report highlighted that sustainable development requires a long-term, integrated approach to developing and achieving healthy communities by jointly addressing economic, environmental, and social issues, whilst avoiding the over consumption of key natural resources. In 1992, the United Nations Earth Summit established Agenda 21, which provided the blueprint for sustainability in the 21st century. Agenda 21 focuses on the conservation and preservation of our

environments and natural resources. This requires that participating nations develop national strategies for their sustainable development, and for the UK Government this is based on four broad objectives:

- Social progress which recognises the needs of everyone.
- Effective protection of the environment.
- Prudent use of natural resources.
- Maintenance of high and stable levels of economic growth and employment.

4. SUSTAINABLE DEVELOPMENT IN THE VALE OF GLAMORGAN

Similar to other areas in South East Wales, the Vale of Glamorgan is under strong pressure for development, involving not only new buildings, but also changes of use, conversions and renovations of existing buildings. Whilst such developments can bring social and economic benefits in terms of new housing and employment, they can also have environmental and resource implications such as the loss of wildlife habitats and species, and increased demands for energy use. The implications of which reach beyond the boundaries of the Vale of Glamorgan. Therefore, in keeping with the philosophy of “think globally, act locally”, the Council shall seek to encourage all development to be carried out in ways that minimise negative environmental impacts and make best use of natural resources.

5. STATEMENT OF SUSTAINABILITY

All proposals for new housing developments will be considered in the context of sustainable development and the Council shall require a Statement of Sustainability to accompany all planning applications for such development (excluding household applications). This should outline how a proposal supports the aims of sustainable development in relation to the topic areas discussed within this guidance.

In addition, a Statement of Sustainability will be required to accompany all developments **where the proposed floorspace exceeds 1,000 square metres (gross) or the site area is 1 hectare or more**, including new Council owned/procured public buildings such as educational, community and leisure facilities.

To assist in the preparation of the Statement of Sustainability, a Sustainability Checklist is provided at the end of this document, which summarises the main points contained within this SPG. Once complete, this should also be submitted as part of the planning application.

The Statement of Sustainability should be viewed as part of the development process; as a tool to demonstrate that all relevant issues have been considered throughout the design and construction stages. At the planning application stage it should clearly demonstrate the applicant's approach to sustainable development. In addition, the Statement of Sustainability should also be used as reference for developers and Council officers that can be revisited throughout the planning/development process. This will ensure that the development proposed supports the issues addressed within the statement.

In line with the topics covered within this SPG the Council shall require all Statements of Sustainability to address the following:

- Site Layout and density
- Transport and Movement
- Energy Conservation and Efficiency
- Low/Zero Carbon Energy Sources and Systems
- Low embodied Energy Material and Resource Efficiency
- Street Lighting to Minimise Pollution
- Water Conservation and Sustainable Drainage
- Waste Management
- Landscape, Trees and Ecology

Whilst some of the measures contained within this SPG may not be relevant to every situation, all proposals should nevertheless take account of the issues addressed within the SPG, and include measures where there is scope to influence outcomes.

6. WHAT ARE THE BENEFITS OF SUSTAINABLE DEVELOPMENT?

The long-term benefits of sustainable development may not always be obvious to developers who are under pressure to make returns from their development projects. However, research has shown that developments that integrate long-term sustainable development considerations are able to command higher values and/or higher rents. For example, most occupiers of developments want to have attractive living and working environments, low maintenance and energy costs, and pride in their surroundings. They will also want reassurance that the development can be re-sold in the future. Investors, business and residents are often willing to pay extra to satisfy these needs.

The benefits of sustainable development are wide-ranging. For developers the advantages include:

- Reduced construction costs – minimising wastage of construction materials, energy, water use, etc. will help to improve profits.
- Increased returns – developments that are of a high quality are more likely to be in demand from prospective buyers or tenants, helping to boost development values.
- Improved reputation – local people are more likely to welcome development by those developers who show a track record of caring about the environment.

From the point of view of local communities, the benefits can be significant. High quality developments can instill a sense of purpose and place, produce healthier environments that uplift people's spirits, and help to reduce crime and improve safety. They also reduce the burden on the public purse in having to rectify mistakes. The Guidelines are equally applicable to affordable housing as they are to market housing and commercial developments, and so those on lower incomes should also be able to benefit from sustainable development.

7. INCORPORATING SUSTAINABLE CONSTRUCTION IN A DEVELOPMENT

There also exists the perception amongst developers that sustainable design and construction measures always incur additional costs. However, such costs may be reduced, even removed if they are integrated within the overall scheme rather than treated as a separate additional requirement. Minor measures such as the inclusion of low/dual flush WCs and water/energy efficient appliances are of similar cost to standard versions.

The Department for Trade and Industry has funded a web-based resource: Sustainable Construction Practical Guidance for Planners and Developers (www.sustainable-construction.org.uk), which contains information on all aspects of sustainable development. The site includes a 'Measures Matrix' that assesses the costs and benefits of a range of sustainable design and construction measures, which are drawn from those included in the BREEAM and EcoHomes assessments (page 12). The Council encourages developers to use this resource to assist them in identifying the most appropriate and cost-effective sustainable measures relevant to their development.

8. PLANNING POLICY CONTEXT

8.1 National Policy

- **The Welsh Assembly Government Sustainable Action Plan**

Sustainable development is now firmly embedded in national, regional and local planning policy. These guidelines respond to the Welsh Assembly Government's (WAG) constitutional duty to promote sustainable development as prescribed under Section 121 of the Government of Wales Act 1998. Under this duty, the WAG is required to produce a Sustainable Development Action Plan. The most recent was published in December 2004 and outlines the actions that the WAG will implement over the plan period. This SPG has particular relevance to the objective "to work with developers,

construction clients and funders, the Design commission for Wales and Constructing Excellence to ensure the built environment meets sustainable development goals”.

- **The Wales Spatial Plan**

The Wales Spatial Plan (WSP) (November 2004) sets out the national framework for Wales up to 2024, according to five guiding themes- *Building Sustainable Communities, Promoting a Sustainable Economy, Valuing our Environment, Achieving Sustainable Accessibility and Respecting Distinctiveness*. With regard to land use planning, it is the intention of the WAG to make the WSP a material consideration for local planning authorities in developing their plans and making planning decisions.

- **Planning Policy Wales**

Planning Policy Wales (2002), indicates that local authorities, through the planning system must provide for homes, infrastructure, investments and jobs in a manner that is consistent with the principles of sustainable development. Similarly, TAN 12 Design (2002) encourages sustainable design solutions that make prudent use of natural resources, incorporating sustainable energy use and waste control measures. In addition, TAN 8 Planning for Renewable Energy (2005) highlights the potential for creating more sustainable developments by incorporation of renewable energy technologies, providing a range of best practice examples and encourages local planning authorities to develop supplementary planning guidance to assist in the promotion of sustainable energy.

8.2 Local Policy

- **The Vale of Glamorgan Adopted Unitary Development Plan 1996 - 2011**

The Council recognises the fundamental role that the UDP can play in contributing to make development in the Vale more sustainable and encourages proposals that bring about environmental or community benefits. Strategic Policy 2 of the UDP aims to ensure that all proposed development within the Vale of Glamorgan respects the need to work towards sustainable development:

POLICY 2. PROPOSALS WHICH ENCOURAGE SUSTAINABLE PRACTICES WILL BE FAVOURED INCLUDING:

- (i) PROPOSALS WHICH CONTRIBUTE TO ENERGY CONSERVATION OR EFFICIENCY, WASTE REDUCTION OR RECYCLING; POLLUTION CONTROL; BIODIVERSITY AND THE CONSERVATION OF NATURAL RESOURCES;
- (ii) PROPOSALS WHICH ARE LOCATED TO MINIMISE THE NEED TO TRAVEL, ESPECIALLY BY CAR AND HELP TO REDUCE VEHICLE MOVEMENTS OR WHICH ENCOURAGE CYCLING, WALKING AND THE USE OF PUBLIC TRANSPORT;
- (iii) THE RECLAMATION OF DERELICT OR DEGRADED LAND FOR APPROPRIATE BENEFICIAL USE; AND
- (iv) PROPOSALS WHICH IMPROVE THE QUALITY OF THE ENVIRONMENT THROUGH THE UTILISATION OF HIGH STANDARDS OF DESIGN.

The policy recognises that elements of sustainability can be incorporated into developments including energy conservation; assist in management use of natural resources, encourage the use of non-motorised travel modes; avoid pollution; conserve water resources; and conserve/enhance biodiversity. Elsewhere, the UDP contains policies that cover a wide range of topics relevant to the promotion of sustainability, such as transport, community services and landscape.

- **Corporate Policy and Community Plan**

The Council also has a Sustainability Policy, which sets out its aims towards, and principles of action for securing a more sustainable community. Furthermore, the local Community Plan seeks to meet the needs of local communities in ways that are not detrimental to the natural and built environment. To this end the Community Plan contains the following strategic priorities:

- Improvement of local environmental quality
- Increased use of sustainable drainage systems

- Promotion of re-cycling of domestic, agricultural, industrial and aggregate waste
- Promotion of energy conservation measures
- Protection and enhancement of the biodiversity of the Vale
- Encouragement of sustainable agricultural practices
- Protection of the natural and built environment from development pressures, through the Unitary Development Plan
- Promotion of the use and development of sustainable transport

SUSTAINABILITY GUIDELINES

9. SITE ASSESSMENTS

In preparing a Statement of Sustainability, developers are advised to undertake an initial site assessment to gain an understanding of the site characteristics and its context. This should then inform how best the proposed development can utilise opportunities for sustainable development in relation to the sites. In this way the Statement of Sustainability should clearly demonstrate a logical progression from the site assessment to the final proposed scheme.

Careful consideration should also be given to choosing a location for development as this can have a significant impact on the sustainability of the proposal, as can the choice of land for development. In this respect developers are encouraged to reuse brownfield land or existing buildings.

The Council will require a site appraisal to determine the relationship between the proposed development and:

- Accessibility to neighbouring developments, local services and facilities;
- Connections to existing pedestrian, cycle, rights of way and public transport routes;
- Highway accessibility and safety (a traffic impact assessment may also be required);
- Existing service infrastructure and its capacity;
- Topography and site orientation to inform opportunities for energy conservation;
- Existing water features (e.g. rivers, streams, ponds)
- Archaeological or historic interests;
- Boundary features, such as hedges, stone walls and tree lines;

- Local building characteristics and important views;
- Ecological impacts;

Existing landscape/amenity features including trees and open spaces.

10. SITE LAYOUT

The layout of a site can make a significant difference to the energy used in buildings, and for access and movement within and outside of the site.

The orientation and location of buildings and open spaces within the development can affect the potential for using natural (renewable) energy sources such as wind and sunlight. By applying sensitive housing design and layout, energy savings of up to 10% can be achieved with no additional capital cost to the developer. Mixed uses within a development can make the most of opportunities for higher densities and intensive activity at locations with good access to public transport as well as reducing the need to travel. In addition to creating vitality and diversity, different types of development have different patterns of energy demand. Identifying this demand can help determine the best location of uses within a site. Mixed development can also make Combined Heat and Power (CHP) more viable.

Additionally, site layout should be designed with safety in mind, and also provide full accessibility for all pedestrians as easy movement through the site can provide natural surveillance to discourage crime. Therefore pedestrian and cycle access should be open and overlooked.

11. TRANSPORT AND MOVEMENT

Individual developments should provide easy and safe movement for all modes of transport, especially pedestrians and cyclists, and connect to existing routes beyond the immediate development. Similarly, development proposals must give consideration to public transport provision and access and if appropriate contributions for either the provision of a new service or the upgrading of an existing public transport service may be sought through legal agreements.

It is also important to ensure that pedestrian and cycle facilities are easy and convenient to use and these issues need to be considered at the early design stage of a development proposal. The Council will seek to ensure that all developments make adequate provision for pedestrians and cyclists.

To assist in this, the Council has identified the following transport user hierarchy, which gives priority to those forms of transport that are the most sustainable:

- Pedestrians
- Cyclists
- Public Transport
- Private Motor Vehicles

The following guidelines provide examples of how developers can ensure that the needs of all transport users in the hierarchy are incorporated within the overall development, thus ensuring that developments are safe and conveniently accessed by all:

(i) Pedestrians

- provide convenient routes, which are easy, safe and attractive to use;
- create 'Home Zones' that reduce the dominance of cars;
- provide clear sign posting and lighting where appropriate;
- provide routes that are accessible to disabled people, particularly wheelchair users;
- link routes to local facilities, public transport nodes, open spaces and longer distance footpaths such as public rights of way;
- provide conveniently located pedestrian crossing points on busy sections of road;
- avoid steep gradients (not exceeding 1:20);
- provide wayside seating at appropriate locations;

(ii) Cyclists

- provide direct, safe and attractive routes;
- ensure that routes are as continuous as possible, avoiding frequent stops or diversions;
- link routes within developments to the wider cycle network;
- provide prominent, secure cycle parking which should be close to building entrances or inside buildings and should avoid the need to carry cycles over steps;
- provide joint pedestrian and cycle facilities only in circumstances where separate facilities for cyclists within the carriageway are not feasible, although pedestrian safety must not be compromised.

(iii) Public Transport

- Adequate access for bus services and service vehicles should be provided. This should not however, be at the expense of the safety and free movement of pedestrians and cyclists;
- Passenger facilities, such as bus shelters and timetable information should be provided, in consultation with the Council. Alternatively, other public transport enhancements may be required as part of the Council's Bus Strategy;
- Convenient access for pedestrians should be provided with bus stops located no more than 400m from residential properties.

(iv) Private Motor Vehicles

- New roads serving development should be designed for an average speed of 20mph or less, particularly at junctions and pedestrian/cycle crossings. It should also be ensured that the transport user hierarchy is not sacrificed e.g. by limiting the use of roundabouts as these create difficult crossing points for pedestrians and cyclists;

- traffic calming techniques must be designed into a development from the initial layout or master planning stage, through street enclosure, location of buildings, orientation of roads, road narrowing and changes in road surfaces;
- Parking should ideally be situated at the rear of properties to allow for pedestrian friendly site layout.
- Reduced standard parking requirements in developments that are well served by public transport or accessible to a range of services and facilities (e.g. town centres)

12. SUSTAINABLE ENERGY USE IN BUILDINGS

12.1 Energy Demand

Energy use in buildings accounts for nearly 50% of carbon dioxide (CO₂) emissions within the UK. The amount of energy and thus carbon dioxide produced is dependent on the building's energy efficiency, which is largely determined by the design of its construction. TAN 8 (2005) encourages all new buildings in Wales to be constructed to high standards of energy efficiency and recommends that suitable renewable energy technologies are incorporated wherever reasonably feasible.

Additionally, the appliances that are used to provide heat, energy and other services are major consumers of energy, and as such there are many simple measures which developers are encouraged to take in order to improve the energy efficiency within a building such as:

- Providing energy efficient boilers – condensing boilers are the most efficient “conventional” system
- Providing energy efficient appliances, especially white goods such as washing machines, fridges and lighting
- Fitting thermostatic valves to radiators, removing the need to heat empty rooms

- Fitting sensors to minimise the wastage of electricity
- Providing separate shower units, and avoiding power showers

12.2 Energy Efficiency Standards

It has been established that there is an overlap between Building Regulations and land use planning. Principally local authorities use Building Regulation powers to control the energy efficiency of buildings. Approved Document L of the Building Regulations requires minimum standards for the conservation of fuel and power in buildings and applies to proposals for new buildings, conversions, refurbishment or change of use. The Standard Assessment Procedure (SAP) incorporated into Building Regulations provides a straightforward and reliable means of estimating the energy required for space and water heating in new and existing dwellings. This can also provide an indication of the level of carbon dioxide, which is likely to be generated by the dwelling when in use.

Additionally, accredited schemes such as BREEAM and EcoHomes (see below) provide assessments of the environmental performance of buildings. Developers are encouraged to make use of such schemes and to consider the environmental issues at an early stage in the design process, in order to maximise the opportunity of achieving a higher rating.

- **National Home Energy Rating (NHER)**

National Home Energy Rating (NHER) has been devised by the National Energy Foundation. The NHER is based on an estimate of a home's total annual energy costs. It has a scale of 1 to 10 and goes further than the SAP by incorporating factors such as location, lighting and appliances to predict running costs. The higher the score, the more energy efficient the building.

- **EcoHomes Assessment**

EcoHomes is an environmental assessment method for new and refurbished homes, which forms part of the Building Research Establishment's Environmental Assessment Method (BREEAM) suite of tools. It considers the broad environmental

concerns of climate change, resource use and impact on wildlife. It balances these against the need for a high-quality, safe and healthy internal environment. The standard goes beyond requirements expected by current Building Regulations.

Since spring 2005, the WAG requires all homes built by Registered Social Landlords using Social Housing Grant to meet the EcoHomes Very Good energy efficiency standards. This is also applicable to all developments supported by the Welsh Development Agency, and is set out in its statement on sustainable development document entitled *Creating Sustainable Communities* (2005).

- **Building Research Establishment Environmental Assessment Method (BREEAM)**

BREEAM measures the overall environmental impact of a development project on a scale of pass, good, very good and excellent. It serves as both an assessment tool and an accreditation scheme. Building standards for offices, industrial developments and supermarkets are rated independently by trained assessors.

From January 2005, all new public buildings, including refurbishments procured by or for the Welsh Assembly Government, will be required to meet, a minimum of BREEAM's 'very good' standard.

12.3 Passive Solar Design

When designing a new building or dwelling, it is possible to arrange the layout to make the best possible use of renewable energy sources, and so to reduce the amount of heating required from other sources. By incorporating passive solar design principles, for example, by simply orientating dwellings on an east-west axis with the longest wall facing south, dwellings can take advantage of the benefits of passive solar heat, natural shading, and natural lighting, thus reducing energy consumption. This can also be achieved by using energy-efficient floor plans that place the primary living spaces on the south side and lesser-used rooms, such as storage and utility rooms, on the colder north side. As well as helping heat buildings, passive solar design can provide shade during summer months to help keep the house cool, and reduces the need for

artificial light (see below).

Whilst it may be difficult to provide all of a building's heating requirements through passive solar design in the Welsh climate, a combination of passive solar and energy conservation measures can easily reduce a new buildings conventional heating requirements by 50% to 80%, while saving the home-buyer money in the long term. (Centre for Alternative Technology)

12.4 Natural Daylighting

Daylighting is the controlled entry of natural light into a building through windows, skylights, atria, and other building envelope components. A properly designed daylighting system should achieve good daylighting factors by distributing it evenly and by avoiding glare and overheating. Not only does this significantly reduce overall energy consumption by 10-30% but natural light also offers occupants a pleasant living and working environment. Furthermore, when well integrated into the building design, less or no mechanical ventilation is required.

The Building Research Establishment has published a number of documents, including *'Site layout Planning for Daylight & Sunlight'* (1991), which give guidance on maximum and minimum percentages of wall areas to maximise natural lighting.

12.5 Natural Ventilation

The heat loss from the fabric of a building can be minimised through good insulation. However, in doing so there is also a considerable heat loss due to the necessary ventilation of stale air. This can be overcome by incorporating a passive heat recovery ventilation system that utilises fresh air from the outside by passing it through a simple heat exchanger where incoming fresh air is heated by means of the energy in the exhaust air. These systems have few moving parts, are very quiet and use very little power.

Applications include new build housing and busy rooms such as offices and classrooms where high ventilation rates are needed. The heat produced by the occupants (about 90 watts of heat each person) can be mostly recovered. This heat is normally lost due in the ventilation air.

13. RENEWABLE ENERGY SOURCES

13.1 Solar Photovoltaic

Photovoltaic cells (PV) convert sunlight into electricity. To maximise the cells efficiency, they should be south facing and angled between 30-40° east-west and due south. Shading should be avoided and the effects of the winter sun angle considered when siting the technology.

Industrial sites, school buildings and retail units offer great potential to incorporate PV panels in their existing environments as they tend to have large areas of roof ideal for the installation of a number of stand alone panels. Known as photovoltaic arrays, these can contribute to the energy consumption of the building and even contribute electrical energy to the national grid on days when production exceeds demand from building users, thus providing potential income to the occupier.

13.2 Solar Water Heating

As well as the benefits to be gained from passive solar design, the sun can also be used to heat water in domestic hot water systems. The main types of commercial systems available are flat-plate systems and the evacuated tube collectors usually roof mounted on the southern pitch. As with PV, these are also suited to industrial sites, school buildings and retail units.

13.3 Planning considerations

When considering the installation of photovoltaics and solar panels the following should be considered:

- PV and solar water heating should be sensitively located so as to avoid having a detrimental impact on the visual character of the built environment. This is of particular importance in Conservation Areas, where the quality of the roofscape is often an intrinsic part of its character. Therefore panel material should be no more reflective than the existing building materials.
- Where possible they should be located on non-public elevations; they should not protrude significantly from the roof and they should be located so that they do not create an unbalanced elevation.

- Panels on listed buildings should blend well with the existing traditional materials. Standard panels are likely to be unacceptable and more innovative solutions such as PV roof tiles that look like traditional roofing materials may be a potential solution.

13.4 Heat Pumps

Heat pumps are able to extract heat from soil, rock, air or water by a process that is similar to the operation of a refrigerator and can be used efficiently to heat a building by drawing heat, concentrating it and delivering it to the building. Systems use a pump and compressor to remove heat from one side of the circuit and eject heat to the other side. Heat pumps work best where heat can be applied evenly and consistently (e.g. under floor heating systems).

13.5 Small Scale Wind Power

Wind Power is far more difficult to harness without some degree of visual intrusion taking place. Wind turbines tend to be very large structures that must be located in exposed areas to benefit from uninterrupted wind speeds. Given the amount of open countryside within the Vale, and its importance to the Vale's population in terms of access to countryside, biodiversity, open space and leisure, large-scale wind farms are not considered to be appropriate.

However, TAN 8 encourages local planning authorities to consider the potential for small community based wind turbine proposals, or single turbines where they are located on suitable industrial sites. Consequently, proposals for such schemes would be looked upon more favourably where there would be no detrimental impact on the environment. Visual impact could potentially be reduced through the use of natural cover and local topography.

In order to consider a proposal for a new wind turbine development the Council would require a full "Landscape and Visual Impact Assessment" to be submitted as part of the application. The focus of the assessment will be on the likely impact of the proposal on localised views and medium to long distance views into the area. Proposals should have considered opportunities to camouflage the equipment against background scenery and should avoid standing out on the skyline.

13.6 Domestic Roof-mounted Wind Turbines

Recent advances in technology have brought wind power generation into the domestic market and within the budget of the householder.

(www.windsave.com). These small wind power systems are relatively compact in size and can be attached to almost any roof and can provide up to 15% of their average electricity needs. However, the installation of the turbine may require planning permission, and the Council will consider the application in terms of the siting and appearance of the unit, using the same criteria as for photo-voltaic cells and solar water heating.

13.7 Biomass

Biomass is the term used to describe all organic matter living on the earth. This organic matter is an energy store that is usually recycled through chemical and physical processes. There are a number of different methods of producing fuel from biomass, including the use of chopped forestry waste, energy crops such as willow, poplar and miscanthus, poultry waste and straw. Wood chip and pellet stoves and boilers have been developed for domestic, agricultural and industrial uses, and have been used to heat the WAG Debating Chamber.

13.8 Fuel from Waste

Methane gas from landfill sites, can be captured and burnt in the same way as natural gas, and is used to produce electrical power. The generated electricity can be used locally or put back into the national grid. Methane digesters are also used on livestock farms and in some local authority waste disposal units and sewage farms. Power can also be produced from the combustion of domestic waste.

13.9 Combined Heat and Power (CHP)

Conventional power generation is a highly inefficient process, which results in under half the input energy in burning fuel being converted to useful electrical energy. The rest of the energy is lost through waste heat. CHP has far greater efficiency in that the heat produced during power generation is captured and used in local heating applications. CHP has both economic benefits and environmental benefits being

a more efficient process and so minimising energy loss and reducing costs. CHP can use steam or gas turbines or combustion engines. There is a wide range of fuel sources available from biomass and fossil fuels to renewable sources.

CHP can be used effectively in centralised power generation and to even greater effect in small-scale local generation such as district heating systems in mixed-use developments and large buildings such as industrial units, leisure centres and hospitals. Prospective developers should also consider the benefits of CHP in their proposals for large new residential, commercial and industrial developments.

14. ENERGY EFFICIENCY AND MATERIAL CHOICE

It is recommended that the decision on which materials are to be used is considered early in the design process and that choice should be made in terms of the quality, durability, and appropriateness to the context and also the amount of embodied energy within that material.

Embodied energy refers to the amount of energy that was used in the extraction, manufacture, transportation and on-site assembly of that material. Ideally materials used should have a low embodied energy, and normally be from a naturally occurring local source and/or by products of another local activity. They can also be materials that are produced through the use of renewable resources and environmentally benign processes. For example, timber that is sourced from sustainably managed forests and carries the Forestry Stewardship Council (FSC) logo should be used wherever possible.

The use of resilient and energy efficient materials such as timber and natural stone, whilst being sustainable also store up daytime solar energy which is released in the form of heat at night. Alternative construction techniques such as earth sheltered, straw bale and timber frames also reduce the energy loss in buildings and reduce the high-energy inputs associated with materials such as brick, concrete, steel and UPVC. The Building Research Establishment (BRE) has produced a Green Guide to Specification, which provides standard specifications for materials that are rated A to C in terms of energy efficiency and sustainability.

15. STREET LIGHTING

Although street lighting is important within a development for security and safety purposes it can become problematic. Glare from streetlights can be intrusive within residential areas, and in rural areas they can introduce an inappropriate urban element, impeding the views of the night sky. In some situations, lighting may also have a negative impact on biodiversity e.g. affecting bat flight paths, which can be resolved through careful positioning and design.

Controlling the levels of lighting is also important for sustainability in terms of the economic savings that can be made. Many standard streetlights use great amounts of energy, which can be reduced and even halved. Additionally, using different fixtures and fittings as well as innovative new ideas relating to the makeup of lamps and electronic control gear can make energy savings.

In addition aluminum should be used for all street lighting columns, lantern bodies and illuminated road furniture posts. The use of LEDs for illuminated road furniture i.e. signs, bollards, school flasher units, belisha beacons etc is specified. High accuracy photoelectric cells could also be used to switch the light on and off.

Directing light more accurately on designated areas, without any up lighting, will reduce glare (light pollution) and also energy consumption as making fewer lights more focused will remove the need for more streetlights. The Institute of Lighting Engineers (<http://www.ile.org.uk>) has published a good practice guide on how to reduce light pollution as well as problems associated with unnecessary obtrusive lighting.

16. WATER CONSERVATION

As with energy, the first step is to reduce the demand and then to find alternative sources to reduce the use of expensively treated drinking water for uses such as flushing toilets. Industry tends to be the heaviest user, followed by hospitals, hotels, schools and residential developments. In commercial and domestic buildings, the demand for water can be reduced as much as 50% using a

variety of simple and innovative strategies that are integrated into the plumbing and mechanical systems, as well as the landscaping design. Options for further reducing water use and running costs include the following:

- Incorporate dual water supplies wherever possible, for example grey water for toilet flushing; landscaping, on-site water storage for fire fighting
- Installation of low water use appliances such as low water use washing machines and dishwashers
- Installation of water efficient fixtures such as low/dual flushing toilet systems, or waterless urinals and toilets
- Incorporate rainwater collectors and water butts for use in gardens;
- Indigenous planting schemes that include drought tolerant species to reduce the need for watering.
- Use of local groundwater sources for purpose such as cooling in air-conditioning plants

17. SUSTAINABLE DRAINAGE

Development can cause many impacts on the water environment. One of the most dramatic of these is flooding, which can arise from traditional drainage systems that move rainwater as rapidly as possible from where it falls to a point of discharge such as a watercourse. Traditional methods can also cause poor water quality as run off can contain a variety of pollutants; poor groundwater recharge due to reduced natural infiltration. Drainage systems associated with new developments may also have direct negative impacts on biodiversity e.g. some drainage systems can result in high mortality of great crested newts. Large areas of hard landscaping also result in excess run-off, exacerbating flooding, pollution and erosion problems and reduced natural infiltration.

17.1 Sustainable Urban Drainage Systems (SuDS)

TAN 15 Development and Flood Risk (2004) highlights the benefits of Sustainable Urban Drainage Systems (SuDS) for providing a sustainable solution to help reduce and manage surface water run off which might otherwise cause flooding and pollution. These are physical structures built to receive surface water run off and provide a drainage that mimics natural processes rather than piped solutions. By dealing with rain close to its source, SuDS can deal with polluted water, slow down flows across sites and into watercourses allowing settlement, filtering and infiltration, which also have ecological benefits.

Developers are encouraged to work with the Council and the Environment Agency to incorporate SuDS in all new development to reduce the risk of flooding, the pollution to watercourses and to minimise negative impacts on biodiversity. This should be considered at the earliest stages of master planning or layout design. Early consultation with the Council is advised. The Council will make use of planning conditions or legal agreements to secure implementation of SuDS where appropriate.

The following sections illustrate and give examples of SuDS techniques that can be successfully applied to most development and can even be applied to existing developments. Further technical advice can be obtained from the Environment Agency: www.environment-agency.gov.uk

- **Soakaways**

Soakaways are vegetated areas of gently sloping ground designed to drain water evenly off impermeable areas and filter out silt and other particulates. Although these have been traditionally used in more remote locations away from public sewers or where sewers have reached capacity, soakaways may be used as an alternative connection to the piped system.

- **Permeable Surfacing**

Materials such as porous concrete blocks, crushed stone/gravel or porous asphalt can be used to encourage surface water to permeate into the ground. Depending on the ground conditions, the

water may infiltrate directly into the subsoil, or be stored in an underground reservoir (e.g. a crushed stone layer) before slowly soaking into the ground. If necessary, an overflow can keep the pavement free of water in all conditions. Pollutant removal occurs either within the surfacing material itself, or by the filtering action of the reservoir or subsoil.

- **Swales and Basins**

Swales are dry channels or ditches, where as basins are dry "ponds" which provide temporary storage for storm water, reduce peak flows to receiving waters, and facilitate the filtration of pollutants and microbial decomposition as well as facilitating water infiltration directly into the ground. Both can vary in size and therefore can be created as features within the landscaped areas of the site, or they can be incorporated into ornamental, amenity and screen planted areas where they would be maintained as part of a normal maintenance contract.

Swales and basins are often installed as part of a drainage network connecting to a pond or wetland prior to discharge to a natural watercourse. They may be installed alongside roads to replace conventional kerbs, therefore saving construction and maintenance costs.

- **Infiltration Trenches and Filter Drains**

Infiltration trenches are stone filled reservoirs to which stormwater runoff is diverted and from which the water gradually infiltrates into the ground. Filter strips, gullies or sump pits can be incorporated at inflow points to remove excess solids. Filter drains are similar to infiltration trenches but have a perforated pipe running through them. They are widely used by highway authorities for draining roads and help to slow down runoff water en route towards the receiving watercourse. They allow storage and filtration of water before the discharge point. Pollutant removal is by absorption, filtering and microbial decomposition in the surrounding soil.

- **Ponds and Wetlands**

These can be particularly beneficial during heavy rain due to their capacity to hold large amounts of water and therefore reduce flood risk and are best suited to larger sites where they can be incorporated into landscaping schemes. Ponds and wetlands also

help with grit removal. Algae and plants in wetlands can significantly assist with filtering and nutrient removal. The ponds and wetlands can be fed by swales, filter drains or piped systems. Use of inlet/outlet sumps assist in reducing sedimentation and reeds planted at these points will cleanse water as it enters and leaves the pond.

17.2 On site Stormwater Detention (OSD)

Onsite Stormwater Detention (OSD) is an option where SuDS are not practical due to soil and ground conditions. This is normally achieved by installing large diameter pipes, culverts or tanks. The basic principal of on-site storage is that during heavy rain, surface water run-off from roofs, car parks and large paved areas is directed to a storage tank. Water is stored and normally discharged to a main sewer using a suitable flow control device. At the end of heavy rain, the storage tank is typically emptied either as a gravitational or pumped system and is then ready for the next storm.

Another sustainable approach is to reuse stored storm water volumes for garden irrigation and/or exposing the system by incorporating visible water features such as fountains and mechanical misters for evaporative cooling.

17.3 Green Roofs

Green roofs are those that are intentionally vegetated to some degree and have the potential for retain up to 90% of the rainfall within its substrate. This reduces the flow rate of rainwater, helping to reduce flooding. Green roofs can vary from full-blown roof gardens, through to grassy swards or sedum roofs. They fall into three main categories:

- Extensive - using a relatively thin, lightweight substrate, which will support hardy plants, which require a low maintenance regime and no irrigation,
- Semi-intensive - using a lightweight shallow soil structure to support a wider variety of plants including herbs (requiring minimal maintenance),
- Intensive - designed to support a wide variety of plants, shrubs and trees,

In addition, to assisting in the sustainable management of water, it has been shown that green roofing can:

- Reduce urban heat - green roofs act as 'mini air conditioners', cooling and humidifying the surrounding air with beneficial effects on the immediate area,
- Reduce air pollution - the vegetation on green roofs helps to filter out dust and smog particles. Nitrates and other airborne pollutants are absorbed out of the air and rainfall and bound in the soil,
- Provide thermal insulation - green roofs provide thermal mass, which reduces both heating and cooling costs,
- Enhance biodiversity through the creation of wildlife habitats.

17.4 Reed Bed Filtration

A reed bed filtration system is a sewage treatment system, which is constructed after a septic tank to improve the cleanliness of septic tank discharges. Some industrial effluents can also be treated by reed bed systems. The reeds planted in gravel supply, via their roots, oxygen to bacteria that live in the gravel. The bacteria clean the sewage allowing treated, clean water to be discharged to a watercourse without harm to the environment and wildlife.

A septic tank and reed bed system is the simplest and cheapest form of sewage treatment available to rural populations. Reed beds allow developments to be sited where conventional soakaway systems are not suitable. Reed beds require very little maintenance after their first year of operation and have almost no running costs.

In rural areas, the use of reed beds in domestic developments, which generate small volumes of effluent, can mean that they are often more cost effective than conventional systems. In addition, reed beds provide the additional benefits of a landscaped feature and add ecological value by creating a habitat for insects and amphibians.

18. WASTE MANAGEMENT

The creation of waste is an inevitable consequence of industrial, commercial, agricultural and domestic activities, and its management has a critical part to play in moving towards sustainable development, in terms of both reducing our demands on scarce resources, and minimising the environmental impact of its treatment or disposal. Consequently, any new development, whether commercial or residential, must have regard to the provision of on-site storage for waste and recycling material. All planning applications, both commercial and residential, will be required to take account of the Council's recycling targets and incorporate additional space for the storage of waste for recycling. Any scheme provided must have regard to local conditions and reflect these accordingly.

Advice on the amount of storage required for each development, together with guidance on estimates of waste production are available from the Council's Waste Management Team.

18.1 Residential Development

Recycling storage should be provided internally where appropriate, and consideration should also be given to composting facilities in developments, including communal garden space in multi occupation premises. By incorporating them within the overall design of the development such storage can be hidden from public view. When providing recycling facilities the Council will want to be reassured that the space provided is adequate to accommodate the likely refuse that will be generated and that all refuse storage areas, internal and external, are easily accessible to both collectors and occupants.

18.2 Non- Residential Development

Adequate internal storage should be provided for the storage of recyclables on all non-residential development. Consideration will be given to the type of use of the premises and the likely level of the generation of waste, as well as the type of container that may be required for the waste. Where extensions to commercial premises are proposed, consideration must be given to the storage of waste on the site and care will be taken to ensure that adequate space is provided within the curtilage of the development.

18.3 Minimising Construction Waste

The UK construction industry generates 70 million tonnes of construction and demolition waste per year (4 times more than the domestic sector) and the UK is running out of suitable sites for landfill and the cost of landfill is increasing. Therefore it is as imperative that steps are taken by the construction industry to control and regulate the amount of waste produced during the building process.

Consequently, developers should at a very early stage, consider opportunities for reusing and recycling waste both on and off site. One such measure is for developers to give subcontractors the responsibility for purchasing the raw materials they need, and disposing of any waste material from their activities – this provides them with a direct financial incentive to minimise waste. The benefits of Construction Waste Management include:

- Less environmental degradation – air (transport, combustion, hazardous gases) land (contamination from fill contents), water (spillage and/or leakage from landfill) and limited resource use (mining, quarrying, drilling, felling)
- Reductions on Cost of Purchasing Materials (e.g. primary aggregate);
- Savings in disposal costs (e.g. landfill tax)
- Reductions in transportation costs (number and distance of lorry journeys)
- Revenues from reuse and recycling
- Employment creation
– 42,000 jobs by 2000 (BRE/SALVO survey)
- Environmental credibility.

The Welsh Assembly Governments *Construction Waste Minimisation: Good Practice Guide* (2004) provides information on how to minimise waste at various stages of a building project, and also includes training tools and checklists. (<http://www.housing.wales.gov.uk/pdf.asp?a=E48>)

19. LANDSCAPE, TREES AND ECOLOGY

19.1 Landscape

Where landscape schemes are appropriate, the developer must show that the planting proposals are sustainable and can be easily maintained. This will include the use, wherever possible of locally sourced native species appropriate to the local ecology, and care should be taken to avoid planting on sensitive ecological sites. Where applicable a landscaping scheme must illustrate what existing landscaping is to be retained (including protection measures) together with full details of new planting. In assessing proposals, the Council will have regard to relevant policies of the UDP and to any other relevant SPG, and relevant material considerations such as the Local Biodiversity Action Plan

19.2 Trees

Trees and woodlands play a vital role in sustainable development by providing a carbon sink to sequester large quantities of carbon dioxide and producing oxygen through the process of photosynthesis. The retention of existing tree stocks and planting of new trees can never fully compensate for the imbalance in the global carbon cycle, but by working together with other sustainable development policies, significant gains can be made in reducing the carbon budget and mitigating against the effects of global warming. Sustainable development should incorporate detailed schemes for new tree planting and sustainable arboricultural and silvicultural management of existing trees and woodlands.

Trees and woodlands are essential in enhancing visual amenities, filtering sound pollution, reducing particulate pollution, providing a habitat for wildlife, reducing storm water run-off, reducing drainage costs, providing shelter, reducing heating costs, improving microclimates and acting as a 'green magnet' for local businesses and their employees. Consequently due regard must be made to the preservation of existing trees and woodlands, and where relevant opportunities arise, measures must be taken to ensure that trees and woodlands are added to. There will be instances where the loss of trees is unavoidable in development, but where this is the case the council will need to be satisfied that

the loss is acceptable in terms of amenity and in terms of the value of the tree(s) being lost. The loss of a tree or trees will not be seen as an automatic right in order to achieve any development and there will be instances where the preservation of trees is in itself a reason for refusing planning permission. Further information on the Council's requirements for the protection of trees is contained in supplementary planning guidance on Trees and Development.

19.3 Ecology

The Vale of Glamorgan area is 80% rural and supports a very rich biodiversity and diverse range of habitats and species, including some globally and nationally threatened species. It includes one Special Area of Conservation (SAC), one possible Special Area of Conservation (pSAC), 21 Sites of Special Scientific Interest (SSSIs), two Local nature reserves and 14 miles of Heritage Coast as well as many other non-statutory sites including Nature Reserves, candidate Sites of Importance for Nature Conservation (cSINCs) and ancient woodland sites. However, it is also an area subject to substantial development pressure.

In proposing development, it is therefore, important, that every effort is made to minimise the impact on the ecology of the area. In all situations, an approach should be used which aims to enhance the overall wildlife value of a site, through retention and incorporation of existing wildlife features and creation/restoration of other features wherever practicable.

Development proposals should be guided by all legislation relating to wildlife and wildlife sites and national planning policy and guidance, in particular Planning Policy Wales 2002 and Technical Advice Notes (TANs) Wales. Other relevant material considerations at a national level should also be taken account of. These include UK Biodiversity Action Plan (UK BAP) objectives and priority species and habitats, and species or habitats listed on the 2003 Welsh Assembly Government published list of Species and Habitats of Principal Importance for the Conservation of Biological Diversity.

On a local level, in addition to compliance with policies and allocations within the Vale of

Glamorgan Unitary Development Plan, development should be guided by any current nature conservation supplementary planning guidance. Other material considerations relevant at the local level should also be taken account of including the Vale of Glamorgan Local Biodiversity Action Plan (LBAP), candidate Sites of Importance for Nature Conservation (cSINCs) and any locally important biodiversity features.

Ecological considerations should also be integrated into development in other ways, by, for example:

- Retention/enhancement of existing ecological features
- Creation of new wildlife habitats where opportunities arise
- Safeguarding and integrating wildlife networks into development design
- Supply of survey data and other ecological information to accompany planning applications where appropriate
- Incorporation of appropriate measures for mitigation and compensation into development
- Securing post-development management for biodiversity on development sites
- Inclusion of post-development monitoring and review
- Use of locally sourced plants, which are appropriate to the local ecology of the site, when creating/restoring habitat features or designing landscaping schemes.
- Constraints on timing of works
e.g. to avoid nesting bird season

Construction operations may have a damaging effect on the ecology of a site. Such damage should be avoided or minimised through a sensitive approach, for example through:

- Fencing off areas to provide a buffer zone or protect sensitive areas in the vicinity of the development.

- Careful planning, site preparation and supervision throughout the operation.

19.4 Ecological Impact Assessments and other Ecological Statements

Where it is considered appropriate or where it is required as part of legislation, the Council will request that the applicant submits an ecological Impact Assessment as part of any planning application. This Ecological Impact Assessment may be subject to an independent assessment as part of the Council's consideration of its contents.

The Council will expect all planning applications affecting sites of existing or potential nature conservation value to be accompanied by a statement that clearly demonstrates the ecological impact that the proposed development would have. Such statements should include an assessment of impacts on:

- Statutory and non-statutory ecological designated sites
- Protected species
- UK Biodiversity Action Plan (UK BAP) habitats and species
- Habitats and species listed on the 2003 Welsh Assembly Government published list of Species and Habitats of Principal Importance for the Conservation of Biological Diversity
- Vale of Glamorgan Local Biodiversity Action Plan (LBAP) habitats and species.

20. FURTHER INFORMATION AND ADVICE

WEBSITES

- Association for Environment Conscious Building: www.aecb.net
- Building a Better Quality of Life: www.dti.gov.uk/construction/sustain/
- Building Research Establishment (BRE): www.bre.co.uk
- Centre for Alternative Technology: www.cat.org.uk
- Centre for Sustainable Construction, BRE, www.bre.co.uk/sustainable/index
- Centre for Sustainable Design: www.cfsd.org.uk
- DEFRA Sustainable Construction Team: www.construction.detr.gov.uk/sustain/index.htm
- Green Roofs: www.greenroof.co.uk
- Home Zones: www.homezonenews.org.uk
- Guidance for Planners and Developers <http://www.sustainable-construction.org.uk>
- Rethinking Construction, The Egan Report: www.rethinkingconstruction.org
- Sustainability Works: www.sustainabilityworks.org.uk
- Sustainable Drainage: www.ciria.org.uk/suds/
- Sustainable Homes: www.sustainablehomes.co.uk
- The British Wind Energy Association: www.bwea.com
- The Energy Savings Trust: www.energy-efficiency.org.uk, www.est.org.uk
- The Environment Agency: www.environment-agency.gov.uk
- The European Union: www.europa.eu.int/scadplus/leg/en/s15000.htm
- The Housing Forum: www.thehousingforum.org.uk

STANDARDS AND GOOD PRACTICE GUIDANCE

WELSH ASSEMBLY GOVERNMENT PLANNING GUIDANCE

- Planning Policy Wales- 2002

- Technical Advice Note (TAN) 5 Nature Conservation and Planning – 1996
- TAN 8 Planning for Renewable July 2005
- TAN 12 Design- 2002
- TAN 15 Development and Flood Risk-2004
- TAN 18 Transport 1998
- TAN 21 Waste 2001
- A Model Design Guide for Wales- Residential Design (March 2005) [http://www.valeofglamorgan.gov.uk/Our%20Environment/PDFs/Model Design Guide.pdf](http://www.valeofglamorgan.gov.uk/Our%20Environment/PDFs/Model%20Design%20Guide.pdf)

Website

<http://www.wales.gov.uk/subiplanning/index.htm>

GENERAL

- Sustainability checklist for developments: A common framework for developers and local authorities, BRE Centre for Sustainable Construction, DTLR & DTI, 2002.
- Building a Better Quality of Life – a strategy for more sustainable construction, DETR, 2000.
- Sustainable Settlements – a guide for planners, designers and developers, University of West of England & Local Government Management Board, 1995.

SUSTAINABLE ENVIRONMENTS

- By Design: Urban Design in the Planning System: Towards Better Practice, DETR, 2000.
- Green Spaces, Better Places, DTLR, 2002.
- Lighting in the Countryside: Towards Good Practice, DETR, 1997.
- Guidance Notes for the Reduction of Light Pollution, Institute of Lighting Engineers'2000. website www.ile.org.uk
- Planning for Biodiversity – Good Practice Guide, RTPI, 1999.
- Guidelines for baseline ecological assessment, Institute of Environmental Assessment, 1995.

SUSTAINABLE USE OF RESOURCES

- Planning for Passive Solar Design, Terence

O'Rourke for BRECSU.

- Photovoltaics in Buildings; A Design Guide, Max Forsham & Partners for ETSU, 1999.
- Low Water Usage in Buildings: Guidance on Site Drainage Design, DTI & Partners, 2001.
- Code of Practice on Particulate Emissions, Building Research Establishment, 2000.

SUSTAINABLE DRAINAGE SYSTEMS

Environment Agency (08708 506506):

- Designs that hold water - 25 minute video (or DVD)
- Sustainable Drainage Systems – an introduction.
- Sustainable Drainage Systems – a guide for developers. An 8 page A5 booklet

CIRIA :

- C522 Sustainable Drainage Systems – Design Manual for England and Wales.
- C523 Sustainable Drainage Systems – Best practice.
- C582 Source control using constructed pervious surfaces.
- C156 Infiltration drainage – Manual of good practice.
- C539 Rainwater and grey water use in buildings – best practice guide.
- C180 Review of the design and management of constructed wetlands.
- C609 SUDS - Hydraulic, structural and water quality advice.

Building Research Establishment (BRE):

- Soakaway design: BRE365

SUSTAINABLE TRANSPORT

- A New Deal for Transport – Better for Everyone, Department for the Environment, Transport and the Regions, 1998.
- Streets for All, English Heritage, 2000.
- Transport development areas: Guide to good practice, RICS, 2000.

- Design Bulletin 32: Layout of Residential Roads and Footpaths, DoT, 1992.
- Places, Streets & Movement. Companions guide to Design Bulletin 32. Residential roads and footpaths, DETR, 1998.

SUSTAINABLE BUILDINGS

Buildings Research Establishment (BRE (www.bre.co.uk)) publications:

- BREEAM (Building Research Establishment Environmental Assessment Method) 98 for Offices.
- EcoHomes: The Environmental Rating for Homes, 2000.
- The Green Guide to Specification, 2002.
- The Green Guide to Housing Specification, 2000.
- Eco Homes – the Environmental Rating for Homes, BRE, 2000.
- Environmental Building Resource Guide, Centre for Alternative Technology (Machynlleth) Powys SY20 9AZ. Tel: 01654 703409
- Eco-Renovation: The Ecological Home Improvement Guide, by Edward Harland
- Green Building Handbook, by Tom Woolley, Sam Kimmins, Paul Harrison and Rob Harrison, E & FN Spon.
- Solar Energy and Housing Design Volume 1: Principles, Objectives, Guidelines, by Simos Yanna. Architectural Association Publications (1994)

APPENDICES

APPENDIX 1

SUSTAINABILITY CHECKLIST

Sustainability Checklist

This checklist will help you to identify how your development proposal addresses the issues of sustainable development contained within this SPG. Once complete the information can be used as an aid when drafting your Statement of Sustainability. The Statement of Sustainability and the Checklist should be submitted with your planning application. This will be taken into account in considering your planning application. Please feel free to continue on separate sheets if necessary.

How to use the checklist

Each sustainability issue has at least one box to fill in. If you have included measures that address the issue, complete the box with a , if not mark the box with a . For each response you are required to either state the measure proposed or your justification for not addressing this issue (e.g. the orientation of the site may not be suited to utilising the benefits of solar gain.) You are advised that the Council may request further information that supports your justification.

Sustainable Measure	<input type="checkbox"/>	Tick box if you have taken this into account If Yes, what measures are proposed? If NO, or not applicable, state why not
Site Assessment (pages 9 - 10)		
Accessibility to neighbouring developments, local services and facilities	<input type="checkbox"/>	
Connections to existing pedestrian, cycle, rights of way and public transport routes	<input type="checkbox"/>	
Existing infrastructure and its capacity	<input type="checkbox"/>	
Topography and site orientation	<input type="checkbox"/>	
Archaeological or historic interests	<input type="checkbox"/>	
Boundary features, such as hedges, stone walls and tree lines	<input type="checkbox"/>	
Local building characteristics and important views	<input type="checkbox"/>	
Ecological impacts assessed	<input type="checkbox"/>	
Landscape/amenity impacts including trees and green spaces	<input type="checkbox"/>	
Site Layout (page 10)		
Orientation of buildings utilises the benefits solar gain	<input type="checkbox"/>	
Infrastructure layout accords to the transport user hierarchy	<input type="checkbox"/>	
Maintains or improves existing pedestrian and cycle network	<input type="checkbox"/>	
Allow for easy and safe access to public open spaces?	<input type="checkbox"/>	
Street lighting designed to reduce light pollution and other environmental impacts	<input type="checkbox"/>	

Transport and Movement (pages 10 - 11)		
Safe movement for children, pedestrians and disabled persons		
Provisions made for cyclists e.g. secure cycle storage		
Encourages public transport use		
Maintain the transport user hierarchy		
Sustainable Energy Use (pages 11 - 13)		
Undertake an Eco-Homes, BREAM, or NHER standards assessment to determine the overall environmental performance of the proposal		
An EcoHomes Assessment is required for affordable housing funded through Social Housing Grant		
BREEAM Assessment is required for WAG procured buildings		
Passive solar design		
Natural daylighting		
Natural ventilation		
Reduce energy consumption e.g. installation of A rated appliances, condensing boilers etc		
Provision of internal drying space or external communal drying area		
Renewable Energy Sources (page 13 - 15)		
Solar Photovoltaics (PV's)		
Solar Water Heating		
Small scale wind		
Biomass		
Combined Heat and Power (CHP)		
Geo thermal		
Energy Efficiency and Material Choice (page 15)		
Use reclaimed or recycled materials		
Materials sourced from sustainable resources e.g. FSC certified timber		
Use natural energy efficient materials e.g. timber, stone etc		
Sustainable construction techniques e.g. straw bale, green roofing etc		
Street Lighting (page 15)		
Low energy street and other external lighting		

Water Conservation (pages 15 - 16)		
Installation of dual water supplies e.g. rainwater run-off for toilets and/or grey water reuse		
Installation of low/dual flush toilets		
Installation of rain water collectors for landscape maintenance and/or domestic garden use		
Installation of water efficient A rated white goods		
Use natural techniques, such as a reed bed filtration system to treat waste water		
Sustainable Drainage (pages 17 - 18)		
Installation of Sustainable Urban Drainage		
Soakaways		
Permeable surfacing		
Swales and Basins		
Infiltration Trenches and Filter Drains		
Pond and Wetlands		
Onsite Stormwater Detention		
Green Roofs		
Waste Management (pages 18 - 19)		
Internal recycling/separation facilities		
Communal external recycling/separation facilities		
Re-use/recycle existing building materials		
Implementation of an on site waste management scheme during construction		
Landscape, Trees and Ecology (pages 19 - 21)		
EIA of other ecological assessment/surveys conducted		
Retention of existing trees as part of the site layout/landscaping scheme		
Incorporation of ecological mitigation or compensation measures		
Creation of new wildlife habitats		
Inclusion of post-development management, monitoring and review		
Retention/enhancement of existing landscaping features		
Plant locally sourced indigenous trees and plants		
Minimise the opportunities of crime		
Mixed use development proposed		

APPENDIX 2

SUMMARY OF THE REPRESENTATIONS RECEIVED AND THE COUNCIL'S RESPONSES

APPENDIX B

Representor	Paragraph/Section	Comment	Council Response	Change
Barry Town Council	General Commentary	<ol style="list-style-type: none"> 1. This Guide is welcomed as an excellent review of sustainable issues. 2. Members of Barry Town Council question what practical steps will be taken by the Local Planning Authority to ensure that all future development will comply with the principles set out in the guidance document once its adopted for development control purposes. 	<ol style="list-style-type: none"> 1. The Council welcomes the support of Barry Town Council. 2. The SPG indicates that the Sustainability Checklist and the Statement of Sustainability should be viewed as part of the development process, with the SPG requiring that these be submitted as part of any planning application. Secondly, once adopted by the Council the SPG shall be a material consideration in the determination of planning applications. 	No change
Michaelston Community Council	General Commentary	<ol style="list-style-type: none"> 1. This is an impressive and useful piece of work 2. Overall an excellent document. The difficulty will be translating the Vale’s aspirations, many of which are covered by the revised building regulations particularly part L, into actions. 3. There should be more emphasis on embodied energy and the use of brown field sites. 	<ol style="list-style-type: none"> 1. The Council welcomes the support of Michaelston Community Council 2. The Council acknowledges that there is a overlap between the aims of the guidance and that which falls within the requirements of the building regulations. The aims of the SPG are to raise awareness that these standards are achievable through alternative means other than traditional/standard building construction techniques. 3. The Council agrees that there is a need to include reference to use of brown field sites, however it is considered that the content on embodied energy is sufficient for the scope of the guidance. 	Included references to the use of brown field sites.
Michaelston Community Council	Page 2, paragraph 5	Bullet point 2. This should also include “major industrial and agricultural projects”	This category refers to floorspace rather specific development types and as such “major industrial and agricultural projects” would also fall within this category.	No change
Michaelston Community Council	Page 3, paragraph 5	Add to bullet point 5 Energy efficiency, etc the following: “specifically related to lighting, heating and insulation”	This section sets out the general topic areas contained within the SPG, with issues such as lighting, heating and insulation dealt with in greater detail under Energy Efficiency and Material Choice.	No change

Michaelston Community Council	Page 9, paragraph 12.1	Add a further bullet point as follows: Encouraging uses of under floor heating.	The list provides an indication of the types of measures that a developer can take to improve energy efficiency, whereas under floor heating is a method of space heating, rather than an energy saving device.	No change
Michaelston Community Council	Section 5	I see no reason why a statement of sustainability should not apply to all developments not just those of more than 10 dwellings. All new developments in our community are likely to be smaller than this. The document could also be extended to cover renovations as well as new developments.	Agreed. In recognition that housing development in the rural vale is usually of a small-scale nature the Council considers that it would be appropriate for the SPG to apply to all new housing developments. This also reflects the fact that both large and small scale developers have constructed sustainable buildings in the UK.	Amend section 5 to encompass all housing developments rather than the draft proposed threshold of 10 dwellings or more.
Michaelston Community Council	Section 12.5	Natural Ventilation. This section is misleading, as it makes no mention of heat recovery ventilation, which is essential for low energy housing, and once high insulation has been achieved the main cause of heat loss is ventilation.	The Council acknowledges this omission and shall amend the guidance accordingly.	Include reference to and examples of heat recovery ventilation.
Michaelston Community Council	Section 13	This should have a section on Heat Pumps. These are recognised by the government as energy efficient and qualify for Green Skies Grant Aid. They are heavily promoted in Scandinavia and are more consumer friendly than solar, biomass and CHP. (I note that Geothermal is in the checklist but there is no descriptive text)	The Council acknowledges this omission shall amend the guidance accordingly.	Include reference to and examples of heat pumps.
Michaelston Community Council	Section 17	There is no mention of alternative sewage systems and the benefits of avoiding cesspits (which require frequent road transport to empty) and septic tank/soakaways systems which often fail in the Vale's poorly draining soil conditions.	The Council acknowledges this omission and shall amend the guidance accordingly.	Include reference to and examples of alternative sewage systems
Peterston-Super-Ely Community Council	General	We cannot add or detract from what is the basis of good practice guidance. We are pleased to see the prominence given to all environment considerations in particular SuDS, landscaping, transport and movement.	The Council welcomes the support of Peterston-Super-Ely Community Council.	No change required
Welsh St Donats Community	General	The Community Council agreed with the draft in principle and feel this is the way forward for planning in the future	The Council welcomes the support of Welsh St Donats Community Council.	No change required

Council				
Caerphilly County Borough Council	Page 6	I would draw your attention to the Model Design Guide for Wales- Residential Development by the Planning Officers Society for Wales. This document covers a number of key issues, which would have a positive contribution to the development of the Supplementary Planning Guidance that you are producing.	The Council has recently endorsed this document for use as supplementary planning guidance, and shall therefore cross-reference this document within the final version of the sustainable development guide.	Include reference to the Model Design Guide for Wales in relation to Sustainable Design.
Caerphilly County Borough Council	Paragraph 12.1	Paragraph 12.1 refers to Draft TAN 8 Renewable Energy (2004). Please note that TAN 8 has now been formally published.	The Council shall update the final version of the SPG to reflect the status and content of the finalised TAN.	Update references to the final version of TAN 8.
Caerphilly County Borough Council	Paragraph 13.7	From past experience it has been noted that 'Incineration' has sparked controversy among members and the public and we suggest that you may wish to replace with the word 'Combustion'. This tends to be less contentious.	The Council welcomes Caerphilly County Borough Council's advice on this matter.	Reword accordingly.
Design Commission for Wales	General	The Design Commission for Wales applauds the requirement for a Statement of Sustainability to accompany planning applications for major developments, and would like to see this become a statutory requirement.	The Council welcomes the Design Commission for Wales's support.	No change required
Design Commission for Wales	General	We would like to see some slight amendments to the topics to be covered in the statement as follows: <ul style="list-style-type: none"> • Site layout and density • Transport and Movement • Energy conservation and energy efficiency • Low/zero carbon energy sources and systems • Low embodied energy material and resource efficiency • Street lighting to minimise pollution • Water conservation and sustainable drainage • Waste management • Landscape trees and ecology 	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 10	Include reference to district heating systems, along with CHP, which can be particularly appropriate to mixed-use developments.	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 11. iv	Make reference to desirability of specifying reduced (from standard) parking ratios.	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 12.2	Specify which EcoHomes standard WAG requires from RSLs (Poor, Good, Very Good, Excellent)	Recommendation accepted.	Change accordingly

Design Commission for Wales	Section 12.4	The phrase 'only as much light as necessary' seems to contradict a requirement for good internal daylight to reduce electric lighting and improve visual comfort. Perhaps replace with a 'need to achieve good daylight factors'.	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 13.1	The second sentence, first paragraph does not make sense to me. What is their 'intensity'? reference to 'south facing' should perhaps include '30 degrees east or west of due south'. There is an apparent contradiction between requiring a 30-40 degree angle from the horizontal, and considering the winter sun angle, which suggests a more vertical angle. Instead of 'non-working days' it might be more accurate to say 'when production exceeds demand from building users'.	Recommendation accepted.	13.1 First paragraph delete second sentence. Second paragraph, second sentence change reference of 'non-working days' to 'when production exceeds demand from building users'.
Design Commission for Wales	Section 13.2	It may not be correct to say that evacuated tube collectors function in a similar way to PV panels. They are completely different technologies, one producing hot water, the other electricity.	Recommendation accepted.	Amend to distinguish the differences between evacuated tubes and PV panels.
Design Commission for Wales	Section 13.3	The siting of PV and solar water heating (SWH) panels should be governed by orientation and access, not whether the roof elevation is public or non-public. The requirement for a balanced elevation may be financially constraining e.g. 2 smaller panels rather than 1 bigger one.	The guidance advises that PV should ideally be on non-public elevations where possible rather than requiring them to be located on such elevations. Similarly, maintaining a balanced elevation would not necessarily require the installation of 2 PV panels, for example by ensuring that panels are centrally located on a roof elevation would also achieve this.	No change required
Design Commission for Wales	Section 13.4	It should be noted that 'natural cover and topography' while possibly reducing visual impact, are likely to affect optimum wind speeds and create turbulence.	Noted	No change required
Design Commission for Wales	Section 13.6	Reference should be made to specific wood fuel products such as wood chip and wood pellet which can be burnt cleanly and efficiently in specialised boilers, supplied by local firms (Welsh Biofuels) and used in the new WAG Debating Chamber.	Recommendation accepted.	Include reference to the use of wood chips and pellets as a biomass fuel.
Design Commission for Wales	Section 13.8	Reference should be made of domestic scale micro-CHP units, although these are still fossil fuel based.	Recommendation accepted.	Include reference to small-scale CHP units.
Design Commission	Section 14	Timber (unlike stone, brick, concrete) is not a high thermal mass material and so will not act as a	The example of timber is used to highlight the low energy requirements to produce	Amend reference to BRE 'Green Guide to Specification'

for Wales		significant heat store. I don't think timber frame should be classed as an 'alternative construction technique'- it is becoming more and more mainstream as the statutory standards of thermal efficiency are improved. The BRE 'Green Guide to Specification' gives A-C ratings for standard specifications rather than individual classes of materials.	compared to steel or concrete, and also highlights that timber is usually available from local sources. Whilst timber framed construction is becoming mainstream it is still considered to be an alternative construction technique.	
Design Commission for Wales	Section 16	Recommendations for drought tolerant species should be made consistent with general requirements to use indigenous species for planting.	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 17	Local problems of inadequate drainage and flooding are caused not much by traditional systems per se, as by overloading them with more buildings than they were designed to serve.	Accepted. Emphasise the need to avoid the overloading of existing drainage systems and the role that SuDS can play in this.	Change accordingly
Design Commission for Wales	Section 17.3	I don't think roof outlets, pipes and drains serving green roofs should be reduced in size and certainly not sewer pipes! It is not correct to say that soil (especially when wet) is a good insulator, but it does provide useful thermal mass.	Recommendation accepted.	Change accordingly
Design Commission for Wales	Section 18.3	Refer to use of recycled construction materials (specify a minimum of 10%) and future recyclability of materials and building elements.	The WAG Construction Waste Minimisation: Good Practice Guide referred to in the SPG does not contain specific targets for building waste recycling. Consequently it would be inappropriate to specify un-quantifiable targets, particularly since the SPG is aimed at providing best practice guidance rather than to stipulate standards.	No change
Torfaen County Borough Council	General	The guide as a whole seems an excellent starting point for changing the ethos of development projects and the Forward Planning Team welcomes your initiative in producing such a document.	The Council welcomes Torfaen County Borough Council's support.	No change required
Torfaen County Borough Council	General	Case studies of good sustainable development might be worth considering as an appendix. However, there's a balance to be struck between producing a guide that will help inform and encourage and one that is too heavy weight to read.	The final version of the SPG will refer to the case studies provided in TAN 8 Renewable Energy.	Amend document to highlight best practice examples contained with TAN 8 Renewable Energy.
Penarth Town Council	General	The Town Council welcomes the draft SPG and considers that the document contained many interesting points and ideas.	The Council welcomes Penarth Town Council's support.	No change
Home Builders Federation	General	The HBF is concerned about the approach that the Council is taking and considers it to be flawed and clearly contrary to national planning guidance.	The production of this SPG fulfils the Council's commitment to the production of SPG as stated at paragraph 2.16 of the	No change

		<p>The whole purpose of SPG is to amplify and expand upon the content and policies in and Adopted Local Plan. Therefore, it's content must fully accord with relevant policy in the Adopted Plan which it relates to. In a significant number of instances the Draft SPG does not relate at all to the policy in the adopted plan, but instead other guidance and research, much of which is not specifically planning related.</p> <p>SPG should be used to supplement adopted policies only elaborating or clarifying policy not introducing new policy. SPG can only have weight if it is derived out of and is consistent with the development plan, and has been prepared in a proper manner. In contrast, little weight can be given to SPG, which contains material that ought to instead be included in the development plan.</p>	<p>Adopted Vale of Glamorgan Unitary Plan (UDP) 2005, the purpose of which is:</p> <p>“to help guide developers and encourage sustainable practices throughout the Vale.”</p> <p>This proposal was also considered and supported by the Inspector during the public inquiry held on the UDP (REC 2.2)</p> <p>Similarly, the content of the SPG is considered by the Council to provide further guidance on those matters outlined Strategic Policy 2 of the Adopted UDP which states that:</p> <p>PROPOSALS WHICH ENCOURAGE SUSTAINABLE PRACTICES WILL BE FAVOURED INCLUDING:</p> <ul style="list-style-type: none"> (i) PROPOSALS WHICH CONTRIBUTE TO ENERGY CONSERVATION OR EFFICIENCY, WASTE REDUCTION OR RECYCLING; POLLUTION CONTROL; BIODIVERSITY AND THE CONSERVATION OF NATURAL RESOURCES; (ii) PROPOSALS WHICH ARE LOCATED TO MINIMISE THE NEED TO TRAVEL, ESPECIALLY BY CAR AND HELP TO REDUCE VEHICLE MOVEMENTS OR WHICH ENCOURAGE CYCLING, WALKING AND THE USE OF PUBLIC TRANSPORT; (iii) THE RECLAMATION OF DERELICT OR DEGRADED LAND FOR APPROPRIATE BENEFICIAL USE; AND 	
--	--	---	--	--

			<p>(iv) PROPOSALS WHICH IMPROVE THE QUALITY OF THE ENVIRONMENT THROUGH THE UTILISATION OF HIGH STANDARDS OF DESIGN.</p> <p>Consequently, the production of this SPG by the Council is consistent with relevant policy within the Adopted UDP and also fulfils the Council's clear commitment to produce such a document.</p> <p>The preparation and consultation process, which this SPG has been subject to accords with the Council's, adopted guidelines for the production of SPG. These guidelines have been endorsed by the Council to ensure that new SPG produced following the adoption of the UDP is undertaken in a consistent and transparent manner.</p>	
Home Builders Federation	General	<p>The purpose of draft SPG seems to be to seek to influence matters, which are already covered by other legislative regimes, in particular Building Regulations.</p> <p>Such an approach is contrary to PPW paragraph 1.2.4, which clearly states that the principle of non-duplication, should be maintained –“the planning system should not be used to secure objectives achievable under other legislation”. Consequently, the HBF believes that the Council should amend the document so that it complies with national guidance and with in its own Adopted plan policy</p>	<p>Paragraph 12.2 of the SPG acknowledges that there is a cross over between Building Regulations and land use planning.</p> <p>However, Planning Policy Wales (PPW), paragraph 1.2.5 states that “Even where consent is needed under other legislation, the planning system may have an important part to play” (1.2.5). Moreover, PPW highlights the role that the planning system has in the delivery of sustainable development by :</p> <ul style="list-style-type: none"> • encouraging land uses that result in reduced emissions of greenhouse gases, in particular energy-efficient development, and promoting the use of energy from renewable sources • Minimising the use of non-renewable resources, and, where it is judged necessary to use them, maximising efficiencies in their use. The use of renewable resources and of sustainably-produced materials from local sources 	No Change

			<p>should be encouraged.</p> <ul style="list-style-type: none"> Encouraging opportunities to reduce waste and all forms of pollution and promote good environmental management and best environmental practice (para. 2.3 refers) <p>Similarly, the issues highlighted within TAN 8 Renewable Energy (July 2005) is similar to that contained with the draft SPG and also encourages local planning authorities to develop SPG that:</p> <p>“SPG could cover such wide ranging topics as housing fenestration and estate layout relating to passive solar gain or the requirement of renewable energy generating capacity for new office developments, such as the utilisation of heat pumps, microgeneration systems and community heating networks” (para 5.7 refers)</p> <p>Consequently, the Council considers that the scope and content of the SPG accords with that contained within national planning guidance and is consistent with the Council’s adopted UDP.</p>	
Home Builders Federation	Section 1	The Council should acknowledge that the provision of housing to meet need is a fundamental part of creating a sustainable society.	The SPG acknowledges this by stating that the SPG does not cover social and economic aspects of sustainable development such as economic development and housing. However, the Council applauds the HBF’s recognition that housing need is important in the creation of sustainable society.	No change
Home Builders Federation	Section 2	It would be more encouraging if the final paragraph of this section referred to consideration being given to comments and the possibility for changes to be made. As written it appears that this consultation period is simply something that has to be carried out but will have no influence on the SPG.	The SPG clearly states that the guidance will be consulted on in line with the Council’s adopted guidelines for the production of SPG. Following this consultation, the Council intends to report all comments to Cabinet, Planning and Scrutiny Committees for consideration. The final version of the SPG shall include a summary of all	No change

			comments and the Council's response to these.	
Home Builders Federation	Section 5	<p>There is no policy basis for the requirement for major developments to be accompanied by a statement of sustainability. TAN 8 refers to new non-residential development over 100 sq.m being accompanied by an Energy Design Advice Report if appropriate but says nothing about housing. The MIPPS on Renewable Energy simply refers to local planning authorities encouraging developers to integrate energy efficiency and conservation measures as part of the design of new development. The UDP is couched in similar terms of encouraging sustainable practices.</p> <p>Therefore the SPG cannot require a 'Statement of Sustainability' or the submission of a Sustainability Checklist. What is required to register an application is set down in law and this cannot be changed by SPG.</p>	<p>The Council considers the requirement to provide a statement of sustainability as best practice, reflecting that of local planning authorities in England. For example, Cambridge and Watford City Council's have produced similar guidance, which require sustainability checklists and/or sustainability statements to be submitted with planning applications. Furthermore, the Building Research Establishment has also produced a sustainable development checklist to assist developers and planners.</p> <p>Secondly, the scope and content of the SPG supports best practice advice contained within TAN 8 Renewable Energy and TAN 12 Design. Consequently, the Council considers that both the checklist and statement shall assist in supporting the idea of planners acting as signposts for good practice and advice by encouraging developers to consider how they can address sustainability at the earliest stages of their development proposals.</p> <p>Thirdly, TAN 8 indicates that "Design and energy should be considered when development policy is produced, in supplementary planning guidance such as design briefs, and during <i>the submission of planning applications</i>" (Paragraph 4.1 emphasis added).</p>	No Change
Home Builders Federation	Section 5	In our view this document would be more appropriately used as good guidance rather than SPG. As this would be more in line with encouragement and the idea of planners acting as signposts for good practice and advice.	The purpose of the document is to promote good practice and its status as SPG and the process of consultation will afford it the status of being a material consideration.	No change
Home	Section 5	The notion that large development (10) acts as a	Agreed.	Amend section 5 to encompass

Builders Federation		trigger for the requirements have no justification in the Adopted Plan or in national policy.	Given the small-scale nature of development that occurs within the rural vale it is considered appropriate for the SPG to apply to all new housing developments. Similarly, where sustainable buildings have been constructed in the UK these have been delivered by through self-build projects and volume house builders.	all housing developments rather than the draft proposed threshold of 10 dwellings and above.
Home Builders Federation	Section 5	There are potentially major cost implications for developers if this approach is implemented, which will affect viability when coupled with the many other planning obligation imposed on developers, including affordable housing. The SPG merely acts as a potential hurdle rather than a way of encouraging the industry to adopt new practices.	The purpose of the SPG is to highlight best practice and to ensure developers consider sustainability at the earliest stages, hence the requirement to provide a statement of sustainability and to complete the sustainability checklist. The SPG does not however require or specify the use of certain technologies or building techniques. The aim of the SPG is to encourage developers to identify how best development proposals can support the principles of sustainable development.	No change
Home Builders Federation	Section 6	The industry remains unconvinced that residents are prepared to pay more for the improvements that these requirements may bring about and this view is supported by evidence from RICS	In October 2005, the Institute for Chartered Surveyors published a study that examined the potential added value to developers of constructing sustainable buildings. The Green Value Study highlighted the benefits to end users, and can achieve greater value than their conventional equivalents. The study concluded that: “Not only are green buildings good for the environment, provide healthier places to live and more productive places to work, they can command higher rents and prices, attract tenants more quickly, reduce tenant turnover and cost less to operate and maintain” (Green Value, Green Buildings, Growing Assets, Summary Report 2005, page 2, para 3)	No change
Home Builders Federation	Section 6	New dwellings already provide: <ul style="list-style-type: none"> • Increased thermal insulation • Energy efficient boiler and heating insulation 	The aim of the SPG is to encourage best practice and allow developers to have the opportunity to take the lead in promoting sustainable development. Consequently, the	No change

		<ul style="list-style-type: none"> • Efficient heating controls • Building ventilation designed in conjunction with heating insulation, summer shading and winter exposure • Efficient glazing • Energy saving light fittings and bulbs • Energy efficient electrical white goods • Low water usage appliances and fittings • Incorporation of green or sustainable materials (e.g. timber from replanted sources) • Space for recycling of domestic waste 	provision of a statement of sustainability will provide the HBF with a mechanism for highlighting the work it currently undertakes. In this respect the SPG would not place additional responsibility on developers where they are already incorporating sustainable practices.	
Home Builders Federation	Section 6	Where possible use is made of siting, orientation and layout, for the efficient use of natural light/ and or to optimise the balance between summer shading and winter heat loss through exposure. Although it should be noted that high-density requirements often hinder 'full' use of solar gain opportunities.	Noted.	Amend to take account of the possible limitations of solar gain in high-density developments.
Home Builders Federation	Section 6	Shading, exposure and the incorporation of shading/ screening planting is also a design consideration to aid the optimisation of the balance between summer shading and winter heating loss through exposure.	Noted	Amend to include use of shading/ screening planting in aiding shading and winter heat loss.
Home Builders Federation	Section 6	SAP notices are provided-notifying purchasers of the energy rating of their new home, composed with references to both the insulation and the boiler/heating installed. Carbon index values are also often provided. (The HBF industry SAP notice provides a visual* representation)(i.e. both SAP rating and Carbon Index) to purchasers of the energy efficiency of their new homes (*similar to the energy efficiency coding of white electrical goods)	The aim of the SPG is to encourage best practice and allow developers to have the opportunity to take the lead in promoting sustainable development. Consequently, the provision of a statement of sustainability will provide the HBF with a mechanism for highlighting the work it currently undertakes. In this respect the SPG would not place additional responsibility on developers where they are already incorporating sustainable practices.	No change
Home Builders Federation	Section 6	New build housing also often incorporate the following environmentally friendly construction practices into their development processes, where possible: - Management of site wastes; monitoring of waste, recycling of waste, adaptation of ordering processed to give minimum waste. Saving of transportation: via the incorporation of local materials where available. Although this may not be possible where developments use energy saving	The aim of the SPG is to encourage best practice and allow developers to have the opportunity to take the lead in promoting sustainable development. In this respect the provision of a statement of sustainability will provide the HBF with a mechanism for highlighting the work it currently undertakes. In this respect the SPG would not place additional responsibility on developers where they are already incorporating sustainable practices.	No change

		materials – especially solar technologies as such as PV, as most of these technologies have to be transported from Europe. Also the industry adopts Egan principles and turns more towards utilising off site manufacturing processes and system building it is more likely that local materials will not be used, and that transportation will be involved in the construction process.		
Home Builders Federation	Section 6	The government published amendments to Part L and F (Conservation of Fuel and Power and Ventilation) in September, which are to be increased in April 2006. The legislation is aimed at securing a further 20% in efficiency for the new build sector.	Change to Building Regulations noted, update reference to Building Regulations.	Update reference to Building Regulations.
Home Builders Federation	Section 6	The HBF does not wish to appear negative in our approach, as the house building industry is supportive of the need to consider energy efficiency, or the incorporation of energy efficiency technologies (where relevant) as part of the design process. However, HBF do not consider the stipulations of investigation, and / or incorporation of certain technologies should be made within planning legislation.	The SPG does not stipulate design criteria or certain types of technologies. Its purpose is to advocate sustainable design, highlight best practice, and to encourage developers to explore the potential for using alternative technologies.	No change
Home Builders Federation	Section 6	Stipulations of design criteria should be avoided, as they are invariably all Building Regulation matters. Stipulations of the incorporation of certain types of technologies should also be avoided, as other development design criteria, or supply of industry issues, may hold greater importance and make technology's use unviable or impossible for inclusion.	The SPG does not stipulate design criteria or certain types of technologies its purpose is to advocate sustainable design, highlight best practice, and to encourage developers to explore the potential for using alternative technologies.	No change
Home Builders Federation	Section 8.2	Policy 2 states that proposals, which encourage sustainable practices, will be favoured. The HBF is satisfied that all new developments currently operate sustainable practices and meet the requirements of policy 2 without the need for a sustainable report or checklist.	The statement of sustainability and the sustainability checklist provides the HBF with an opportunity to highlight the work it currently undertakes in promoting sustainable development. The production of the SPG accords with Strategic Policy 2 of the Adopted Unitary Development Plan 2005 and the Council's commitment to produce such a document as stated with the plan *paragraph 2.16 refers).	No change
Home Builders Federation	Section 9	Site assessments are already prepared as part of design requirements. Planning applicants are seeing a proliferation in the number of statements, assessments and the like, being requested to accompany applications, placing needless hurdles in	The sustainability checklist and statement of sustainability should be treated as an integral part of the development process and incorporated at the earliest stages of a development proposal. By applying this	No change

		<p>the way of development.</p> <p>The design checklist included in the POSW design guide should be sufficient to cover sustainability issues. There is no need for a further checklist or statement.</p>	<p>approach, neither the checklist nor statement should be viewed as a hindrance.</p> <p>The Council has recently endorsed the POSW design guide (A Model Design Guide for Wales- Residential Development 2005). However, whilst the guide considers sustainable design, and resource efficiency it does not encompass all the issues contained within the SPG.</p>	
Home Builders Federation	Section 11	The HBF questions whether or not the planning authority has the support of the highways department for its approach in this section. Without this support house builders will have difficulty in getting their scheme adopted.	In developing the SPG the Planning Policy Section sought agreement on all aspects of the guidance and consulted all relevant Council departments the scope and contents of the guidance.	No change
Home Builders Federation	Section 12.1	HBF would argue that energy standards are Building Regulation matters and not matters for Planning. The construction of domestic dwellings is subject to the building regulations, and under Part L of those regulations, domestic properties have to be allocated a SAP rating for energy efficiency. In association with the SAP rating the Carbon Index can be calculated to show the carbon savings achieved due to the energy efficiency of the construction, and services/ heating provision.	<p>The scope and content of the SPG supports best practice advice contained within TAN 8 Renewable Energy and TAN 12 Design. For example TAN 8 states that that “Design and energy should be considered when development policy is produced, in supplementary planning guidance such as design briefs, and during <i>the submission of planning applications</i>” (Paragraph 4.1 emphasis added).</p> <p>Whilst SAP is a requirement, the SPG also highlights the benefit of utilising other accredited schemes that assess wider environmental considerations than the SAP methodology, which concentrates largely on energy efficiency.</p>	No change
Home Builders Federation	Section 12.1	Experience has shown that the established system of building control in England and Wales provides a reliable framework for the control of health, safety, energy efficiency/ conservation, which would not benefit from exposure to the planning system, or by the imposition of alternative (more stringent) requirements to those contained within Building Regulations.	The SPG does not stipulate a requirement for developers to use other assessment methods above that required by Building Regulations. Its aim is to encourage best practice and allow developers to have the opportunity to take the lead in promoting sustainable development.	No change
Home Builders	Section 12.1	Alternative standards imposed under Planning will introduce further delays and complication into the	The SPG does not stipulate a requirement for developers to use other assessment	No change

Federation		planning and building control approval stages of the development process, as well as having the potential to adversely affect housing supply within the authority.	<p>methods above that required by Building Regulations.</p> <p>The sustainability checklist and statement of sustainability should be treated as an integral part of the development process and incorporated at the earliest stages of a development proposal. By applying this approach, neither the checklist nor statement should be viewed as a hindrance.</p> <p>There is no tangible reason why the introduction of the SPG and the promotion of sustainable development would affect housing supply within the authority.</p>	
Home Builders Federation	Section 12.2	<p>The WDA is also requiring homes built on their land to meet EcoHomes standards.</p> <p>All of these standards and this guidance will be overtaken by the Code of Sustainable Buildings to be published for consultation soon.</p>	<p>Noted.</p> <p>Consultation on the Code of Sustainable Buildings was undertaken in May 2004. However when published the code will be a voluntary initiative.</p>	Amend guidance to acknowledge the WDA's requirement for homes built on their land to meet Eco Homes standards.
Home Builders Federation	Section 13.1	The cost of (Solar Photovoltaic) panels is such that recover takes 70 years, based upon the savings per annum, but the panels only last 30 years.	<p>The Energy Saving Trust indicates that over the last 20 years the price of PV modules have fallen dramatically, by around 500%. At the moment, the current average cost for a grid connected PV system is around £6000 to £9000 per kWp, but this is expected to go down over time as the market grows and competition increases. Also the cost of installing PV's can be reduced when installed during building construction.</p> <p>In addition to providing free electricity, PV systems generate no greenhouse gases, saving approximately 325kg of carbon dioxide emissions per year - adding up to about 8 tonnes over a system's lifetime.</p>	No change
Home Builders Federation	Section 13.8	The HBF does not consider proposals for 'large new residential' developments in this context refers to 10 units and over. Much larger schemes would be required to make such systems viable.	The SPG indicates that developers should explore the potential for Combined Heat and Power generators.	No change

Home Builders Federation	Section 14	This is a prime example of where stipulations can cause significant problems for the industry and which will result in a step change in provision. There is insufficient capacity in the timber frame supply industry to meet such a change nationally. The likelihood of associated problems in obtaining the new labour required, and in providing and achieving the training/re-training needs of all construction needs to be considered. Such requirements need to be made through detailed consideration so that the cost of achieving the requirement does not outweigh the benefit obtained by the change.	The SPG does not stipulate the use of certain types of building techniques. Its purpose is to advocate sustainable design, highlight best practice, and to encourage developers to explore the potential for using alternative technologies. The issues raised by the HBF are outside of the scope of the planning system and are matters, which the industry needs to address its self.	No change
Home Builders Federation	Section 15	The highways departments must be signed up to the standard requirement set out otherwise builders will experience problems in getting their schemes adopted.	In developing the SPG, all relevant Council departments were consulted on the scope and contents of the guidance	No change
Home Builders Federation	Section 17	Although the HBF supports the use of SUDS, where they will be effective, (which due to the geology of S Wales is rare), there are a number of issues to be resolved before their use can be required. Will sewage undertakers adopt SUDS? Has a SUDS for adoption document been agreed to cover specifications for SUDS components that will guarantee their adoption on completion by a developer? Developers will not wish to incorporate SUDS unless they are certain future maintenance and repair liabilities will be the responsibility of an approved statutory agency or management company. Will building control service providers approve SUDS? Will building regulations approved document H be amended to include references to this technology? Will the interim guidance be produced to avoid the situation where Local Authority planners wants SUDS and where Local Authority Building Control officers will not allow them? Will highway authorities accept SUDS? Would a swale or filter sink be considered as a soakaway under the highway act 1980? Again developers will not wish to incorporate sewers as part	Many of the examples of SUDS contained within the SPG are tried and tested techniques that are already in operation in England and Wales. These have been taken from the Environment Agency's Sustainable Drainage Systems A Guide for Developers. Similarly TAN 15 Development and Flood Risk (2004) highlights the benefits of SUDS. The SPG itself encourages developers to explore the potential of SUDS at an early stage and advises that they work closely with the Council and the Environment Agency in developing such proposals. In respect of the issues raised by the HBF, the Environment Agency has set up the Wales SUDS Working Party to investigate these issues. Membership of this party include: <ul style="list-style-type: none"> • Dwr Cymru/Welsh Water • Welsh Development Agency • National Assembly for Wales • Chartered Institution of Water and Environmental Management CIWEM • National Home Builders Federation • Hyder 	No change

		<p>of highways work unless there is certainty about their adoption.</p> <p>The EA and WW need to be signed up to the proposals in this document otherwise there will be difficulty in getting their schemes adopted.</p>	<ul style="list-style-type: none"> Welsh Local Government Association 	
Home Builders Federation	Section 18	<p>The HBF understands that the authority already has a separate SPG on this subject in which case the documents would need to say the same thing. However, as far as the HBF is concerned the prescription of integrated recycling facilities/ storage is more properly dealt with under Building Regulations.</p>	<p>The Council does not as yet have an SPG on the provision of waste management facilities within developments.</p> <p>Whilst the integration of recycling facilities may fall within building regulations in terms of location, ventilation etc the requirement to provide such facilities does not.</p>	No change
Home Builders Federation	Section 19	<p>Again the HBF question whether or not the Council's Landscaping section is signed up to these proposals. House builders will not wish to prepare schemes in accordance with this guidance to have them turned down by the landscaping section.</p>	<p>In developing the SPG, all relevant Council departments were consulted on the scope and contents of the guidance</p>	



The Vale of Glamorgan Council
Directorate of Environmental & Economic Regeneration,
Dock Office, Barry Dock, Barry. CF63 4RT.

www.valeofglamorgan.gov.uk