

WORKING WITH YOU
TO DELIVER EXCELLENCE

Creating High Performance Sustainable Buildings

Advice and information for architects,
designers, engineers, developers and builders



Sussex Building Control working with Horsham District Council Planning Department

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INTRODUCTION

The aim of this booklet is to stimulate thought about the environmental impact of building, and encourage imaginative solutions for protecting and enhancing the environment and the use of a sustainable approach.

How the built environment is constructed has a direct impact on our health and standard of living. We owe it to ourselves and future generations to work towards improving our environment. This booklet along with our checklist seeks to raise awareness of how the construction industry can contribute towards this goal. To quote from the World Commission on Development and Environment, “Sustainable development is that which satisfies the needs of the present generation without jeopardising the needs of the future generations.”

The booklet supports the global action plan for sustainable development which is about safeguarding the world we live in. The British Government has signed up to the Kyoto Protocol, the international agreement on climate change. It commits the UK to reduce our emissions of greenhouse gases. Local authorities are playing their part by signing up to initiatives such as the Nottingham declaration and Climate Challenge programme and by producing sustainable community strategies.

The development process involves many agencies, including, developers, agents, clients, local authorities, etc., all have a role to play in influencing the form and use of buildings. Effective communication is vital and environmental considerations should be a part of this process.

We hope you will find it of assistance and welcome any comments you may have for improvements.



What is this booklet about?

The way we build, operate and decommission buildings really matters for our environment and for the health and well-being of our communities.

Buildings contribute about a half of all carbon emissions in the UK. When transport is factored in, it is clear that the built environment influences over 80% of all emissions. In addition, the construction, operation and demolition of buildings contributes to over 30% of all waste generated and to over 50% of all the water consumed.

Current practices are unsustainable. Therefore, the Council and Sussex Building Control are very keen to help all those involved in the planning, design and construction process to improve the environmental and sustainability performance of all new buildings in the District. This booklet sets out a vision for how this might be achieved. It offers guidance on the relevant local and national policy and also on good practice in sustainable design and construction. In addition, other important sources of information are highlighted with web sites indicated where possible. These offer more comprehensive advice than is possible here and ideally should be consulted before development designs are prepared.

Who is this booklet for?

The simple answer is that everyone involved in the planning, design or construction of one or more buildings should be aware of the contents of this booklet. The development process involves many agencies, including developers, clients, local authority councillors and officers and all have a role to play in influencing the sustainability of buildings. Effective communication is vital to ensure that positive outcomes are maximised and efforts and resources are not wasted in the process.

PART 1: PLANNING FRAMEWORK

A Vision for Sustainable Design and Construction

The Government has shown a lead in establishing a clear target for the reduction of carbon emissions by at least 60% of 1990 emissions levels by 2050. Staged targets have also been set specifically for the reduction of emissions from new dwellings leading to ‘zero-carbon’ homes being required by 2016¹. In addition, the Government has produced a new sustainability assessment system for dwellings, called the ‘Code for Sustainable Homes’ and is currently working on an equivalent for non-residential buildings to replace the existing BREEAM assessment system, operated by the Building Research Establishment.

The Council and Sussex Building Control strongly support these measures and believe that a holistic approach to sustainable development is needed. Such an approach should include all buildings and incorporate the many different aspects of sustainable building design and construction. This has led to the emergence of a vision for improving the sustainability of dwellings and other buildings.

A Vision for new Residential Development

All new homes in the District will maximise opportunities to incorporate sound sustainable design and construction practice, that is recognised in the Code for Sustainable Homes and will achieve at least Level 1 of the Code and higher levels wherever possible.

In addition, all larger developments, of 10 or more dwellings, will maximise opportunities for economies of scale to achieve at least Level 3 of the Code and higher levels wherever possible.

A Vision for Non-residential Buildings

Sustainable construction cannot simply be left to house builders. Therefore, all non-residential buildings will maximise the opportunities to incorporate sound sustainable design and construction practice.

New offices, industrial and retail units and schools, which amount to over 1000m² floorspace, will be assessed against the BREEAM standards and will achieve at least the ‘Very Good’ standard, or equivalent under a new system.

1 Building a Greener Future: Policy Statement (DCLG, July 2007)

Achieving the Vision

We believe that in respect of sustainable design and construction, the role of the Council and Sussex Building Control is to advise and guide and not to prescribe how improvements in sustainability will be achieved. We encourage developers and applicants take a lead on this issue and to work with us from an early stage to achieve the vision set out above. We strongly encourage applicants to make full use of their Sustainability and Renewable Energy Statements and / or Design and Access Statements to show how the proposals have been designed to help improve their sustainability to achieve the vision and relevant policy requirements.

It should be noted that the Council will not hesitate to challenge developers and applicants where they have failed to consider either relevant national and local planning policy or the advice in this booklet.

The Council's Local Development Framework policies set out those aspects that will be specifically required by the Council and the section below offers some guidance on those policies impacting on sustainable design and construction.

Planning Policy Context

National Policy

PPS1: Delivering Sustainable Development contains the overarching national planning policies. This document sets out the main principles and objectives for the planning system which are designed to ensure that all planning decisions promote sustainable development.

Building a Greener Future: A Policy Statement confirms that the Government will require all new dwellings to meet prescribed staged carbon emissions reduction targets, leading to all homes meeting the agreed definition of 'zero carbon' by 2016. Interim targets will require reductions over 2006 Building Regulations of 25% by 2010 and 44% by 2013.

A Supplement to PPS1: Planning and Climate Change was published in December 2007. This document is very important as it sets out how developers and applicants should ensure that their proposals both mitigate and adapt to climate change. Equally, this document requires local authorities to ensure that proposed development has considered its own environmental performance and has taken account of sustainability in general and climate change in particular. Paragraph 39 of the PPS states: *"Where proposals are inconsistent with the Key Planning Objectives set out in this PPS, consideration should be given to how proposals could be amended to make them acceptable or, where this is not practicable, to whether planning permission should be refused."*

PPS22: Renewable Energy establishes national policy on renewable and low-carbon energy generation development. A key principle within this PPS is that renewable energy development should be treated favourably within the planning system and should actively be promoted by local authorities. Policies within this PPS require local authorities to consider the opportunities for incorporating renewable energy in all appropriate development.

Local Policy

Core Strategy Policy CP2: Environmental Quality sets out important criteria that new development should meet in order to protect and enhance the environment. These criteria include: minimising pollution; protecting water quality and reducing the consumption of water; minimising flood risk; minimising waste and the consumption of energy; taking account of the potential for renewable energy; utilising sustainable construction techniques and; incorporating waste and water recycling.

Development Control Policy DC8: Renewable Energy and Climate Change builds on PPS22 by setting local guidance. This requires all proposed major development, including residential development of 10 or more dwellings, to incorporate sufficient renewable energy equipment or other measures to achieve at least a 10% reduction in carbon emissions over current building regulations.

Development Control Policy DC9: Design Principles establishes the District's principles of good design which proposals will need to include. Good design is often a prerequisite to achieving higher environmental and sustainability performance and also ensures that social sustainability aspects are not neglected. From the environmental performance perspective, this policy requires that buildings are orientated to gain maximum benefit from sunlight and passive solar energy.

PART 2: BUILDING REGULATIONS

Revision of building in sustainability booklet

This is the second revision of the booklet to be issued and at each rewrite we have looked to update the information so that there is a considered balance of current and future requirements. In this issue core information has remained the same with the principals of sustainability, waste management and providing access not changed, it is the degree of regulation and evidence required, broadly, that is changing.

As you will be aware the Building Regulations are a set of minimum standards and there is ongoing pressure from many sides to improve this base line.

Over the coming years the regulations, being altered and created for the control of buildings, will be looking to focus greater attention on the following 9 areas of design and resource use.

1. Energy/CO2 use and emission

All newly constructed houses will have a TER (Target emissions rate) for it's in use carbon dioxide emissions, this will be part of the building design package. The Building regulations set the minimum levels that have to be achieved, by studying the calculations and adjusting your design variables areas of improvement can be seen working towards a Zero carbon home. The planned stages for improvement to the 2006 standard are 2010- 25%, 2013-44% and 2016 zero carbon.

2. Water consumption

By considering the number and type of fittings and appliances installed Predicted Potable Water Consumption can be reduced. The collection and selected re-use of rainwater and grey water can aid in the aim to reduce water consumption. This may well become part of the building regulations in the future changes.

3. Materials

Composite elements of the construction as well individual materials can be assessed and given a rating which can be used to calculate the Environmental Impact of the proposed building materials. Reference to publications such as the BRE Green Guide will need to be made and an energy rating similar to that used for appliances can be found.

Not only the type of materials being specified but also the transportation and life expectancy need to be taken into account to help find the sustainability.

4. Surface water run-off

Calculation of surface water run-off from hard surfaces and assessment of the probability of flooding, which may be caused off site, should be carried out. This, in conjunction with the soil conditions being considered, will give an indication of the rainwater holding facilities, surface paving type or attenuation to drainage required.

5. Waste management

As well as designed locations for household recycling facilities a Site Waste Management Plan should be considered. The aim being to minimise waste and to explore recycling or reuse of construction waste.

6. Pollution

While on the one hand improved thermal insulation materials play their part in reducing energy requirements it is also important to be aware of their Global Warming Potential (GWP) and Ozone Depleting Potential (ODP) and specify products with materials and manufacturing processes that have minimum impact.

As well as CO₂, Nitrous Oxide (NO_x) emissions released on the combustion of fuel, should be controlled. This information can be found by checking the appliance manufacturer's information.

7. Health and well-being

The health and well-being of building occupants can be affected by elements of the design such as, Daylight-(position and sizing of windows and daylight factors), Sound insulation- (exceeding the building regulation requirements), Private space- (outside space accessible to disabled people), Lifetime homes- (use of the Lifetime homes standard).

8. Management and on going use

Information about the building and its services in the form of a Home User Guide can help to ensure that the occupants get the best environmental performance from the building and by using the secured by design scheme, security may be improved. During construction, commitment to sustainability can be shown by carrying out a Construction Site Impacts Analysis and being part of the Considerate Contractors Scheme.

9. Ecology

How great is the Ecological Value of the site? Has a checklist been used to assess the site and calculate adequate protection of its features? What is the Footprint Ratio? Understanding the value of the site prior to commencement of the development can help to protect its nature.

You may well already consider or be asked to consider the above elements as part of a design being put forward for planning permission. You or your client may have a desire to produce and live in a building that can be thought of as sustainable.

At present it is a mix and match approach that is allowable: Regulations control some of the elements, cost and commitment cover others. In the not-too-distant future it is likely that most if not all will be included within enforceable regulations as requirements.



Building Design

Land is a precious resource and some building in the past has led to sprawling developments which do not promote good neighbourhood and community environments.

Consideration of how well a scheme fits into its environment, whether it is necessary at all and how well it uses the natural landscape, are all matters which can be considered at planning stage. Schemes should reflect the local architectural and archaeological heritage of the site.

Sound methods of construction and proven materials should be used to promote and enhance the environment. Buildings should be designed for long life and different uses as the need arises in future years. Use of local materials will help to preserve the character of the local environment.

Consideration should be given to how adaptable the building is for different uses, how it can be altered/adapted to meet the needs of the various occupants and, not least of all, how it can be safely demolished in the future should the need arise.

Question

“Does my building reflect the local heritage, planning policy and environment?”



- How does my building score on the Code for Sustainable Homes system?
- Does my building incorporate energy saving features?
- Have I used local or recycled materials?
- Are good access and facilities incorporated for people with disabilities?
- Have I excluded materials or methods of construction which could cause 'sick-building syndrome' or are costly to the environment?
- Does my scheme encourage the use of public transport and cycles?
- Has the building been flexibly designed i.e. for different uses or be adapted easily?
- Does my scheme incorporate features that promote adaptation to climate change?

Adapting to Climate Change

It is vital that the effects of climate change are considered over the lifetime of a development, especially with regard to its location and design. Failure to do so could mean that the long-term sustainability of the development is compromised, potentially causing the design life to be shortened and resources needlessly wasted. If however, a development is designed to be resilient to climate change, it is more likely to remain comfortable to occupy and affordable to maintain and insure. Therefore, climate-proofed buildings are not only likely to be more sustainable but will represent a better long-term investment and command a higher price.

Adaptation to climate change involves taking account of the likely and potential effects of the climate that is anticipated during the lifetime of the proposed development. This might include locating and designing a building so that any potential harm and problems caused by the changing climate may be moderated for the occupiers. Also, adaptations might involve designs that seek to exploit the positive opportunities that a changing climate may bring. An important aspect of adaptation measures is the need to link well with climate change mitigation. For example, adapting to high temperatures through air conditioning could well be counter productive in sustainability terms.

The Supplement to PPS1 requires new development proposals to consider adaptation to climate change. The priority given to this aspect is endorsed by the Council and Sussex Building Control and developers or applicants are encouraged to seek advice on specific measures that can be taken to climate-proof their proposals, considering the effects of:

- Warmer, wetter winters
- Hotter, drier summers
- More frequent and intense extreme rainfall events
- Possible intensification of the urban heat island effect
- Possible higher wind speeds

Reference:

- Adapting to Climate Change: A Checklist for Development (South East/London Climate Change Partnership, Nov 2005):
www.london.gov.uk/climatechangepartnership/docs/adapting-climate-change-london.pdf
- Climate Change Adaptation by Design (Town and Country Planning Association) (2007)
www.tcpa.org.uk

Layout and Landscaping

The layout and landscaping design of a development needs careful consideration in order to make the most of the site and to preserve its most important attributes.

The layout should retain the existing trees and hedgerows wherever possible and archaeological remains may be enhanced by a sensitive design. Existing footpaths should if possible be maintained and new ones added which complement the effective use of the site, and maximise accessibility by non-car modes of travel.

Existing wildlife habitats should when possible be preserved and new ones created, by way of sensitive hard as well as soft landscaping. The retention of surface water by way of lakes and lagoons can be an important feature in encouraging wildlife.

The development should pay attention to personal security by designing a safe, pleasant and accessible environment. The natural contours of the site can be preserved to provide privacy, shelter from wind, natural daylighting, shielding from noise of traffic etc.

Good choice of new planting and their locations including the surfaces of the new buildings is essential.

Question

“Does my design make the best use of the site?”

- Is the development fully accessible including private outside spaces?
- Can I preserve the natural features of the site?
- Are there any archaeological merits to the site?
- Can I create ponds or other methods of maintaining the water-table such as soakaways or water-butts?
- Are wildlife habitats capable of being created or preserved on site?
- Does my scheme allow surveillance of the open spaces?
- Have I fenced off the trees and shrubs to be preserved?

Materials

Material production usually involves land extraction methods which may be harmful to the environment, either by destroying wildlife habitats, using up green areas or wastage of natural resources.

Deforestation in tropical countries has led to disruption of global climates, floods, droughts and soil erosion and therefore the use of tropical hardwoods should be questioned at every opportunity. Only timber from sustainable managed sources should be used.

Ozone depleting substances should be avoided wherever possible.

Use of some materials in combination can lead to 'sick-building syndrome'. Certain materials such as asbestos, formaldehyde and some preservatives are dangerous to health.

Question

“Are the materials I have specified likely to increase deforestation, accelerate global warming or be detrimental to health?”

- Do I need to use tropical hardwoods, selected softwoods are capable of use in most situations?
- Am I sure my timbers do not contain harmful preservatives such as Lindane, Pentachlorophenol or Tributyltin Oxide?
- Does my insulation material have zero ozone depletion potential (ZODP)?
- Can I use recycled materials such as bricks, stone, tiles, windows or RSJ's?
- Are my waste materials recyclable?
- How have I sourced and what is the environmental impact of the materials specified?
- Have I minimised the amount of wastage of materials in construction?



Energy Conservation/ CO2 emissions

New buildings should be designed for low energy consumption and be sited so as to make the best use of solar gains. Great savings can be made, both financially and universally, by considered use of materials and methods of construction.

Traditional methods of heating can produce high levels of carbon dioxide emissions because of the type of fuels we use.

Acid rain, the threat of global warming and the possible problems of nuclear waste disposal, all problems associated with traditional fuels, may have very real implications for the future which we need to deal with now. The use of renewable and carbon neutral sources of energy should be considered such as wind turbines, photovoltaic cells, ground source heat pumps and Combined Heat and Power (CHP) systems.

The energy efficiency of new buildings can be demonstrated by using the Standard Assessment Procedure (SAP rating). Occupants and users of buildings should be instructed by providing commissioning information as to the energy efficient use of the heating, lighting and control systems.

The way you design your building is the best way of ensuring a better environment.

Question

“Does my design recognise the need to conserve energy and fuel? Have I made sufficient use of possible solar gains?”

- Has the air permeability of the building been checked?
- Can I use the building’s processes to provide heating and hot water for the building?
- Is the highest level of thermal insulation used?
- Do I need this amount of glazed openings?
- Is the building energy efficient and fitted with energy efficient light fittings?
- Have timing and thermostatic controls been fitted to my lighting and heating systems?
- Is my heating appliance energy efficient?
- Can I use solar panels or other measures to supplement the heating or electricity supply?
- Does my scheme meet the expectations and planning policy set out in Part 1 of this booklet?

Hazardous Substances

The site should be investigated for the presence of contaminants by landfill or previous processes carried out on the site.

Existing buildings may contain hazardous substances such as asbestos, CFCs, chemicals used in previous processes, heavy metals or other poisons. Consideration should be given to the combination of materials which may lead to “sick-building” syndrome. The design of new buildings should avoid the use of CFCs or HCFCs in their insulation, air-conditioning and fire fighting proposals.

Plans should be formulated for the storage and use of any essential chemicals to avoid sickness, contamination of water courses/extraction points and other risks to health and safety of people in or around the building.

The use of highly flammable gases such as Oxy-Acetylene should be limited as much as possible and adequate precautions should be taken to control fumes from building operations.

Question

“Are any of my building materials likely to be harmful to humans or wildlife or cause sick-building syndrome?”

- Am I sure there is no asbestos in my building?
- Has the subsoil been checked for contamination by processes previously carried out on the site?
- Are any essential chemicals properly stored?
- Is there any danger of contaminating a watercourse or water-extraction source by chemical leakage?
- Do I need to use oxy-acetylene or other dangerous gases?



Noise/Dust Pollution

The effect of construction traffic on neighbours, wildlife, roads and the local community can be very damaging. Every scheme should seek to minimise the effects of this by restricting deliveries and arrival times.

Building construction can generate high volumes of noise and therefore work should be limited ideally to weekday/daytime hours and suppressors should be used to reduce noise from machinery.

Consideration should be given to the type of piling to be used and the need for generators. Wheel washing facilities should be provided and damping down of dust during dry weather conditions should be encouraged (preferably using 'grey water' rather than mains supply).

The disposal of waste materials should be tightly controlled and the burning of surplus materials on site should be avoided.

The scheme should include interceptors on the drainage system to avoid pollution of watercourses.

Question

“Have I taken enough precautions to prevent undue dust and noise emissions?”

- Has my equipment been fitted with noise suppressors?
- Do I need to work outside of normal hours?
- Can I recycle waste materials or sell them to someone who can?
- Can I eliminate the burning of waste materials?
- Can the construction process use a damping down procedure in dry weather?
- Can visiting traffic be reduced?



Pedestrian Safety

Sites should be properly fenced and shielded to prevent injury to people passing the site and for security against intruders.

Scaffolding and hoardings should be wide enough to allow ready access for pedestrians and wheelchair users and be boarded to prevent injury from falling debris and well lit during the hours of darkness. Consideration may need to be given to providing protected covered walkways in the road or through the site.

Existing road signs, lighting and drainage gullies should be maintained to ensure as far as possible the safety of pedestrians, and personal security should be considered by the avoidance of hiding places or dimly lit areas. Where a temporary footway projects into the highway, suitable advanced warning for motorists should be provided.

Hoists, cranes, unloading areas etc. should be accommodated within the site wherever possible and site delivery points need to be carefully considered with pedestrians in mind.

Question

“Will my scaffolding, hoarding or working practices afford ready access and safety for pedestrians (especially those people with disabilities or using a pushchair)?”

- Is there at least 1.2m clear width?
- Have I installed tactile warning strips?
- Has the hoarding been properly lit?
- Are there any projections which could cause injury?
- Has satisfactory guarding been provided?
- Has the walkway been protected from water and debris from above?
- Have any road signs been obstructed?
- Do the road gullies still drain properly?
- Do I need skips and are they suitably placed to avoid traffic problems?



Refurbishment

Existing buildings can often be utilised for other purposes. Conservation and preservation of buildings and structures can add value to the property as well as the community. It is quite often more cost effective to refurbish than to demolish the building because materials such as concrete, bricks, steelwork etc., can be recycled for use in roads and car parks as well as the building itself.

Renovation and refurbishment should be sympathetic to the existing building and its surroundings.

Refurbishment can often improve adjoining buildings and the opportunity to offset some of their maintenance costs may be attractive to the adjoining owners/occupiers.

A scheme of refurbishment may attract grants or sponsorship from interested parties. Older buildings are often more attractive propositions to potential occupiers especially if they are in a desirable location.

Question

“Do I really need to demolish the buildings on the site?”

- Is my scheme sympathetic to the existing building and its surroundings?
- Could the buildings be refurbished?
- Does the building lend itself to a change of use?
- Is it more cost effective to renovate rather than demolish?
- Can I recreate the building in sympathetic materials and design?
- Can I use recycled materials for the project?
- Will the retention of the building have added benefits for adjoining owners?
- Is this an opportunity to enhance the reputation of the designer, owner or sponsor?



Transport and Access

In these days of congested roads it makes sense to design with the use of public transport and cycling in mind. Sharing of private vehicles and the transport interface of the development should be considered at an early stage. Enquiries should be carried out with regard to planned future public transport such as new railway/bus stations and cycleways. Provision for cycle parking and cycleways should be made on the site. The key principle, reflecting guidance in “The Manual for Streets”^{*} is that developments should allow full integration with their surrounding environment to promote travel by non-car modes.

Consideration should also be given to the frequency, number and timing of site deliveries as well as the types of plant and vehicles envisaged. Wheel washing facilities should be provided for vehicles leaving the site. Provision of on-site parking during and after construction is a major consideration.

The effect of traffic noise on the occupants of the building should be assessed. This may include such things as the use of natural or designed noise barriers, reduced fenestration, orientation and usage.

^{*} *Manual for Streets, DfT (2007)*

Question

“Are my transportation plans sympathetic to the local community?”

- Have I provided sufficient on-site parking facilities during building works?
- Will wheel washing facilities be required?
- Do I need to have the amount of deliveries projected?
- Have I considered the transport interface of my site for all modes of transport?
- Have I designed cycleways into the scheme?
- Do I really need this amount of on-site parking for this use of the building?
- Has a construction site impact assessment been carried out?

Recycling

Construction sites should consider the benefits of recycling materials on the site either from demolition works or from the breaking up of car parks/paved areas.

The importation of recycled materials reduces the need for the excavation of new raw materials elsewhere. Second hand building materials are often more suitable due to their proven durability, natural constituents and the additional material in them.

New schemes can be sensitively designed to incorporate recycling centres/bins. Surface/rainwater can usually be retained as a feature or used to replenish the subsoil water table, rather than disposed of to a sewer.

Some waste water can be reused for flushing toilets or for gardens. Composting toilets and bio-gas generators could be installed as additional energy sources.

Question

“Can I use recycled materials for this project?”

- Can waste materials be re-used on site rather than removed?
- Where is my nearest recycling plant?
- Have I incorporated space in my design for recycling bins?
- Can I use second hand materials for the project?
- Can I retain surface water in ponds/lagoons or return it to the ground rather than to a sewer?
- Can my scheme incorporate composting toilets or other methods of recycling waste matter?
- Has a site waste management plan been created?



Access for People with Disabilities

Access to buildings and transport, as well as the urban and countryside environments should be available for everyone. Buildings should not only be “accessible” but “usable” by all sections of the community.

The aim should be to create a more barrier-free environment so that people with disabilities are integrated into society rather than segregated. Consideration should be given to people with disabilities which limit their ability to walk, see or hear.

We all experience disability at some time of our lives to a greater or lesser extent.

We therefore need to ensure that we do not discriminate against people in the design of our buildings. Buildings which are designed for people with disabilities are also more easily usable by those who are not.

Question

“Has my design taken into account the needs of people with disabilities?”

- Have I allowed for parking for disabled vehicles?
- Is the approach to the building suitable for a wheelchair user and other people with disabilities?
- Is the entrance door and lobby wide enough and does it allow manoeuvrability for a person in a wheelchair and other people with disabilities?
- Are any stairways suitably designed for ambulant disabled people and other people with disabilities?
- Are the corridors/internal doors wide enough and level for wheelchair users?
- Have I provided a lift for access to upper levels?
- Do I have a WC suitably designed for people with disabilities?
- Have I provided induction loops or other facilities for the hard of hearing?
- Are the facilities such as counters, reception desks, telephones, lift controls etc. usable by people in a wheelchair and other people with disabilities?
- Do I have tactile warnings or highly visible signs for people with poor eyesight?
- Have I ensured there are no hazards such as projecting windows, badly placed furniture, unguarded changes in level, or unsecure areas?

Avoiding flooding and new developments

In certain areas the risk of flood should be considered at all stages of the planning and development process in order to reduce damage to property and loss of life. The design should take a precautionary approach to ensure that any development is safe and not exposed unnecessarily to flooding. Any run-off from development should not increase flood risk elsewhere in the catchment, and the development must not constrain the natural function of the flood plain, either by impeding flood flow or reducing storage capacity. New developments should therefore be located in zones of little or no flood risk. The most important measure that you can take to reduce the impact of flooding is to raise the minimum floor level of the property or development above the expected flood levels. There may be a planning condition that specifies a minimum ground floor level.

Ask yourself

“What will be the flood level?”

- Is the development safe and not exposed unnecessarily to flood risk?
- Are you causing an increased flood risk elsewhere?
- Has the design constrained the natural function of the flood plain?
- Is the development located in zones of little or no flood risk?
- Have you used design soakaways for rainwater or a recovery system?
- How would the building and the materials it is constructed react to flooding?
- Have attenuation systems been designed in where there is rainwater run-off?



Water Use

Clean, fresh drinking water is essential for health and for life and water is a precious finite resources. The droughts of the past have raised awareness of the need to secure the sustainability of long term supply into the future. The most pronounced demand issues are in the drier parts of the country but this is a matter for all of us. There are infrastructure and energy costs for supplying water, which in turn has other environmental implications.

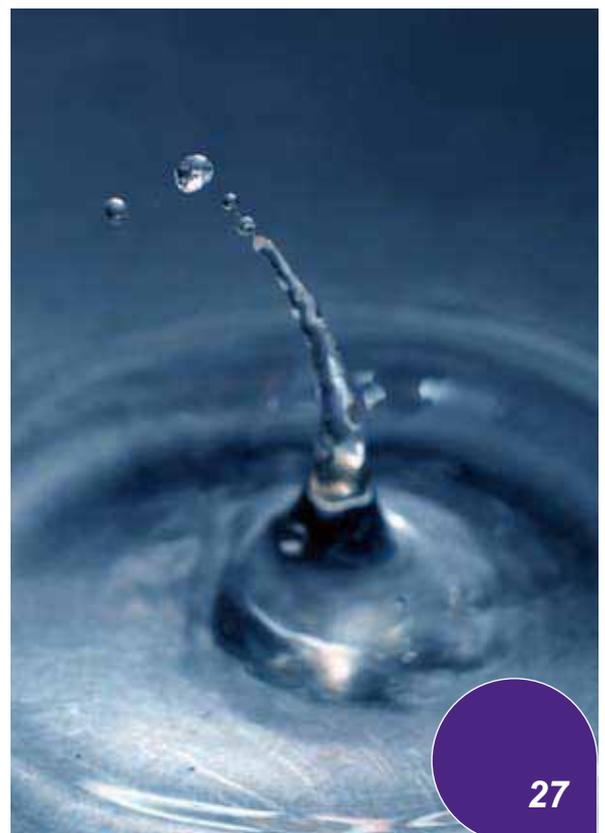
Consideration should be given to limiting the amount of potable (drinking) water used per person per day. This can be done by a combination of installed fixture and fittings and the harvesting of grey and rainwater.

The type of taps, flow rates of showers, volume of baths and flush volume of cisterns all play their part in helping to reduce individual water demand but the biggest opportunity lays with recycling systems that allow the reuse of grey water and rainwater in suitable operations. Over the coming years legislation will require up to 30% of water requirements in the home to come from non-potable sources.

Question

“Have I reduce the demand for potable water and provided the means to reuse grey and rainwater within and external to the building”?

- Have dual flush WC's been fitted?
- Have reducing/aerating taps been fitted?
- Could I specify smaller shaped baths?
- Do I know the flow rate of the showers installed?
- Where dishwashers or washing machines are to be fitted, has a maximum litre volume been specified?
- Does potable water need to be used for this operation?
- Have suitable water harvesting tanks been installed to allow the collection of rainwater?
- Have I considered the viability of grey water recycling systems?



Council/Local Contacts

Horsham District Council

Park North
North Street, Horsham
West Sussex RH12 1RL
Tel: (01403) 215100
Fax: (01403) 262985
Website Address: www.horsham.gov.uk
E.Mail Address: contact@horsham.gov.uk

Crawley Borough Council

Town Hall, The Boulevard
Crawley
West Sussex RH10 1UZ
Tel: (01293) 438000 (office hours)
(01293) 551636 (out of hours emergency)
Fax: (01293) 511803
Email comments@crawley.gov.uk

Relevant Service Areas

Building Control and Access
Sustainability and Environmental Co-ordination
Strategic and Community Planning
Planning Development
Public health and Licensing
Environmental Management Waste and Cleansing
Urban Design and Property Management
Transport Services
Engineering and Drainage
Leisure and Community Development
Parks and Countryside

Crawley College

Environmental Management
Arun House, Hurst Road
Horsham RH12 2DN
Telephone: 01403 218181
Fax: 01403 217733

West Sussex County Council

County Hall
Chichester PO19 1RQ
Telephone: 01293 777100

Sussex Police

Crime Prevention Design Adviser
Sussex Police
01444 445895 or 01444 445893

Sussex Wildlife Trust

Woods Mill Countryside Centre
Henfield
West Sussex BN5 9SD
Telephone: 01273 494777

Other Useful Contacts

House Builders Federation

56-64 Leonard Street
London EC2A 4JX
Tel: 020 7608 5100 Fax: 020 7608 5101
www.hbf.co.uk

CLG

Eland House, Bressenden Place
London SW1E 5DU
Tel: 020 7944 4400
www.communities.gov.uk

BRE - Building Research Establishment

Garston, Watford WD2 7JR
Tel: 01923 664000
www.bre.co.uk

CBI (Confederation of British Industry)

Centre Point, 103 New Oxford Street
London WC1A 1DU
Tel: 01732 454040 Fax: 01732 456510
www.cbi.org.uk

CIRIA (Construction Industry Research and Information Association)

6 Storey's Gate, Westminster
London SW1P 3AU
Tel: 020 7549 3300 Fax: 0207253 0523
www.ciria.org.uk

DTI (Department of Trade and Industry)

1 Victoria Street, London, SW1H 0ET
Telephone: 020 7215 5000
www.dti.gov.uk

HMSO (Her Majesty's Stationery Office)

Publications Centre, PO Box 276
London SW8 5DT Tel: 01603 723011
www.hmso.gov.uk

English Nature

Northminster House
Peterborough PE1 1UA
Tel: 01733 455000
www.english-nature.org.uk

Environment Agency

Sussex area Office, Saxon House
Little High Street, Worthing BN11 1DH
www.environment-agency.gov.uk

Energy Saving Trust

21 Dartmouth Street
London SW1H 9BP
Tel: 020 7222 0101
Fax: 020 7654 2460
www.energysavingtrust.co.uk

Considerate Constructors Scheme

PO Box 75, Ware
Hertfordshire SG12 0YX
Telephone: 01920 485959
Fax: 01920 485958
Freephone: 0800 7831423
www.ccscheme.org.uk

WRAP

The Old Academy, 21 Horse Fair
Banbury, OX16 0AH
Switchboard: 01295 819 900
Helpline: 0808 100 2040
www.wrap.org.uk

Links

A wide range of publications relating to sustainability and related issues are available.

<http://www.sustainable-construction.org.uk/>

<http://www.bre.co.uk/page.jsp?id=9>

<http://www.envirowise.gov.uk/home>

<http://www.timber-frame.org>

<http://www.ribabookshops.com>

<http://www.ciob.org.uk/home>

<http://www.rics.org/Practiceareas/Builtenvironment/Sustainableconstruction/>

<http://www.cibse.org/>

TCPA - Sustainable Energy by Design:

http://www.tcpa.org.uk/downloads/TCPA_SustEnergy.pdf

London Renewables Toolkit -

www.london.gov.uk/mayor/environment/energy/docs/renewables_toolkit.pdf

Adapting to Climate Change: a Checklist for Development -

www.london.gov.uk/climatechangepartnership/docs/adapting-climate-change-london.pdf

Cyril Sweett (for Housing Corporation and English Partnerships) - Cost Review of the Code for Sustainable Homes -

http://www.housingcorp.gov.uk/upload/pdf/Code_for_Sustainable_Homes_050407.pdf

Energy Savings Trust (Housing and development guidance) -

<http://www.energysavingtrust.org.uk/housingbuildings/>

BRE - The Green Guide <http://www.bre.co.uk/greenguide/>

The Carbon Savings Trust

www.carbontrust.org.uk

UK Climate Impacts Programme (UKCIP)

www.ukcip.org.uk

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North Street
Horsham
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RH12 1RL

Tel: 01403 215151

E: building.control@horsham.gov.uk

W: www.sussexbuildingcontrol.org



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