

Stevenage Design Guide



Supplementary Planning Document

Adopted 21st October 2009

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Appendix 1: Building for Life Criteria

Chapter One: Introduction

Stevenage Design Guide replaces the revoked 1994 Environmental Safeguards document, and provides standards for the design and layout of developments within the existing urban area. This document concentrates primarily on residential developments, however, many of the principles will apply to all types of schemes. It aims to actively encourage high quality development, which is both functional and visually attractive, and resist poorly designed schemes, which would have a negative impact on the town.

This document was adopted as a Supplementary Planning Document at a meeting of the Executive Committee of Stevenage Borough Council on 21st October 2009.

A draft version of the document was subject to public consultation between 11th June 2009 and 23rd July 2009. This consultation was carried out in accordance with the Town and Country Planning (Local Development) (England) Regulations 2004, as well as the Stevenage Borough Council's Statement of Community Involvement¹. A summary of the representations received and the Council's response to these is set out in the Statement of Consultation which accompanies this document.

Due to its status as a Supplementary Planning Document (SPD), this guidance is a material consideration in determining all planning applications.

1.1 PURPOSE OF THE GUIDE

Stevenage Design Guide is designed to benefit both the public and developers, by ensuring a consistent and fair approach to all development proposals. This SPD is for the use of those planning a new development, those intending to regenerate or extend existing sites, as well as those responsible for determining the quality of design proposals. Even where schemes do not require planning permission, developers are encouraged to make use of this guide for advice on creating high quality buildings and environments.

The Guide has not been produced to dictate exactly how developments should look, but aims to provide enough guidance to help developers produce well designed schemes whilst, at the same time, allowing and encouraging innovation and creativity.

¹ Stevenage Borough Council (2006) Local Development Framework: Statement of Community Involvement

Design is a complex issue, and meeting all of the requirements within this document may create conflicts. Each proposal will be considered on its own individual merits, and an acceptable balance between these requirements will be sought.

This SPD has been organised into six chapters;

Chapter one provides an introduction to the design guide and outlines the policy context within which it has been produced. It also provides an overview of the main characteristics of Stevenage, leading to the creation of six key themes, which are addressed throughout this document.

Chapter two introduces one of these key themes; sustainability. Although sustainability is promoted throughout the document, this chapter provides guidance on how to incorporate the main principles of sustainable development at every stage of the design process.

Chapters three and four cover the general design principles for a high quality urban structure and how to design environments which actively discourage crime.

Chapter five goes on to detail specific standards for residential development and chapter six deals with extensions to residential properties.

Although the guide is divided into chapters for ease of use, it is important to note that all parts of the guidance should be used together, in order to enable an integrated urban design approach, and to create successful and usable places.

Where appropriate, examples from in and around Stevenage have been used to provide a clear illustration of what is meant by some of the design principles. Ticks and crosses have been used on each of these to demonstrate whether the features they relate to are good or bad examples. It is important to note that these are not meant to undermine the value or importance of different areas of the town, but simply to clarify some of the text.

1.2 THE IMPORTANCE OF URBAN DESIGN

The government has placed a great deal of emphasis on the importance of creating well designed places. The Commission for Architecture and the Built Environment (CABE) was created as an advisory service to the government and various best practice guidance publications have since been produced.

Urban design is defined as ‘the art of making places for people’² and is concerned with all aspects of the public realm, including the

² DETR (2000) By Design. Urban Design in the Planning System: Towards Better Practice, HMSO

detailed design of buildings and landscapes, the way in which places work and the relationships between existing and new developments. Previously there has been a tendency to think of design only as a visual concern. However, the social and economic impacts of the urban environment have since been realised. It is therefore important that places are designed in a way that makes people want to live, work and relax in them, as this creates the conditions for a prosperous economy and successful communities. Ensuring that places are visually attractive, functional, sustainable and safe forms an essential part of this process.

It is important to acknowledge that all places are different, and design is not about starting again from a blank canvas. The context and character of a place needs to be taken into account and renewal rather than demolition should be encouraged where possible. There is no 'perfect blueprint' for good design, and trying to apply the same rigid principles everywhere would result in a loss of local distinctiveness and, therefore, counteract the objectives of the initial application of urban design principles.

1.3 POLICY CONTEXT

Stevenage Design Guide is a Supplementary Planning Document (SPD) created to provide additional guidance to the saved policies within the District Plan (Second Review 1991-2011). It supplements policies TW8 'Environmental Safeguards' and TW9 'Quality in Design' by outlining key principles and specific design details that should be followed in order to achieve the policy objectives.

POLICY TW9 : QUALITY IN DESIGN

All forms of development will be required to meet a high standard of design including:

- a) form of built development; and
- b) elevational treatment; and
- c) materials; and
- d) integration with the urban fabric of the town and surrounding countryside; and
- e) relationship between buildings and open space; and
- f) other aspects of landscape design; and
- g) relevant aspects of sustainable design.

Developers will be encouraged to submit a design statement in accordance with annex A to Planning Policy Guidance note 1 (PPG1), which should include an assessment of the proposal against the sustainable development checklist in appendix F of this plan.

Supplementary Planning Guidance will be prepared on sustainable design and development proposals will be considered in relation to it.

POLICY TW8 : ENVIRONMENTAL SAFEGUARDS

All development proposals will be required to comply with the Environmental Safeguards, Development Control Standards, and other relevant Supplementary Planning Guidance.

The following national and regional policies, as well as county level guidance, have also been taken into account:

NATIONAL PLANNING POLICY GUIDANCE

The government's commitment to good design is set out in PPS1: Delivering Sustainable Development, and states that 'high quality development and inclusive design should be the aim of all those involved in the development process'. A large collection of other national guidance exists and, although it would be impossible to name them all, some good references include;

- PPS3: Housing,
- PPG13: Transport
- PPG15: Planning and the Historic Environment
- Better Places to Live by Design: A Companion Guide to PPG3
- By Design. Urban Design in the Planning System: Towards Better Practice (DETR)
- Safer Places – The Planning System and Crime Prevention (ODPM).
- The Urban Design Compendium (English Partnerships & Housing Corporation)

REGIONAL PLANNING GUIDANCE

'Providing a well designed living environment' is detailed as part of a key objective of the East of England Plan. This is further emphasised throughout the Regional Spatial Strategy (RSS), with policy ENV7 setting out the main requirements for achieving quality in the built environment.

Other key policies and objectives within the RSS, concerning sustainability, transport and environmental protection have also been closely followed during the creation of this SPD, in order to ensure that their requirements are met.

POLICY ENV7: Quality in the Built Environment

Local Development Documents should require new development to be of high quality which complements the distinctive character and best qualities of the local area and promotes urban renaissance and regeneration. New development should:

- provide buildings of an appropriate scale, founded on clear site analysis and urban design principles;
- make efficient use of land;
- in the case of housing development, achieve the highest possible net density appropriate to the character of the locality and public transport accessibility;
- provide a mix of uses and building types where appropriate;
- have regard to the needs and well being of all sectors of the community;
- address crime prevention, community safety and public health;
- promote resource efficiency and more sustainable construction, including maximum use of re-used or recycled materials and of local and traditional materials;
- reduce pollution, including emissions, noise and light pollution; and
- maximise opportunities for the built heritage to contribute to physical, economic and community regeneration.

Conservation-led regeneration should respect the quality and distinctiveness of traditional buildings and the value they lend to an area through their townscape quality, design and use of materials. In their plans, policies, programmes and proposals planning authorities should give consideration to the opportunities presented by the region's industrial, maritime and rural heritage.

HERTFORDSHIRE GUIDANCE

Hertfordshire County Council, in partnership with the Hertfordshire district and borough council's, have produced Building Futures; a web-based guide to ensuring sustainable development in Hertfordshire. It is aimed at planners and developers, and advocates high quality urban design as a catalyst for promoting sustainability. Modules within this guide contain information on energy, air, water, waste, safety and materials, which all interrelate to form an extensive design guide for sustainable and successful development. Building Futures must be read, in conjunction with this SPD, to ensure the sustainability of all development proposals.

1.4 THE CHARACTER OF STEVENAGE

Design which is inappropriate to its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions, should not be accepted.” Planning Policy Statement 1

The most successful places are recognised as having a distinctive character and identity, which has grown naturally in response to local conditions. This can increase people’s emotional attachment to a place, which in turn encourages civic pride, community spirit and urges people to look after their neighbourhoods. Our appreciation of a place’s social, economic and environmental background, and our understanding of how this has impacted upon the place in the past, should be the starting point for making decisions about its future.

Due to its identity as Britain’s first New Town, Stevenage forms an important part of development history. It is, therefore, crucial that this individuality is preserved, as once the original features are lost they can never be replaced.

Stevenage was Britain’s first New Town, designated in 1946, as a way to address the problems of overcrowding being experienced in London. The New Town developed around the Old Town of Stevenage, and enveloped small pockets of rural settlement. The original Masterplan for the town was inspired by the Garden Cities movement, and incorporated a number of distinctive urban design features, which made the development of New Towns a revolutionary stage in planning history. Many of these New Town principles have led to the creation of a successful place; however, some have not worked so effectively, in the way they were planned.

Since the town was developed, revised and nationally recognised principles of ‘best practice’ design have been produced. For the existing urban fabric of Stevenage there are opportunities to improve design through the integration of new schemes and the development of public realm improvements. Generally accepted principles of good urban design should be adhered to in all new developments, but there are particular elements relevant to this New Town which require specific attention. In order to do this successfully, it is important that an understanding of the existing character of the town is formed, and that lessons are learned with regard to what has been successful and what has been less successful within the town.

A Stevenage Urban Character Assessment was produced in 2008, which details the main characteristics of the residential areas within the town. This indicates the key features of the different neighbourhoods and highlights any relevant development considerations; providing details of both positive and negative aspects of the localities. This evidence is useful in providing a broad basis for site character appraisals and should be used as such when creating development proposals. It is important to note that the study does cover neighbourhood areas as a whole and it is essential that each site is further assessed, on an individual basis.

A substantial amount of new housing is now required in Stevenage in order to meet the growth agenda, as set out in the Regional

Spatial Strategy (RSS). This provides the opportunity for Stevenage to learn from any past mistakes, make a real impact in terms of urban design, by modernising the town, preserving and enhancing the existing surroundings and the historical attributes of Stevenage, where appropriate.

SUSTAINABLE COMMUNITIES



Chells neighbourhood centre.

Community facilities including shops, a pub and a post box are shown. Residential accommodation is located above the shops, creating a mixed use, active environment.

One of the key aspects of the original Masterplan for Stevenage was that it was designed to be self-contained. At a town-wide scale, a balanced ratio of jobs and houses were provided, housing was allocated to people who had jobs in the town, reducing the need for residents to commute to work outside the town. At a more local level, residents were accommodated within six distinct neighbourhoods, each containing their own neighbourhood centres accommodating shops, pubs, schools, community centres and other services essential for facilitating self-containment. The aim was to reduce the need to travel into the town centre, enhance community relations and facilitate the success of local businesses.

These self-containment objectives are directly in line with national guidance³ and the current sustainability objectives of the RSS, as well as healthy living aspirations. Although Stevenage is not completely self-contained, the neighbourhood centres have proved to be a particularly popular and well-used element of the town. With flats provided on the upper levels of the neighbourhood centre developments, they also provide multi-functional areas, which are now regarded as an important feature of good design; in terms of providing an active environment for natural surveillance and encouraging community spirit.

PROVIDING GROWTH

Another feature of the town's development was the relatively low density of housing. This was a result of the aspiration to provide an 'open town', following the principles of the Garden Cities movement; with high levels of open space, an extensive network of green corridors and wide roads throughout the town. Most of the residential areas have a high frequency of two storey, terraced, properties, each with its own private garden.

Housing is probably the main area in which there are weaknesses across the town. One of the main issues is the lack of an appropriate mix of housing sizes, types and tenures. There is currently a high proportion of three bedroom properties, and a lack of one and two bedroom properties, as well as larger homes. This is exacerbated by changes in demographics leading to an increase in

³ PPS1: Delivering Sustainable Development

the number of single person households and couples needing homes.

Due to the growth requirements for the town, there is a need to provide a substantial number of additional homes in Stevenage. Higher density development is set out as a key requirement of the RSS, as well as National guidance, and, where appropriate, densities will need to be raised in order to meet these targets for new homes. This will need to be carefully balanced with the need to retain open space provision within the urban area as access to open space was a key original feature of the town.

ENHANCING URBAN CHARACTER



**Bedwell Crescent,
Bedwell.**

Typical example of original New Town housing.

As a result of the prominence of two storey, terraced properties, a reasonably continuous building height is provided across the residential areas of the town. However, the neighbourhood centres do generally contain three storey buildings, helping to demonstrate their importance within the locality.

Although much of the original housing is similar in style, subtle differences exist between the housing in each of the residential areas, mainly attributable to the materials used. Since the initial development of the New Town, further neighbourhoods have been created, which follow the same basic principles, but also allow for modernisation.



Sparrow Drive, Poplars.

Example of housing on a more modern estate in Stevenage.

The character of the town's housing varies more significantly between the original New Town housing, such as Bedwell and Shephall, and the modern estates built throughout the 1990's, including Great Ashby, Chells Manor and Poplars. The more recent developments have respected the neighbourhood development strategy of the town but have strengthened the design and aesthetic value, by becoming a visible new extension with their own character.

There is a need to take this further in the future, as innovation in design, and contemporary architectural achievement is currently lacking in the town. Stevenage would also benefit from landmark developments at key nodal points, which would assist in linking areas, as well as improving the legibility of the place. However, care should be taken to respect the existing characteristics of the town, and not to take value away from the New Town concepts.

Combining these ideas, contemporary buildings at appropriate locations would help in achieving the higher densities required, as well as carrying forward and enhancing Stevenage's unique sense of place.

TOWN STRUCTURE

The extensive transport network was also an integral part of the New Town's original design and layout. Facilities are provided for all forms of movement, including walking and cycling. These allow residents easy access to the separated land uses within the town. Consideration was also given to safety, and routes for vehicular and non-vehicular traffic were separated in an attempt to reduce the occurrence of road traffic accidents.



**Broadhall Way,
Broadwater**

Pedestrian link and cycle route runs alongside vehicular route.

On the primary transport routes, routes for pedestrians and cyclists run alongside vehicular routes, but at junctions vehicles are given priority and non-vehicular traffic is forced to travel under a series of underpasses in order to cross the roads. This makes it easier to travel by car, rather than promoting the benefits of sustainable transport. It also creates safety concerns, as some sections of routes receive no natural surveillance, and as people attempt to follow desire lines without appropriate pedestrian access provisions. In terms of pedestrian and vehicular access to homes, a large proportion of housing was built following Radburn layout principles; houses were built to face each other, with the front being only accessible on foot, and the provision for cars made at the rear. Again, this has led to a lack of natural surveillance, as well as rear parking courts being underutilised, and insufficient access for emergency services.

The separation of land uses is apparent throughout the town, with the residential areas being separated from employment areas, leisure uses and the town centre. This could be considered contrary to sustainability principles, as it increases the need to travel. However, the land use zoning has worked in Stevenage because of the ease of access to and from these areas by all modes of transport, although, in some instances, places which are only actively used at certain times of the day can encourage anti-social behaviour due to a lack of natural surveillance.

KEY THEMES

This understanding and analysis of the original New Town design concepts led to some key issues becoming apparent. These have been used as key themes, which run throughout the entirety of this guidance. Considering these concepts at all stages of the development process will provide a good basis for the creation of a successful place; based on the recognised principles of urban design, but also building on the existing fabric of the town, and without taking away from Stevenage's history as Britain's first Mark One New Town. The themes have been identified as follows:

- **Sustainability** – incorporate principles of sustainable development from a town-wide perspective to measures incorporated into an individual property.
- **Increasing densities** – encourage high densities in accessible locations.
- **Legibility** – provide landmark developments at nodal points.
- **Design innovation** – showcase Stevenage as an exemplar of high quality design.
- **Respecting existing characteristics** – respect local characteristics and preserve and enhance existing features, where appropriate.
- **Designing out crime** – create safer places through urban design techniques.

Chapter Two: Sustainability

Climate change is one of the greatest global challenges facing society today. Human activities emit greenhouse gases that collect in the earth's atmosphere and trap heat from the sun. This melts ice caps, raises sea levels and changes weather patterns.

Nationally, the UK has set a target to reduce carbon dioxide emissions by 20% below 1990 levels by 2010. At a local level, Stevenage Borough Council is a signatory of the Nottingham Declaration on climate change, creating an obligation to contribute directly to the achievement of this target.

Planning has a crucial role to play in the management of climate change, and with sustainability now at the heart of the government agenda, Local Authorities are expected to produce policies and guidance which supports these principles.

All new developments should incorporate methods for encouraging sustainable transport, maintain and enhance biodiversity, minimise resource usage and aim to reduce the overall environmental impacts of the development. They should also promote the use of renewable energies where possible. Planners, designers and developers should work together to ensure that climate change is taken into account at all stages of the development process.

In addition to this, Stevenage is specifically identified as a key centre for development and change in the RSS. With the amount of new development needed, there will be the opportunity to make substantial efforts in terms of increasing sustainability. All new developments should be designed and located to minimise their carbon footprints. Retrofitting technologies to existing homes and buildings can also make a significant contribution to sustainability and climate change objectives. Government grants are available for home owners to install energy efficient technologies.

Incorporating principles for sustainable development will not only help to tackle climate change but can also provide benefits for communities such as improved health and well-being and an enhanced quality of life. Increasing levels of walking and cycling provide a good example of this, as this can not only reduce CO₂ emissions from private vehicles but can also increase levels of physical activity, and therefore promote a healthier lifestyle. Increasing energy efficiency can also help households by reducing fuel bills. This is directly in line with the draft Stevenage Affordable Warmth Strategy, which states that increasing energy efficiency in

housing stock is one of the main ways in which fuel poverty can be reduced.

Developers can also benefit from offering developments which are built sustainably, as it provides an ideal way to differentiate themselves from their competitors. As the issue of climate change becomes more widely publicised, consumers are becoming more environmentally conscious and are beginning to demand eco-friendly homes, which reduce their impact upon the environment, as well as minimising household bills. An element of Corporate Social Responsibility (CSR) is being seen as an increasingly important part of a company's reputation.

Due to its magnitude, sustainable development runs as a theme throughout this guidance and key ideas are highlighted within appropriate sections. However, the main principles for sustainability in design are listed within this chapter. It is important to note that this is not a fully comprehensive guide for sustainability, as there is a vast amount of information already available within the public realm. In addition to this, technologies are constantly being updated; therefore, it is essential that evolving guides such as CABE's Sustainable Cities⁴ are used.

Hertfordshire specific, comprehensive sustainability guidance can be found within Hertfordshire's sustainable development guide 'Building Futures'⁵. This provides specific information on methods, techniques and best practice case studies, as well as expanding on the main principles put forward within this SPD. The advice contained within 'Building Futures' should be used in conjunction with this guide, with all the principles being followed where practicable.

The following principles of sustainability should be followed for all new developments, including renovations, extensions and alterations.

2.1 ASSESSING SUSTAINABILITY

CODE FOR SUSTAINABLE HOMES

It is estimated that 50% of greenhouse gas emissions come from energy used to heat, cool and light buildings. Therefore, with the threat of climate change escalating, sustainable construction techniques are becoming increasingly important.

The Government has introduced the Code for Sustainable Homes which assesses the sustainability of a home against nine criteria:

⁴ Sustainable Cities, CABE <http://www.sustainablecities.org.uk/>

⁵ Building Futures: A Hertfordshire Guide to Sustainability <http://www.hertslink.org/buildingfutures/>

- Energy and CO2 Emissions
- Water
- Materials
- Surface Water Run-off
- Waste
- Pollution
- Heath and Wellbeing
- Management
- Ecology

Stars are awarded for sustainability performance, measured against these criteria, that is over and above building regulations standards. The rating ranges from Level 1 to Level 6 (1 to 6 stars respectively), with a Level 6 rating awarding achievement of the highest sustainability criteria.

Level 1 homes will be 10% more energy efficient and 20% more water efficient than homes built under 2006 Building Regulations. They may also incorporate other features in the Code such as providing secure cycle storage, home-working facilities or greater security features.




Level 3 homes will be 25% more energy efficient.

Level 6 homes will achieve carbon neutrality. They need to gain 90% of the points available by incorporating most of the sustainability features within the Code.

Since April 2008, there has been a requirement for all new social housing to be built to a minimum of Code Level 3. The Code is still voluntary for privately built housing. However, all new homes are required to have a Code rating in the Home Information Pack (HIP). This means that homes built to, and assessed against the Code, must include the Code certificate within the HIP. Homes not assessed against the Code must include a nil-rated certificate of non-assessment in the HIP.

The Government timetable for implementation is for a Level three rating to be achieved for all new homes by 2010 and a Level six, carbon neutral, rating to be reached by 2016.

Government timetable for implementation:

Date	2010	2013	2016
Energy efficiency improvement of the dwelling compared to 2006 (Part L Building Regulations)	25%	44%	Zero carbon
Equivalent standard within the Code	Code level 3 	Code level 4 	Code level 6 

For non-residential properties the Building Research Establishment Environmental Assessment Method (BREEAM) continues to apply. This follows the same principles as the Code for Sustainable Homes; rating buildings as Excellent, Very Good, Good or Pass, against a similar set of criteria. Further information can be found at www.breeam.org.uk.

The council expects all housing proposals to achieve a minimum Code for Sustainable Homes rating of Level 3, and all non-residential proposals to achieve a BREEAM rating of at least 'very good', except where it can be shown that this would not be viable.

INSPIRE EAST'S EXCELLENCE FRAMEWORK

The Excellence Framework is an online toolkit created by Inspire East, with support from the Building Research Establishment and Sallet Consulting Ltd. The toolkit has been adopted by the East of England Development Agency.

Its aim is to provide guidance on achieving excellence in sustainable communities in the East of England. It is intended to be used for advice and information, to display examples of best practice, and to appraise and evaluate the quality and success of projects.

The Excellence Framework is based on the eight components of a sustainable community:

- Social and cultural
- Governance
- Transport and connectivity
- Services
- Environmental

- Equity
- Economy
- Housing and the built environment.

Many of the principals contained within the framework will be achieved by the adherence to this guide, however, the framework should be considered for all development proposals, and is especially beneficial as an evaluation tool.

2.2 ENERGY EFFICIENCY

Reducing energy demand in buildings can not only reduce carbon dioxide emissions, but will also help to reduce energy bills, thus making sound economic sense and helping to reduce fuel poverty. Efforts should be made to reduce the energy required to heat, cool, light and run buildings. This energy efficiency can be achieved using a variety of passive design measures, which, when designed effectively, can also help to create innovative, high-quality urban environments. However, it is important that energy efficiency is considered at the early stages of design.

Energy efficient technologies can also be retrofitted into existing buildings. Improving the efficiency of these buildings represents a big challenge, but also creates a massive opportunity to face the climate change issue head on.

There are many different energy efficiency options. Their applicability depends on the type of project, and, in particular, whether it is a new development or a refurbishment project.

WIND

In the summer, mild breezes can be used to ventilate buildings and improve comfort. However, in winter months stronger winds can increase heat loss. It is important that a balance is struck between the two, so that an appropriate amount of wind is allowed to impact upon the site. This can be achieved through the incorporation of natural ventilation techniques.

Natural ventilation can be used effectively in areas which do not suffer from excessive noise and where air quality is good. In narrow buildings openable windows can be enough, however, in larger spaces alternative methods may be needed.

Buildings can be designed so that the stale air inside of buildings is sucked out by the wind, and fresh air is drawn in. This is achieved by using the air pressure at different heights to create a flow of air.

Atria and courtyards are another effective way to make the most of natural ventilation. Voids between groups of buildings help to bring in natural ventilation to the centre of deep plan developments.

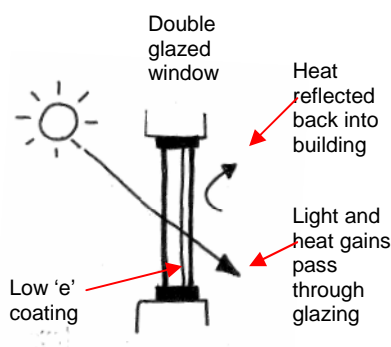
It is also important that heat is not lost through air leakage. Care should be taken at junctions between different building materials, not to allow air to leak in or out of the building. Air tightness testing should be used to ensure any problems are addressed.

SUNLIGHT/DAYLIGHT

An adequate level of daylight and sunlight should be provided for all developments. This reduces the amount of artificial light required, as well as improving the interior and exterior appearance of a building.

Low building depths should be encouraged, as buildings with higher depths can use an increased amount of artificial light. A depth of 9-13m provides maximum flexibility for natural lighting and ventilation. Where building depths are high, techniques can be used to bring light further into buildings, including design features such as atria, courtyards and suntubes.

Care should be taken to ensure that new developments and extensions do not affect the amount of natural light being received by existing buildings. Locating buildings too close to each other can cause overshadowing. However, buildings which are too far apart can result in continuity and enclosure objectives not being achieved, it is therefore important that an effective balance is achieved.



The specification of glazing should be carefully considered. Low U-Values can be achieved through the selection of low 'e' coated glass; which reflects heat back into a room, but still allows solar energy to pass through.

As well as providing natural light, sunlight is also a useful source of heat in buildings. This 'passive solar gain' can provide environmental benefits and minimise the amount of fuel used, as it reduces the need for space heating. Buildings should be positioned carefully so that their primary frontages are orientated broadly to the south, in order to maximise the opportunity for passive solar gain.

MATERIALS

The materials used in a building can heavily influence its energy efficiency. The use of high thermal mass materials, such as concrete, brick and stone, can be used to absorb and retain solar heat during the day, and insulation can be used to reduce heat loss.

The rate of heat transfer through building elements is measured as a 'U-Value'. The lower the U-Value is, the less significant the heat losses are, and the more energy efficient the building materials are. U-Values listed in Building Regulations should be considered as a minimum standard and should always be improved upon where viable and technically practicable.

APPLIANCES

In new homes, emissions produced by lights and appliances account for around half of all carbon dioxide emissions created. Although the occupant is responsible for many of these, the developer can have an input by building in appliances at the development stage.

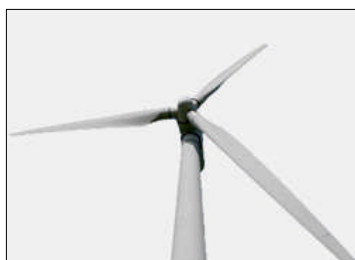
The use of a control system can also provide an effective method of increasing energy efficiency. Technologies such as sensors, for example, can reduce energy being wasted by occupants. Motion or light detecting sensors being used to control lighting within a property provides a good example of this.

2.3 RENEWABLE AND LOW CARBON TECHNOLOGIES

Low/zero carbon technologies should be used to provide as much of the energy as is technically and economically feasible. Some of the main ways in which this can be done are explained below. However, it is important to note that this is not an exhaustive list, and new technologies are constantly being developed. It is therefore important that sources of guidance which are constantly updated, such as Building Futures and CABI's Sustainable Cities, are used in conjunction with this guidance.

The applicability of each of these renewable energy technologies depends on many factors, and not all forms of renewable energy will be suited to every development.

WIND



Wind power can be used effectively as a source of renewable electricity by the implementation of wind turbines. Where it is considered appropriate to do so, these can even be incorporated within urban areas. However, factors such as noise levels and environmental impacts need to be taken into account.

Sites where large scale wind turbines would be acceptable are limited within Stevenage, as it is a predominantly urban area. However, this will depend on the character and context of the specific site and its surrounding area.

SUNLIGHT/DAYLIGHT

Solar gain can be maximised through the use of technologies such as solar panels and solar hot water systems. Their use is encouraged, where appropriate.



Photovoltaic panels installed on a residential property. The cells are designed to integrate with the roof tile.



Solar thermal panels on a residential roof surface.

Photovoltaics (PV)

PV panels convert solar energy into electricity. This can occur even when the weather is cloudy as they require only daylight and not direct sunlight. Panels are now available in a variety of shapes and colours and can be built into roofs, curtain walls and decorative screens, as well as being used in glass roofs and conservatories, making this technology extremely flexible.

At the moment PV technology is reasonably expensive; however, it is likely that the economic benefits will increase as energy prices rise and technologies are improved.

Solar thermal

Solar thermal systems use the energy from the sun to produce hot water. Technology is well developed, with many equipment options available to meet all requirements. Generally, they use either flat plate collectors or evacuated tube collectors, which should ideally be located on south facing roofs, pitched at 30-45°. In both types, the sun heats liquid within the solar collector, which then passes through a coil in a hot water storage cylinder, which stores the hot water for later use. Water can either be used at this temperature or the temperature can be increased by a boiler or immersion heater.

During summer months, between 80 and 100% of hot water demand can be met by these systems.

Solar thermal systems are one of the most cost-effective renewable energy technologies for existing dwellings.

BIOMASS

Biomass fuels are carbon neutral if taken locally, from a sustainable source, apart from a small amount of fuel used for obtaining and processing the resource. Biomass fuels are either produced organically from plants, or from commercial, domestic or agricultural waste. For domestic biomass applications wood fuel is generally used, in the form of logs, chips or pellets.

Biomass is mainly used to heat a domestic property in two ways;

- Stand-alone stoves providing space heating for a single room
- Boilers connected to central heating and hot water systems.

The occupant will be required to pay for the biomass fuels used. However, money can still be saved, and obviously the environmental advantages are considerable.

MICRO-CHP

Combined heat and power (CHP) systems simultaneously generate usable heat and power in a single process. They are usually fuelled on gas, although some can burn a range of other fuels. In terms of the micro-CHP units used in the home, whilst electricity is generated to power domestic lights and appliances, the heat produced during the process is recovered and used to provide hot water for space and water heating.

A micro-CHP unit can be connected into an existing heating system, often as a replacement for an existing boiler.

Micro-CHP units are a very new technology, however, their potential for future use is enormous.

GROUND SOURCE HEAT PUMPS

Ground source heat pumps transfer heat from the ground into a dwelling via an electric heat pump. This heat is distributed through underfloor heating, space heating or is sometimes used to pre-heat hot water. Every unit of electricity used creates 3-4 units of heat, which makes it a low carbon energy technology.

Ground source heat pump systems require either horizontal or vertical collectors in the ground; therefore sufficient land is required around a dwelling for this technology to be implemented.

2.4 WATER



Water Butt.

A simple way to collect and re-use rainwater. The water can be used for activities such as washing cars and garden irrigation.

WATER CONSUMPTION

The East of England region receives one of the lowest levels of rainfall in the UK and, in recent years, the amount of water being consumed is steadily increasing. Reducing the amount of water needed for day-to-day activities is, therefore, essential for maintaining a sustainable lifestyle.

Water consumption forms a part of the Code for Sustainable Homes assessment. In Stevenage usage is currently at a level of around 180 litres of water a day. A six star rating in the Code for Sustainable Homes asks for just 80 litres to be used per person.

The council requires new development to have a Code for Sustainable Homes rating of at least Level 3, unless it can be demonstrated that this is not viable.

Both new and existing developments are required to implement schemes to reduce daily water usage. The collection and reuse of rainwater provides a good example of how this can be done, as rainwater is clean enough to be used for activities such as washing

clothes, toilet flushing and garden irrigation. This will also help to reduce surface run-off, therefore reducing flood risk as a result.

Care should be taken to ensure that elements of these schemes are designed into buildings effectively and are not visually intrusive.

FLOOD RISK

Stevenage does not currently have any areas which are at a significant risk of flooding; however, flooding could become a problem in the future. Steps should therefore be taken to minimise the risk of flooding where possible.

Sustainable Urban Drainage Systems (SUDS) allow rainwater to drain back into the ground, which reduces the amount of surface water run-off going into stormwater systems. A site can accommodate a range of different SUDS techniques. These can range from individual driveways being created from permeable surfaces to large-scale schemes incorporating features such as ponds and wetlands.

In line with policies set out within national guidance⁶ and the East of England Plan, SUDS should be incorporated for all developments within the Borough, where it is appropriate to do so.

Large scale SUDS schemes should be well designed to ensure that they provide a valuable natural habitat and improve water quality, as well as reducing flood risk. The ongoing management of these schemes must also be considered at an early stage.

2.5 MATERIALS

Consideration should be given to the type and source of materials used. Making use of locally sourced materials and recycling materials on-site can reduce the impacts of transportation on the environment, can reduce development costs and can also help to maintain local character.

Environmentally friendly materials provide an alternative to this, although these may present an additional cost for the developer.

Materials can also be used to ensure the minimum standards set by the Code for Sustainable Homes are met. The use of high thermal mass materials, such as concrete floors and internal walls, for example, can be used to absorb and retain solar heat during the day.

⁶ PPS25: Development and Flood Risk

2.6 WASTE

The East of England Plan seeks to minimise waste and the impact that growth will have on waste management facilities. The Hertfordshire Waste Management strategy aims to prevent waste as a first option, to re-use, recycle and compost waste as a second option, and to dispose of it as a last resort. Hertfordshire has set out a target to exceed national targets and to recycle/compost 50% of household waste by 2012.

Waste planning is the responsibility of Hertfordshire County Council; therefore any proposals will need to be in line with the Hertfordshire Waste Development Framework, which sets out a long-term strategy for managing and disposing of waste up to 2026.

It is important that developers make provisions for on site compost areas and for the storing of recyclable waste. Provision should also be made inside homes, where possible, for recycling bins to be stored.

Further guidance on how to design waste and recycling facilities effectively into new developments is provided in section 5.6.

Chapter Three: General Design Principles

A high quality environment is essential for providing a good quality of life for residents. A well designed and managed space not only provides a visually attractive environment, but can also help to ensure that a place is easy to move around and within, is safe and secure, and is useful for all members of the community.

Expanding on the key themes stated in chapter one, the Borough Council considers that the following principles should provide the basis for any new development:

Built Form

- The form and layout of development should be guided by the existing character and features of the site and its surroundings.
- Buildings should be carefully designed to define and create easily legible public spaces.
- New development should be inclusive and integrated, and encourage a mix of residents.
- Buildings should be orientated to make the most of natural sunlight, daylight and ventilation.

Ease of Movement

- Account should be taken of the existing pedestrian, cycleway and road network
- New development must be accessible for all modes of transportation.
- Routes for pedestrians and cyclists must be safe and convenient.
- Parking provision for vehicles and bicycles should be of a high quality design.

Public Realm

- New development should be visually attractive as a result of good architecture and landscaping.
- Biodiversity levels should be maintained and enhanced.
- Appropriate open space provision should be made.
- Landscape features should be designed to discourage criminal activities.

3.1 BUILT FORM

BUILDING LINES

Buildings should normally follow the existing building line and respond positively to the existing frontage of a street. In the Old Town, for example, the majority of buildings are not set back from the road, or only have a small private space leading onto the street. A building set back further than this would be out of context with the character of development in the area.

In the same way, infill developments can be beneficial in helping to improve the continuity of the building line, as well as reducing blank frontages and underutilised space. This consistency can also help to create a sense of enclosure; thus improving the quality of the street scene.

Restrictions will be placed on set back distances to ensure that buildings interact effectively with the existing public realm. Minimum and maximum distances will be negotiable depending on the site context and location, but will only allow for variation from the building line where it would not have any substantial impacts on the surrounding environment and streetscene.

ACTIVE FRONTAGES



Fresson Road, Old Town.

The side of this property faces onto the street, and could have been left as a blank frontage, however, the feature bay window, in particular, adds interest and creates a more active frontage. ✓

The concept of buildings defining and creating public spaces is extremely important. Buildings should be located so that a clear distinction can be made between their public fronts and private backs. Publicly visible frontages should also actively add interest to the public realm. This can be achieved through design details such as; a large number of windows and doors, evident internal uses, and narrow building widths creating a variety of different frontages and building functions.

Making frontages 'active' creates interest and adds vitality at ground level, providing the opportunity for a busy social environment and a good level of surveillance. Blank frontages are visually unattractive and often encourage graffiti and crime due to a lack of overlooking. These should be avoided where possible.

On multi-fronted buildings, where more than one side faces the public realm, active frontages should be created on all publicly visible walls.

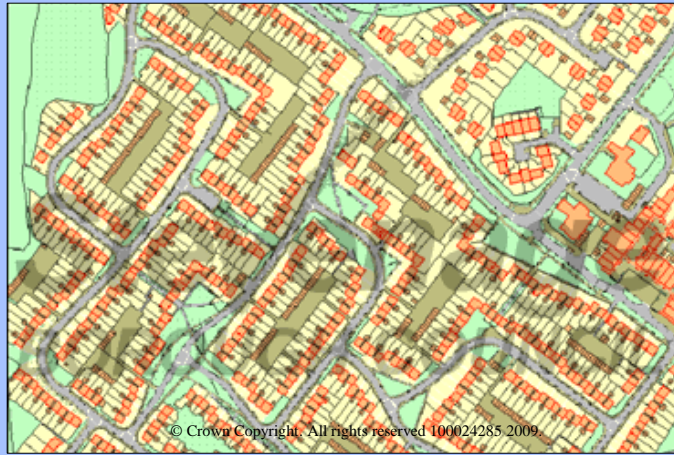
Where back gardens face out onto the public realm, high walls or hedgerows are generally used to separate the private gardens from the public space. To avoid these types of blank frontages being created, back gardens should back directly onto other gardens. An ideal way to do this is through a block structure layout; private gardens can either back directly onto each other, with no access



Rockingham Way, Bedwell. X

In contrast, a lack of window detailing creates a plain and unappealing frontage, with no natural surveillance.

between, or communal gardens can be placed in the centre of the block, providing they are not accessible to non-residents.



Newton Road, Scott Road & Telford Avenue, Chells.

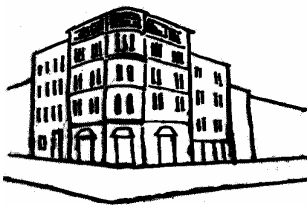
Block layouts have been created which provide active frontages for streets. However, garages at the rear should only be allowed if secure or gated; this protects the back areas of the property and residents' cars, which would otherwise receive limited surveillance under this layout.



BUILDING SCALE AND MASSING

The size and scale of a building, especially in relation to its context, is an important consideration when planning a development. New developments should not inappropriately dominate the street scene.

Examples within Stevenage demonstrate that subtle variations in height can add interest and value.



Taller developments should gradually increase in height from their neighbours.

The relationship of taller buildings to their neighbours is of particular importance; in many circumstances it will be preferable for buildings to 'step up' or gradually increase from one height to another.

Due to the planned nature of the town, Stevenage is dissimilar to traditional towns in the way that, with the exception of a few developments, building heights do not increase substantially as development gets closer to the town centre or other nodal activity points. This has created a lack of landmark developments and high density buildings. Buildings of greater heights should be encouraged at nodal points, and in easily accessible locations. In these circumstances a gradual increase in building heights will not be required.



Town Centre (left).
The regular building heights of the town centre create a monotonous building style. **X**



**Behind Old Town High Street (above left).
Old Town North (above right).**
Subtle changes in roof height and type creates an interesting and varied street scene. **✓**



LEGIBILITY



Silkins Field.
Corner of Lytton Way and Fairlands Way. Provides a landmark feature which helps to distinguish between the four roundabouts which surround the town centre. **✓**

Well designed, tall buildings can make a positive impact on a place, especially if they are to become identifiable landmarks at key nodal points. The careful positioning of prominent landmarks can act as markers, making it easier for people to find their way around.

It is often appropriate to emphasise corners, particularly at important junctions or gateways, by curving the frontage, wrapping the fenestration around the corner or terminating the roof differently. The height of the corner building could also be raised to add further emphasis. Corner design can create visual interest and a distinctive identity, meaning that they can also be effective as landmark developments.

It is particularly important that landmark developments are designed to a high quality, as they are to become a prominent feature across the town. They also provide a perfect opportunity to showcase

architectural innovation and best practice.

However, if not designed carefully, tall buildings can appear out of place within the existing landscape. They can destroy existing views and result in a loss of continuity. Views of and from the public realm can also enhance legibility throughout the town, and should therefore be protected as far as possible. Built form should be used to help frame and define existing views, rather than blocking important features out.

DENSITY



Bedwell Crescent.

Good quality, high density flats have been located in an easily accessible location within Bedwell.



The use of tall buildings can also be beneficial in accommodating higher densities within Stevenage. This is a major requirement of the East of England Plan, which puts Stevenage forward as a key centre for growth. PPS3 also sets out a requirement for higher housing densities. However, it does state that the quality of the environment should not be compromised.

Higher densities can support public transport facilities and use land resources in a more sustainable and efficient way, thus having a positive environmental effect. However, high density places need to be designed in an effective way so that problems of overcrowding and reduced space standards commonly associated with them do not arise. Higher densities will be encouraged in easily accessible areas, and where space has previously been used ineffectively.

ENCLOSURE

The relationship between building heights and street widths is important in identifying the enclosure of a place. Building frontages should be high enough to provide a sufficient sense of enclosure, to allow for natural surveillance and to provide an acceptable density for the area. However, they should also allow for sufficient natural light and ventilation into the buildings and the street below.

Generally, tall buildings coupled with very narrow streets will not be acceptable, as this creates passageways which are not overlooked and do not allow for enough natural light and air to impact upon a building. However, where frontages are active, some of these negative impacts will be removed, therefore the development may be acceptable.

The development of only one side of a street should be avoided, as this can create an unbalanced feel to the area. Although it may be acceptable if there is an opportunity for the development of the other side of the street at a later date. Where development on just one side of the street will increase safety through overlooking, where it lies opposite an area of open space, for example, this may be appropriate, as safety becomes the priority.

ADAPTABILITY

Places need to be able to adapt to changing circumstances. Towns and cities, for example, must change when industries rise and decline and houses need to be adaptable for when children get older and their requirements change.

Places should be designed so that they are capable of being used for a range of activities; a public square, for example, can be used effectively for festivals, markets and events.

Residential buildings can be future proofed; building higher attic spaces for future conversions, for example, will reduce the need for people to move when their space requirements change. The ground floor of residential properties can also often benefit from higher ceilings so that they can be easily adapted for commercial use at a later date, if necessary. Further guidance, including standards, for creating adaptable homes for the future is available through the Lifetime Homes initiative⁷.

MIX OF RESIDENTS

Different types and tenures of homes should be well-integrated, supporting a range of household sizes, ages and incomes, suitable for all members of the community. This promotes social diversity and reduces exclusion, enables residents to be able to move to smaller or larger homes without the need to leave their neighbourhoods and allows families to live close together. However it is important that different tenure types are indistinguishable from each other.

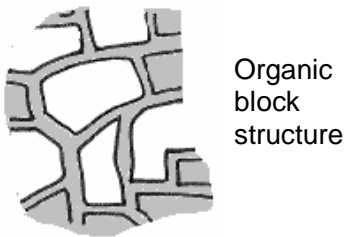
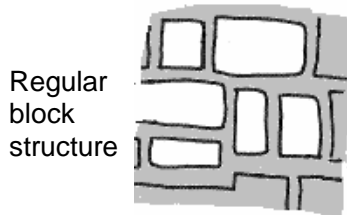
Sub-dividing large development parcels and allocating them to different developers can generate a wider range of building types, tenures and uses, which can encourage a more diverse community.

3.2 EASE OF MOVEMENT

Places should be easy to get to and from, as well as easy to travel within, by all modes of transport. In line with sustainability and health objectives, movement on foot or by bicycle should be made as convenient as travelling by car. This should help to encourage physical activity.

An Urban Transport Plan (UTP) has been developed for Stevenage. As a part of this work a transport model for the whole urban area has been created. Developers are encouraged to consult the UTP and assess the transport impacts of their proposals utilising the model.

⁷ Lifetime Homes <http://www.lifetimehomes.org.uk/>

Organic
block
structureRegular
block
structure

Block structures above offer flexible, safe development sites and allow for a high level of permeability.

Cul-de-sacs and dead ends, as in the layout below, should be avoided.



Blank frontages and a lack of enclosure make this an uninviting space. A lack of natural surveillance may also encourage crime.

X

County-level guidance is also provided in the form of 'Roads in Hertfordshire', whilst 'Manual for Streets' provides the national best practice design principles for streets and movement.

STREET NETWORK (GRIDS, BLOCKS, ETC)

Connections between key facilities should be direct, attractive and suitable for all types of movement, particularly focusing on improving conditions for pedestrians and cyclists by creating walkable neighbourhoods. This helps to create places that are well-utilised, convenient and comfortable for all members of the community. The use of a grid-type layout, which creates block sites for development, is thought to be the best way to facilitate this, and its use should be encouraged. Block layouts create direct and overlooked routes, make efficient use of land and provide opportunities for enclosed garden spaces.

Square shaped blocks in particular are considered to offer the most flexible development locations and small block sizes provide the highest levels of permeability. However, there are other positive and negative aspects to all types of block design; square blocks, for example, provide straight roads, which encourage high vehicle speeds, but provide the most direct routes for pedestrians. Therefore, a variety of block sizes and shapes should be used to provide an effective balance and to promote diversity within a place.

New development should be designed to make use of existing infrastructure as far as possible, in order to minimise its impact upon the environment. Development proposals should take into account the existing routes around the site from the initial design stage. Developers will also be required to improve existing routes where necessary.

Developers also need to consider accessibility for emergency services, delivery vehicles and refuse collection vehicles. Excessive on-street parking, a lack of vehicular access to front entrances and narrow streets can all act as hindrances to service vehicles. Effective street design should ensure that these problems do not occur, and easy access is created.

STREETS AS PUBLIC SPACES

Streets should be designed as public, social spaces and not just in response to engineering requirements. Careful consideration should be given to what activities we would like to see on different types of streets. In residential developments, for example, people should be able to walk safely within their neighbourhood without feeling



South End Close.

A boulevard-type street design makes the street feel like a useable space, rather than just a transport link. Walkways run alongside the road and are overlooked by active frontages, offering a segregated, but safe pedestrian route. ✓

threatened by traffic from nearby streets; in a high street, the Old Town for example, people should be able to cross the road easily, window shop, and socialise with friends in the outside areas of bars and restaurants.

WALKING AND CYCLING

Walking and cycling provision should be favoured when designing access routes. Routes should be short, overlooked by surrounding buildings and activities, well-lit, not situated between blank frontages and people should feel safe when using them.

Ideally cycling routes should run alongside vehicular roads, as this provides a high level of natural surveillance. Where possible, the preference should be to physically segregate cycle routes, rather than marking them on the road, as this can help to reduce the number of accidents involving cyclists.



Pedestrian link from Orchard Crescent to Orchard Road.

X

Blank frontages, as well as not being able to see to the end of the path creates a potentially unsafe and intimidating environment, as it enables people to hide within the pathway area.



Chells Manor footpath (left). Ascot Crescent footpath, Pin Green (far left).

X

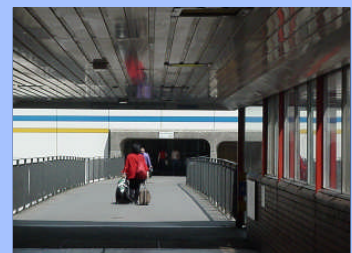
Segregated footpaths such as these, fronted by high sided fences or tall trees reduce natural surveillance.



Walkway from Town Centre to the Leisure Park.

X

This long narrow corridor provides the main link from the town centre to the leisure park by foot or bicycle. In the evenings, once most of the commercial outlets are closed, the space is inactive and can feel threatening.



**Six Hills Way.**

High quality cycleway runs alongside pedestrian route. Initially this is overlooked by the main road; however, a series of underpasses are used to cross major junctions. This demonstrates priority for vehicular transport.



The tendency to walk is also influenced by the quality and attractiveness of the route. Walking alongside a busy road, for example, can be unappealing whereas a convenient, direct and safe route through a town centre, residential area or an area of open space can encourage people to make use of these facilities.

A common problem, especially apparent within Stevenage, is where major traffic routes cross over major pedestrian routes. This should be dealt with by providing wide crossings, on the same level, with floorscape, lights and landscaping which defines the crossing area. However, in Stevenage, subways are frequently used, where segregated footpaths and cycleways run under the main vehicle roads. This can cause safety concerns resulting in these routes being underutilised. Where subways or footbridges are necessary, they should be well lit, as short and as wide as possible, the exit should be visible from the entrance and CCTV should be installed.

**Underpass link to High Street.**

Even with artificial light, the space is dark. This, combined with inactivity, makes it an ideal location for criminal activity and can be intimidating and unattractive for users.

Care should be taken when implementing features which aim to aid pedestrian safety, as these can sometimes inadvertently impede it. Introducing barriers around a main road, for example, can prevent people from crossing the road where they want to cross, and therefore hinder their direct route. This reinforces vehicle priority further.

Developers should ensure that local facilities are within a suitable walking distance, as defined within the Urban Design Compendium⁸. This will encourage a reduction in car use, as well as having benefits for people's health and social integration.

PROMOTION OF PUBLIC TRANSPORT

Public transport is reasonably good in Stevenage, with bus routes throughout the town, and a centrally located train station. However, people often have a preference for car use and so public transport needs to become a viable and attractive alternative option. Reducing journey times by ensuring public transport is given priority in highway layout and by incorporating bus priority measures are two ways in which this can be achieved.

⁸ Urban Design Compendium <http://www.urbandesigncompendium.co.uk>

Routes to bus stops and the train station should be clearly signed and well-designed, to discourage crime and enable easy access.

Higher density developments help to support public transport and vice versa. Higher densities should therefore be encouraged, in appropriate locations, for this reason, and in order to support sustainability objectives. This can, in turn, bring about social benefits, such as improved health and fitness through people reducing their car use and walking to and from public transport provision.

TRAFFIC CALMING

Traffic calming not only aids pedestrian safety, but by encouraging slower driving it can also help to reduce vehicle emission levels, and thus improve sustainability.

The engineering of the road network is the responsibility of Hertfordshire Highways. However, planning can have an important role in terms of ensuring site layouts minimise the need for over-engineered street designs.

Traffic speeds should be managed by the arrangement of buildings and spaces via simple, effective street design, rather than through the use of barriers, unnecessary signage and traffic calming measures. One example of how this can be done is by blocking the view of the line of the road. This forces drivers to proceed with more caution.



**Whitesmead Road,
Old Town.**

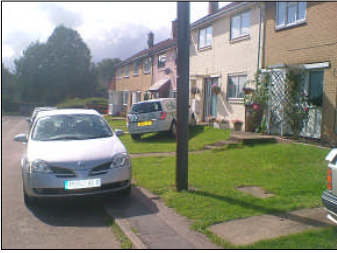
A variety of car parking provision, including the preferred option of parking bays, has been carefully designed into the street scene. Landscaping, such as trees and attractive floorscapes, has been used to lessen the impact of the cars, so that they do not over-dominate the street scene.



PARKING PROVISION

Parking allocation should follow guidance set out in the 'Vehicle Parking Provision SPG'. There is no single best solution to accommodating car parking, and a combination of methods is normally required. However, it is important that parking provision is not allowed to dominate spaces, or to inconvenience pedestrians and cyclists.

All parking should normally be overlooked; people should ideally be able to see their vehicles from at least one room in their house. The preferred option for providing on-street parking is often to provide a number of small parking bays which run adjacent to the traffic flow, but are out of the way for all road users. These provide spaces which are easily accessible, well overlooked, close to individual properties, and can be shared. Continuous rows of parked cars should be avoided as these would have an overpowering visually negative impact on the streetscene. Parking bays should be dispersed with landscaping features such as trees and other forms of planting.



Badgers Close, Bedwell. X

In contrast, parking which is undesirable to residents, means that front garden spaces and footpaths are being used to park cars. This creates an obstruction for pedestrians, as well as a car-dominated space. Garages are provided for residents but are located away from the houses, with no natural surveillance to secure them.

Vehicle parking on footpaths is unacceptable; as well as being illegal, it can inconvenience pedestrians and cyclists, as well as damaging the footpath and kerb. This can be avoided through well-designed streets or by the effective use of bollards, planters and street furniture, as in the Whitesmead Road example. Street parking should not be completely removed as this can reduce surveillance and activity on the street.

Garages and carports should be set back from the street frontage, but located close to the property that they serve, to avoid dead frontages. One of the common characteristics of residential areas within Stevenage is the use of segregated garage blocks as the main form of parking facility. These are not easily flexible for future change, do not allow spaces to be shared, and also suffer from a lack of natural surveillance.

West Reach, Shephall (right). X

Wasted space in front of garages; could be used for additional car parking or housing if the layout had been considered more carefully. This end of cul-de-sac location, and the blank frontages created, also make the area unexciting and unappealing to use, and provides an ideal



Pin Green garages.

Examples of typical garages within Stevenage. Little natural surveillance and a visually unattractive environment is provided by dead frontages.. Cars parking in front of the garages also impact upon the quality of the development. X



Creative solutions such as undercroft or basement parking should be considered where a large amount of parking is required. Parking cars underground preserves street frontages and uses land more effectively.

Large amounts of off-street surface-level car parking will not be permitted as this is a waste of valuable space, can require additional access, and can also look unsightly. Where surface parking is

necessary, it should be landscaped to minimise visual impact and, where security may be an issue, lit from dusk till dawn with energy efficient lighting. Car parks can also be provided on several storeys and the visual impact reduced by ‘wrapping around’ single aspect apartments or other uses.



**Communal cycle stand,
Cambridge.**

Providing a sufficient amount of appropriate parking for bicycle users is essential for promoting sustainable transport and for encouraging a reduction in private vehicle usage. Both short and long term cycle parking facilities should be provided. Storage for bicycles overnight should be provided as secure and covered, and should be integrated into the initial design of the development and not added as an afterthought. Cycle parking should ideally be accommodated within an individual site rather than as larger communal stores – larger stores can encourage crime if poorly lit and inappropriately sited.

3.3 PUBLIC REALM

The public realm refers to all types of space that is available for members of the public to use, without charge. Every part of the street scene contributes to the public realm, including street furniture, railings, litter bins, paving, fountains and lighting, with functionality and movement across the site also adding to the value of the area. In this way, everyone who is designing a building, or structure, is helping to shape the surrounding area.

How attractive and well-maintained a place is can directly affect how people treat it; if a place is in good condition, people tend to treat it better and vice versa. Places should be designed for use during all seasons and by all members of the community.

PUBLIC OPEN SPACE/BIODIVERSITY

Stevenage was designed to incorporate a network of open spaces and green corridors, which provide an important resource for biodiversity and recreation within the town. These are a key feature of New Town development and should be protected and maintained as far as possible.

Open space should be located so that it makes the most of existing natural features such as footpaths, trees, and water – these can help to create attractive spaces, as well as encouraging biodiversity.

It is important that developers consider these existing features and include them within their proposals. Protecting and enhancing these attributes can help a new development to integrate effectively into the existing area, as well as retaining important original features. The ancient lanes and associated hedgerows within the town provide a good example of what should be protected; they not only



Chells open space.

A good level of natural surveillance is provided here: houses overlook the open space and trees are spaced an appropriate distance apart to allow the park to be seen. ✓



Bury Mead play area.

This area is not overlooked. This could encourage criminal activity. ✗



Open space, Pin Green.

This space could benefit from landscaping, such as grass areas and seating, to make it a more welcoming and useful area. At present, the harsh concrete lines may deter people from using it effectively. ✗

help to maintain levels of biodiversity, but also form a part of the town's character.

Stevenage Borough Council's Biodiversity Action Plan should be referred to for all developments which may have a negative impact upon existing wildlife sites. Issues such as habitat loss, habitat fragmentation, a loss of protected species and disturbances to ecosystems can all be caused by development, and may subsequently result in a loss in biodiversity.

At a national level, the Government has a target to halt any loss of wildlife by 2010. A UK Biodiversity Action Plan was produced in 1994 and principles within this plan should be followed, where possible.

If biodiversity levels are to be unavoidably affected, alternative mitigation methods must be incorporated into the development.

Open space provision should be designed into a development from the outset and not added later as an afterthought. Areas of land which are left over after planning are commonly allocated as open space provision. These types of space often become attractions for vandalism, and are generally underutilised, because they do not serve any real purpose.

Different types of public space should be available for all residents to use, including paths, greens, informal spaces, and recreational facilities. These should be available in a wide variety of sizes and locations. Large units of open space are particularly desirable as they are often more flexible and, therefore, more useful.

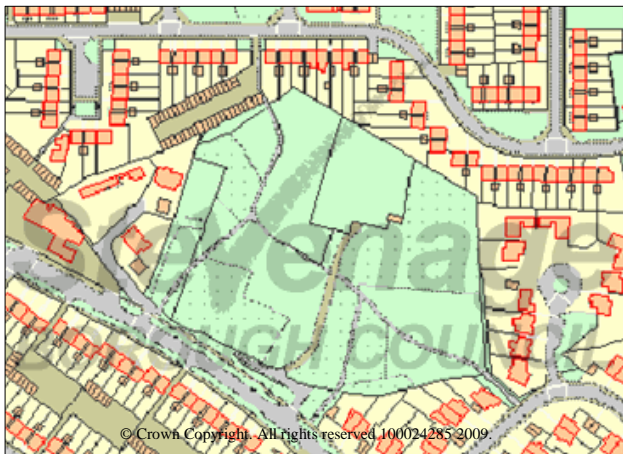
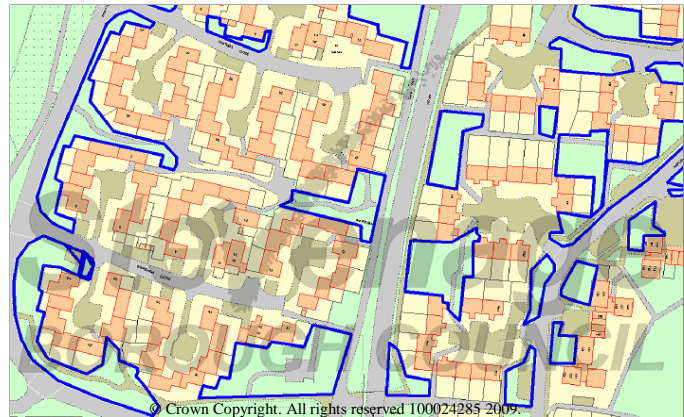
Public spaces should be overlooked and well-lit to create safe areas in which people can play and walk; dead frontages facing directly onto open space should be avoided, as this provides a reduction of natural surveillance. Effective lighting also allows open spaces to be used at more times of the day. However, care must be taken to ensure that a balance is found between lighting public open spaces and the negative effect of this on biodiversity.

Play areas should be designed to ensure that they have a low maintenance requirement; areas that appear to be well looked after can discourage crime and vandalism.

Local public open space should be located close to the origin of the intended users (existing and new), so that it can be well used and provide maximum benefits. Particular attention should be paid to ensuring access is available for members of the community who may find it difficult to make use of these facilities, such as the elderly and people with disabilities.

**Symonds Green,
Shoreham Close,
Hastings Close.** X

Left over spaces (outlined in blue) serve little purpose in terms of open space provision – spaces such as these should be incorporated into the initial design of the development.



**Chells Way,
Frobisher
Drive, Chells.** X

Houses face away from the open space, meaning that no natural surveillance is provided.

Fairlands Valley Park.

This large area of open space located in the centre of Stevenage provides a multi functional, well used facility. A large sailing lake accommodates activities such as, windsurfing, kayaking, dinghy's and angling. In addition to this, the large area of green space incorporates a climbing wall, bandstand, café, and a children's play area, as well as hosting a number of larger-scale events. ✓



Bedwell. Open space in a valley-type layout, surrounding by steep banks and a fence which encloses the area at the top. This prevents overlooking from both nearby housing and the road, and creates an inactive environment, where crime could be attracted. X



STREET FURNITURE



Albert Street.
Street furniture is
uncoordinated.

X

Landscaping of the public realm should be designed so that it is easy to maintain and manage, or can mature into a high quality space. It is essential that the long-term viability of street furniture is considered within the initial development process, as a lack of maintenance on some products can create eyesores and attract crime.

Furniture, such as seating, fences, bollards, and shelters, should be uncluttered and should not reduce accessibility. Inappropriately sited pieces can hinder access, especially for wheelchair users and pushchairs.

Street furniture should also be coordinated and specifically designed to enhance the area. In areas of historic interest, such as Old Town, for example, it would not normally be appropriate to install modern/standard style seating.

PLANTING

Soft landscaping, such as the planting of trees and shrubs, should be integrated into external areas of a development site. These features can be used to provide shelter, screen intrusive elements of the public realm, to provide green corridors for both people and wildlife and simply for aesthetic purposes.

Attention should be given to the type of planting used, as this can have negative impacts upon security, lighting and movement. The use of tall hedgerows, for example, can obstruct views and potentially create a barrier to movement. In circumstances where security may be an issue, the use of trees may be more appropriate, as these allow for overlooking at ground level.

The choice of plants should relate to the surrounding area. Fast-growing species should be avoided as they require a high level of maintenance. Select plants that provide a food resource for wildlife, which can help to maintain biodiversity, in line with sustainability objectives.

Planting must be a part of the original design scheme and must not just be applied, as an afterthought, to leftover space. Ideally, an expert should be consulted to ensure that the planting selected is appropriate to the scheme and the site context.

Green walls and roofs should be considered, as an alternative to traditional landscaping schemes, where space for green infrastructure and landscaping features is limited. These can help to improve the energy efficiency of buildings by retaining heat, and

have additional advantages such as helping to increase biodiversity levels and reducing surface water run-off.



Epsom Close (left) and Brick Kiln Road (right). Examples of high quality planting surrounding these residential schemes. The landscape has been carefully designed, and creates an interesting and varied environment. ✓



Old Town High Street.

Lighting designed to fit in with the historic buildings, through the use of cast iron and traditional designs. Some lighting is fixed to existing structures to avoid street clutter. ✓

LIGHTING

Places should be designed to be well lit, to provide a safe environment for pedestrians, and with particular attention being paid to key movement axes and desire lines across public spaces. However, directing lighting into private properties or gardens, and into the sky, should be avoided to reduce any unnecessary light pollution and to prevent energy wastage.

Lighting does not have to just be designed as standard street lamps; it can be provided as up lighting, on street furniture, on buildings and as feature lights. However, there is a need to ensure that it is appropriate for the current context of the area.



Pedestrian signage between Old Town High Street and Lytton Way.

Sign has deteriorated over time. Text is small and not easily legible and the sign lacks any distinct detail in its design. X

SIGNAGE

Directional signage can clutter the public realm. However, it can also provide an opportunity to enhance the landscape, by ensuring design which is consistent and coordinated throughout a place, and which complements other elements of the street scene. To reduce the impact of signs they should be mounted on existing structures such as buildings, walls and posts, where possible.

It is important that signage is provided for the use of pedestrians and cyclists, as well as vehicle users. Enabling them to easily find the most direct routes will encourage people to walk or cycle, and is therefore in line with sustainability objectives, can improve health, and can help to maintain the environment.

PUBLIC ART



© Tania Coates, 2007

**Town Centre floor
mosaic.**



Public art can play a major part in giving a place a distinct character and identity. It can also attract people to a place; enhancing the economy and creating a sense of place. However, it needs to be integrated at the start of the design process and not put in as an afterthought.

Art can be incorporated in imaginative ways such as, within the floorscape and as a part of functional facilities like cycle racks, seating and signage. However, it should relate to the surrounding area, drawing from the historical significance or specific location of a place, and not just randomly selected.

Chapter Four: Safety

Public space should be safe for everyone to make use of, at all times of the day. Evidence suggests that a carefully designed and managed urban environment can be effective in reducing levels of crime and vandalism, as well as reducing the fear of crime. Generally people feel more comfortable using areas in which they can be seen and heard, and which look like they are not commonly affected by criminal activity. There is significant emphasis placed on designing out crime in recent government publications such as 'Safer Places, The Planning System and Crime Prevention' and PPS3⁹, which cites creating spaces which are 'safe' as a key consideration for local authorities creating policies for high quality design.

As a key theme, safety issues are highlighted throughout this guide. However, the major principles for designing out crime are detailed within this section, providing additional, more comprehensive, guidance. These ideas must be considered at every stage of the design process, and all principles incorporating where possible.

Further information on the principles of designing out crime is put forward by 'Secured by Design', the UK Police flagship initiative¹⁰.

4.1 DEFENSIBLE SPACE

Creating defensible space involves ensuring clear physical or symbolic boundaries are present between public and private spaces. This means that spaces are clearly defined in terms of ownership and use; members of the public know the areas in which they are welcome, and personal control over private space is strengthened.

If these boundaries are not clearly defined potential offenders may feel more confident in committing crimes, as the perception is that they are not likely to be noticed or challenged. In addition to this, the owners or occupiers of these areas become less likely, or less able, to exercise control over their private space.

Where existing building lines allow, properties should be set back from the street and a small, semi-private space provided behind a low wall, railing or fence. This acts as a buffer between the public space of the street and the private space inside the building. It is

⁹ PPS3: Housing

¹⁰ Secured by Design; The Official Police Flagship for Security and Designing out Crime, <http://www.securedbydesign.com/>



**Letchmore Road,
Old Town.**

X

High boundary hedge hides the lower level of the house. This restricts the natural surveillance of the street, conceals the entrance to the property, and provides an place for criminals to hide.

4.2 NATURAL SURVEILLANCE



**Austin Path
Garages, Chells.**

X

Garages on one side and high fences on the other create blank frontages, which have low natural surveillance and can encourage crime

important that boundaries are not too high. A balance needs to be achieved between the security of public and private spaces; a high boundary wall, for example, may make private space safer but it decreases natural surveillance for public areas.

Fully private space, such as back gardens, is often the least overlooked space, so it is particularly important that it is protected from unwelcome access. An effective way of doing this is through a 'street block' layout where buildings surround a central core of private space. This space could be made up of interlocked rear gardens or a shared private space, but will be inaccessible to non-residents.

Rear boundary divisions must be incorporated, to provide privacy, to reduce potential for annoyance between neighbours and to prevent 'plot hopping' as an easy means of escape for offenders.

The passive overlooking of spaces provided by natural surveillance can help to deter potential offenders, as well as increasing the sense of security in an area. Higher levels of 'supervision', through this type of informal surveillance, can therefore provide an effective measure of reducing crime and anti-social behaviour levels, when used in conjunction with the other key principles outlined within this section of the design guide.

When spaces are overlooked by blank building elevations, potential offenders may feel more confident that they will not be seen by anyone, and therefore less likely to be challenged. Crime and anti-social behaviour are more likely to occur in areas which are hidden from view.

Natural surveillance should not be confused with formal surveillance such as CCTV.

BUILT FORM

Natural surveillance should be maximised by ensuring that buildings are orientated so that windows and doors face out onto streets, squares and footpaths. The internal layout of buildings should be such that the most used rooms are those which have windows overlooking public spaces.

Entrances to buildings should be clearly visible and accessible from the street. This ensures that people can walk safely to and from their front door, without having to divert off the main road.

Entrances should also be visible from inside the building, so recessed entrances should be avoided.

All buildings should have a similar setback distance to ensure that overlooking is not limited by a building projecting too far out and blocking the view. Recesses, which provide areas hidden from view, must not be created.

LANDSCAPING FEATURES

Landscaping should not block sightlines. Planting is particularly important, as the effects of this also need to be considered in terms of how it will mature in the long term.

Well designed lighting, especially street lighting, is important to facilitate natural surveillance at all times of the day; this light should be white and not the orangey-yellow colour of low pressure sodium lighting, as white light makes colours and people easier to recognise.

ACTIVE ENVIRONMENTS

Natural surveillance is increased in areas which are active, with people around, at all times of the day.

Places should contain both daytime and evening functional uses. The neighbourhood centres provide a good example of this, as they generally contain a mix of residential, retail and leisure uses.

A mix of residents should also be encouraged, by integrating different types and tenures of housing to support a range of household sizes, ages and incomes. Residents with different lifestyles can create a more active environment, as people are around at varying times of the day.

4.3 SAFE PERMEABILITY

It is essential that a balance is achieved between the need to promote permeability and the need to prevent uncontrolled and unwelcome access to private space and buildings. Creative design is required to ensure that places are both well-connected and secure.

It should be more difficult for offenders to access the vulnerable parts of buildings, such as the sides or rear.

Public access to rear gardens should be actively avoided.

If routes for pedestrians and cyclists are to be segregated, they should be well overlooked should not be forced into travelling through segregated alleyways or other routes with limited levels of natural surveillance.

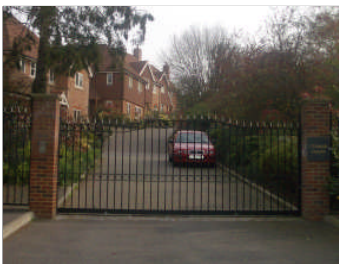
The safest cycle parking is an inside, defensible space. Outdoor cycle parking provision should be in private or semi-private areas with good levels of natural surveillance.

In terms of car parking, large, open and unsupervised areas of communal parking will not be allowed. Communal garage blocks should also be avoided as experience shows that they often become play areas for youths, are heavily vandalised and under-used by residents.

Bude Crescent, Symonds Green.

X

Typical Radburn layout; backs of properties face onto the street and a narrow footpath runs between the fronts of the housing. The dead streets at the back of the terraces may encourage crime. Ideally, terraced rows should run back to back, with no gaps for a footpath between them. If a footpath is necessary it should be gated.



Culrose Court, Broadwater.

X

Gated developments must be avoided and natural crime reduction methods used where possible. Exceptions can be made where roads do not run through the development and dead frontages or dead ends cannot be avoided.

PROPERTY SECURITY

Properties with open access or easily climbable boundaries make easier targets for crime. The more difficult it is for a potential offender to access a property, the greater the deterrent to trespass.

Although gated developments are a potential way to increase security, they generally have a negative impact on permeability and access for disabled people, and can also be visually intrusive. Their use should, therefore, be avoided.

If publicly visible security measures such as fences or gates are necessary, they should be designed as sculptures or art, rather than simply performing their practical function.

MAINTAINANCE

Clean and well-maintained environments are symbolically important: they give the message that people care about, and exercise control over an area, and that anti-social behaviour will not be tolerated.

Litter, graffiti, overgrown planting and general neglect indicate to an offender that no one controls what happens in this place, and therefore crime and anti-social behaviour is likely to go unchallenged, or even unnoticed.

A poorly maintained environment can also encourage similar offences, for example, the presence of litter encourages dumping; unmanaged, vacant property can invite trespass, misuse and nuisance to neighbours; one broken window can lead to more broken windows etc. It gives the impression that criminal behaviour is acceptable in the location.

Features of the public realm should be carefully selected to ensure that they do not require copious amounts of maintenance, and that they will also be suitable in the long term.

Chapter Five: Design Standards for New Dwellings

The aim of any residential development should be to provide a good living environment for occupants. Development should respect the surrounding buildings, in terms of their scale and massing, height, building lines, design and the materials used. However, it is accepted that housing layouts should take account of changing functional requirements. Occasionally, it may be appropriate to create pastiche developments. However, it is possible for a development to respect its local surroundings but still incorporate contemporary styles and new technologies.

The following paragraphs indicate the standards the Borough Council will normally be seeking in respect of the design of new residential developments. These standards are aimed primarily at new dwellings. It is accepted that flatted developments may require the application of less rigorous standards, however, this is subject to the schemes providing an acceptable living environment for future and existing occupants in respect of amenity, outlook, sunlight and daylight, etc. Such developments will be assessed on a case by case basis.

5.1 PRIVACY AND OUTLOOK

Privacy is an important aspect of residential environments and it is necessary to ensure that a reasonable degree of privacy for residents is provided, both within their habitable rooms and garden areas. The position of dwellings, and the arrangement of their rooms and windows, should not create significant overlooking of other dwellings' windows or private garden areas, nor should they lead to any overbearing impacts or adversely affect the residential amenities of existing dwellings. Hence, the following minimum separation distances should be achieved unless the design of the new buildings and/or disposition of windows mitigates against any overlooking:

No of Storeys	Type of Separation	Min. distance (metres)
Between existing and new 2 storey or a mix of 1 and 2 storey dwellings.	Back to Back Back to Side	25m 15m
Between new 2 storeys or a mix of 1 and 2 storey	Back to Back Back to side	20m 12m
Over 2 storeys between existing and new dwellings	Back to Back Back to Side	35m 25m
Between new dwellings over 2 storeys in height.	Back to Back Back to Side	30m 20m

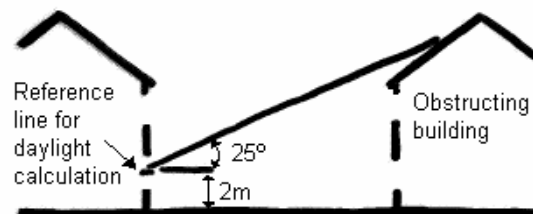
In all cases a 1.8m high solid wall or fence should be provided between the rear gardens of properties which back onto each other.

5.2 SUNLIGHT, DAYLIGHT AND ORIENTATION

New developments should be designed to ensure that a satisfactory level of sunlight and daylight is provided for the occupants of both existing and proposed dwellings. Where there is doubt that adequate sunlight and daylight will be achieved, indicators will be used to assess the amount of light reaching a new or existing window.

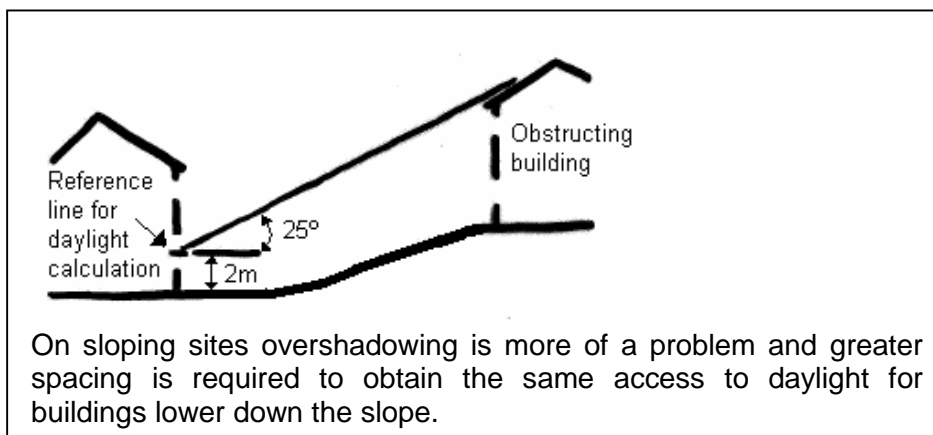
The Building Research Establishment (BRE) guidelines “Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice” (1991) will be used, which provides guidance on avoiding unacceptable impacts and sets out non-mandatory targets for levels of daylight and sunlight within existing and proposed developments. In particular, account will be taken of the size and position of windows to neighbouring buildings. However, indicators will not be applied to all schemes; only to those where there is doubt that adequate lighting may be achieved. This can be established by undertaking a simple 25 degree ‘rule of thumb’ test using the BRE guidelines as identified in the diagram below.

BRE Guidelines: 25 Degree Test



Section in plane perpendicular to the main face of the building.

From a point 2 metres above ground level at the horizontal centre of the protected window draw a line perpendicular to the window and at an angle of 25 degrees to the horizontal (see the drawing above). If the proposed development cuts this line then it is likely to interfere with the diffuse skylight enjoyed by the existing building. This being the case the proposal is likely to cause problems of loss of light and it will be necessary to undertake a detailed sunlight and daylight assessment.



Where possible, houses should be laid out in such a way that the main bedroom and the kitchen benefit from sunshine in the morning and that living rooms benefit from sunshine in the afternoon and evenings.

Low building depths should be encouraged, as buildings with higher depths can use an increased amount of artificial light. Providing an adequate level of sunlight and daylight reduces the amount of artificial light required, thus saving energy.

As well as providing natural light, sunlight is also a useful source of heat in buildings. This 'passive solar gain' can provide environmental benefits and minimise the amount of fuel used, as it reduces the need for heating. Buildings should be orientated with their primary frontages broadly facing the south in order to optimise the solar potential of the site.

Solar gain can also be maximised through the use of technologies such as solar panels and solar hot water systems. Their use is encouraged where appropriate.

It should be noted, however, that the form and character of the area may dictate a particular arrangement of buildings which is at odds with this objective. In such a case, it will be for the designer to creatively combine both constraints.

5.3 OUTDOOR PRIVATE AMENITY SPACE

All dwellings, including flats, should have private open space. The only exception to this is where flats are developed in very central locations, where public open space is easily accessible and higher densities are required.

Private open space should be located conveniently for use by residents, in a position that is not overlooked by neighbouring buildings. This will normally be located to the rear of the building, and in the case of flats the private space will usually form part of the

garden or communal amenity space, and not an area of landscaping.

Upper floor flat dwellers rarely have access to garden space. It is most desirable, therefore, in new developments where there is no communal space that effort is made to provide balconies or roof gardens for the occupants of these units. These should be located so as to afford privacy to the occupant, normally to the rear of buildings. However, they should not compromise the privacy of existing dwellings.

In flatted developments, where private open space is required, the Council will normally aim to achieve a minimum useable communal area of 50 square metres for schemes up to 5 units, plus an additional 10 square metres per additional unit over 5. Garage courts, parking areas and bin storage areas are not considered as part of the useable garden amenity requirements.

In the case of new dwellings, other than flats and accommodation for elderly people, the minimum standard garden space for a terraced or semi-detached family dwelling should normally be 50 square metres. Each dwelling should normally have a minimum rear garden depth of 10m. The shape and slope of the garden should ensure that it is useable. Larger detached houses will generally be required to provide a larger rear garden area. To ensure privacy, the garden should normally be enclosed by a 1.8m high close boarded fence or wall. Direct access should be afforded to rear gardens for activities such as refuse storage, cycle parking and maintenance.

All rear gardens and communal open spaces should generally enjoy a reasonable amount of sunlight and have a relatively open outlook.

5.4 BUILDING DESIGN AND MATERIALS

The standard of design in new developments has a major impact upon the quality of the environment. Good design can enhance the appearance of places and our use and enjoyment of them. Well designed buildings should function well and should be able to adapt to changing circumstances. There are a number of key components in securing a high quality of design which have been referred to within this document. Specifically, the choice of materials, and the way in which these are used, play an important part in facilitating good design.

Character and distinctiveness can be achieved and maintained through the use of appropriate materials and design details. Specific building features vary throughout the different areas of the town; however, all new developments should follow the same basic design principles.



**Fresson Road,
Old Town.**

Random arrangement and style of windows, as well as the materials used, make these new build houses look more traditional and integrated into the historical, village-type setting.



**Stanmore Road NHS
clinic, Old Town**

This building makes little attempt to integrate with the housing opposite (below). It's flat roofline, lack of feature depth, symmetrical window arrangements and horizontal rhythm mean that the building significantly stands out from the surrounding, older style buildings.



Any new development should draw on the scale, texture and colour of the building materials used throughout the surrounding area. In the Old Town, for example, the majority of the buildings are traditional in style, brick built, original and historical buildings. Developers should take this style into account and use it as a guide when deciding on the detailed design specifications of new buildings or structures. In new developments the Council will favour an innovative design approach other than pastiches appropriate to the new town. Materials can be innovative and contemporary but should relate to the existing palette of colours and textures.

The use of locally sourced materials can be an effective way of retaining local distinctiveness. This will reduce the impacts of transportation on the environment, thus conforming to sustainability objectives. It can also reduce development costs. Environmentally friendly materials provide an alternative option to this, although these may present an additional cost to the developer.

Materials can also be used to ensure the minimum standards set by the Code for Sustainable Homes are met. The use of high thermal mass materials, such as concrete floors and internal walls, for example, can be used to absorb and retain solar heat during the day.

Windows and doors generally look better when arranged symmetrically. However, random arrangements can be appropriate when they form part of an organised and distinctive effect, and when they fit in with the surrounding character of the buildings



More contemporary building style; clean horizontal lines and unusual building style gives a modern feel to the building.

Chimneys are often omitted on new developments, as they are commonly no longer necessary for functional use. However, design features such as this can help to create varied and interesting rooflines, and can provide a visual connection with the architectural style of the existing area.

Boundary fences, parking provision and landscaping should also be in-keeping with the surrounding area. Careful attention should be paid to decisions such as whether fences or hedgerows should be used, whether paving a currently green area would cause it to stand out unacceptably, and where parking provision should be made.

These need to be thought about at the initial design process, as they can all make a significant difference as to whether a building fits in with the surrounding context of the area or not, and whether a place is successful.

5.5 NOISE

Noise is an unavoidable part of our lives. However, it can have an adverse effect on peoples' quality of life and exposure to unwanted noise can affect our health and welfare.

In relation to noise control, prevention is better than cure. Protection against noise in the construction, design and layout of residential developments is essential to ensure that existing or future residents are not subjected to unacceptable levels of noise in their own homes. The likelihood of noise affecting future residents is a key factor in assessing the suitability of a site for residential use.

Ideally, residential development should be restricted to areas with low ambient noise levels. However, an inflexible approach would inhibit regeneration and development and place more pressure on green-field sites. Although there will be sites in the Borough that are not suitable for residential use, it is important to utilise noise control measures in order to make residential development feasible, wherever possible, to maximise the potential of previously developed land.

Solutions to acoustic problems can be technically complex and expensive and, in all but small developments or particularly quiet locations, it is likely that specialist advice will be required from acoustic consultants. Delaying contact with such specialists until later in a project may result in avoidable additional costs being incurred at the design and construction stages.

NOISE EXPOSURE

The following advice should be followed for all residential development, in areas where internal or external noise is a factor.

Where it is unlikely that residents will be able to keep windows open or sit on/in a balcony/garden without being bothered by one or more external noise sources, such as traffic, industrial noise or customers of entertainment venues, noise will be a material planning consideration. Under these circumstances a noise survey will be required.

New residential dwellings, exposed to noise from existing sources, will be assessed in accordance with national guidance¹¹, and

¹¹ PPG24: Planning and Noise.

BS8233¹². National guidance assesses sites according to various noise exposure categories set out in an annexe of that document. This guidance takes account of this guidance, but also considers local circumstances.

When assessing a proposal for residential development which is exposed to existing environmental noise, the Council will use Annex 1 of PPG24 to determine which of the four Noise Exposure Categories (NECs), A to D, the proposed development site falls into, taking account of both day and night-time noise levels.

It is likely, after following this procedure, that many sites within the Borough, suitable for new housing, will be exposed to existing noise levels contained within, or on the boundary of, NEC B or C. The application will therefore require proposals to achieve acceptable internal noise levels. Ideally, these internal levels will be achieved with windows open. However, on some potentially noisy sites in the Borough, an alternative means of purge ventilation will be required.

Where internal noise levels can only be achieved with closed windows, developers will need to demonstrate that all other mitigation measures have been exhausted to reduce external/internal noise levels.

In addition, garden areas shall be assessed to ensure that they are usable and not unduly impacted upon by noise. Ideally noise levels in these outside amenity areas shall not be above the range 50 - 55dBLAeq (16hour). To achieve this level of exposure to existing noise it may be necessary to provide amenity areas carefully sited away from noise-exposed facades and/or the provision of acoustic screening. The assessment of the noise exposure of outdoor amenity space shall be included in a noise survey report.

In the case of flatted developments with communal amenity areas near to existing significant transportation noise sources, external noise levels in excess of these levels may be considered acceptable. It would not, however, be appropriate for private gardens to have external noise levels in excess of these levels.

It may be possible for sites exposed to higher levels of transportation noise to have a mix of flatted development and housing, providing the flatted dwellings face the noise source and provide a barrier to the rest of the development site.

Measures to mitigate external noise affecting noise sensitive developments include screen fencing, vegetation buffers, insulation in the walls and roof, the use of double glazing in windows and the use of intervening buildings or structures, such as garages.

¹² BS8233: 1999: Sound Insulation and Noise Reduction for Buildings - Code of Practice.

However, these measures can become expensive and the issue of affordability must be considered.

Engineering solutions can reduce the impact of noise at the point of generation as well as limiting the noise within the building. The layout of the site and building layout, including screening and buffering, can mitigate against noise, as can limiting the operational hours and restricting activities that can occur on site.

REDUCING THE IMPACT OF DEVELOPMENT NOISE

Development noise should be either mitigated on site, or hours of work will be limited during the construction period.

ADDITIONAL GUIDANCE

For further information and more detailed guidance, the following documents should be consulted:

- “PPG 24 - Planning and Noise” Department of the Environment, 1994.
- “BS 8233 - Sound insulation and noise reduction for buildings – code of practice”, 1999

Or, alternatively, the Environmental Health Department can be contacted on 01438 242242.

5.6 WASTE AND RECYCLING

It is important that provision is made for the storage and collection of waste from a site. Waste storage should be designed into all new developments, and any extension to an existing dwelling should not remove waste storage facilities.

The visual impact of these areas should be minimal. Appropriate screening should be used to disguise these facilities, where necessary.

Waste storage should also be designed so that bins can be moved easily and safely to the collection point. The collection point must be located near a road which provides easy access for refuse vehicles.

Facilities for recycling and composting should follow the same principles as above, with minimal adverse impact on the surrounding area. They should ideally be located in close proximity to waste storage facilities, for ease of use.

5.7 ENERGY EFFICIENCY AND RENEWABLE ENERGY

All developments are required to make efforts to minimise energy usage and to incorporate methods of using renewable energy, where possible. The basic principles which should be followed are:

Reduce energy demand

Use passive environmental systems, e.g. natural ventilation, daylighting and passive solar gains;

Use high levels of insulation and air tightness in the fabric of the building;

Specify energy efficient services, controls and appliances;

Implement water recycling and the provision of water butts.

Use renewable energy

Use low/zero carbon technologies to provide as much of the energy load as is technically and economically feasible.

Minimise use of fossil fuels

Use efficient fossil fuel technologies, such as Combined Heat and Power and condensing boilers.

These principles of sustainable development are explained in greater detail in Chapter two.

5.8 BUILDING FOR LIFE

For major housing schemes, the nationally recognised Building for Life criteria should be used to assess their functionality, attractiveness and sustainability. This is a national standard for well designed homes and neighbourhoods. It promotes high quality design, as well as celebrating best practise in the house building industry. Building for Life is a partnership between several national agencies, led by CABI and the Home Builders Federation.

A Building for Life assessment scores the design quality of planned or completed housing developments against the 20 Building for Life criteria. These criteria are a series of questions listed under four topic headings:

- Environment and community;
- Character;
- Streets, parking and pedestrianisation; and
- Design and construction.

All new housing schemes should be evaluated against these criteria. Formal assessments can also be carried out by an accredited Building for Life assessor. The list of criteria is attached as an appendix to this guide.

Chapter Six: Design Standards for Residential Extensions

Although some extensions are permitted development, others may require both planning permission and building regulation approval. All applications for extensions and alterations will be considered on their individual merits. It is important that extension proposals respect the size, height, materials, features and layout of the building concerned, as well as the surrounding buildings. Extensions should be built so that, as far as possible, they look like a part of the main building rather than an obvious addition to it and should not adversely affect the amenities of occupiers. To achieve this, the following principles should be applied:

6.1 GENERAL CONSIDERATIONS

For all types of extensions, the Council will assess the impact upon:

- The appearance of the existing property
- The amenity of neighbours
- The character and appearance of the surrounding area

This guidance is relevant, even where planning permission is not required, as poorly designed extensions can spoil the appearance of a house, significantly alter the street scene, and have a detrimental effect on neighbouring properties. Extensions should follow the design of the original house and the following need to be considered:

SCALE

Generally, the extension should appear subservient to the original house; smaller in width, height and depth than the existing property, but still using the same scale and proportions.

BUILDING DESIGN AND MATERIALS

Building features such as windows, roof pitches, overhangs, gables, chimneys should all be consistent with those of the existing property. If the roof of the main building is pitched, for example, then the extension should have a pitched roof, at the same angle.

However, this does not mean that contemporary design will not be acceptable, providing it respects local character and does not detract from the original building.

The materials used should draw on the colour, type and texture of those used for the original house. Detailed guidance on materials contained within section 5.4 of the previous chapter should also be followed in all cases.

PRIVACY AND OUTLOOK

Extensions should be designed and orientated in relation to that of neighbouring properties so that they do not adversely affect the outlook from neighbouring dwellings or result in any significant overlooking to neighbouring houses and gardens. The minimum separation distances set out in respect of new dwellings will be equally applied to proposals for extensions:

No of Storeys	Type of Separation	Min. distance (metres)
Between existing and new 2 storey or a mix of 1 and 2 storey dwellings.	Back to Back Back to Side	25m 15m
Between new 2 storeys or a mix of 1 and 2 storey	Back to Back Back to side	20m 12m
Over 2 storeys between existing and new dwellings	Back to Back Back to Side	35m 25m
Between new dwellings over 2 storeys in height.	Back to Back Back to Side	30m 20m

SUNLIGHT, DAYLIGHT AND OVERSHADOWING

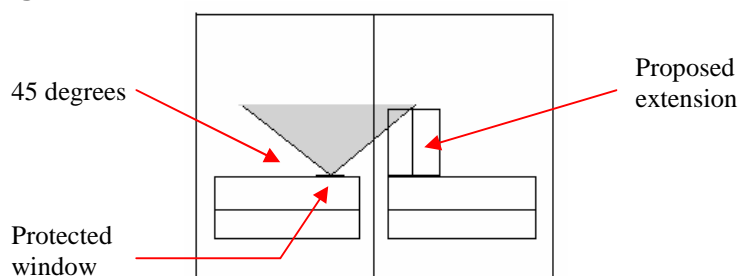
Extensions should be designed to ensure that a satisfactory level of sunlight and daylight is provided for the occupants of both existing dwellings and those adjoining or nearby. Where there is doubt that adequate sunlight and daylight will be achieved, indicators will be used to assess the amount of light reaching a new or existing window.

The Building Research Establishment (BRE) guidelines "Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" (1991) will be used which provides guidance on acceptable levels of daylight and sunlight within existing and proposed developments. The indicators will not be applied to all schemes but only to those where there is doubt that adequate lighting may be achieved. This can be established by undertaking a 45 degree test or a simple "25 degree rule of thumb" test using the BRE guidelines.

The 45 degree test

This rule applies to all types of dwellings. Firstly consider the plan layout of the proposed extension (see drawing A below). From the mid-point of a neighbour's protected window project two lines at 45 degrees from the centre of the window.

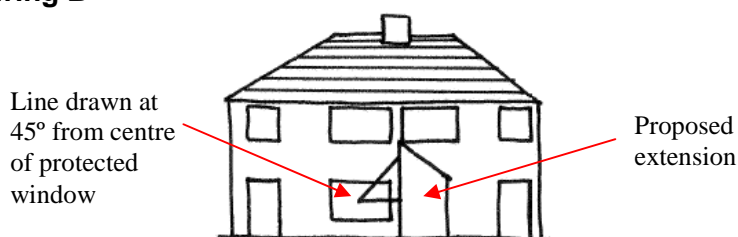
Drawing A



TEST 1 - the proposed extension should not project beyond the '45 degree line' into the neighbour's protected area.

Secondly consider the elevation of the proposed extension (see drawing B below). From the centre of the neighbour's protected window draw a line at 45 degrees to the horizontal.

Drawing B



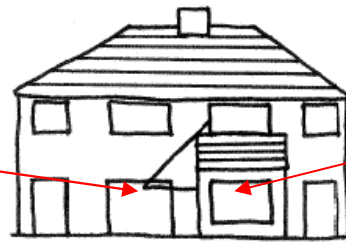
TEST 2 - no part of the proposed extension should encroach beyond this 45 degree line.

Extensions that fail both 'tests' will need to be assessed against the BRE sunlight and daylight guidelines.

Note. If the 'protected window' is a floor to ceiling window (e.g. patio doors) then the 45 degree line is drawn from a point on the horizontal centre of the window at 2 metres above ground level - see drawing C below.

Drawing C

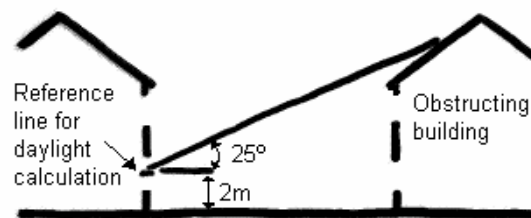
Line drawn at 45°
from centre of
protected window at
point of 2m above
external ground



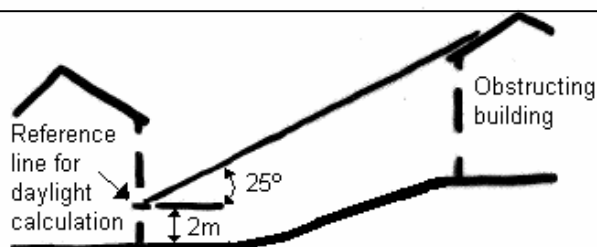
Proposed
extension

The 25 degree test

From a point 2 metres above ground level at the horizontal centre of the protected window draw a line perpendicular to the window and at an angle of 25 degrees to the horizontal (see the drawing below). If the proposed extension cuts this line then it is likely to interfere with the diffuse skylight enjoyed by the existing building. This being the case the proposed extension is likely to cause problems of loss of light and it will be necessary to undertake a detailed sunlight and daylight assessment.

BRE Guidelines: 25 Degree Test

Section in plane perpendicular to the main face of the building.



On sloping sites overshadowing is more of a problem and greater spacing is required to obtain the same access to daylight for buildings lower down the slope.

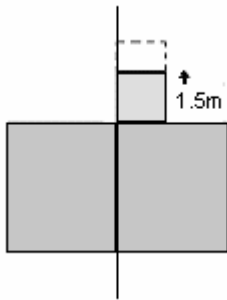
GARDEN SIZE

If proposals for extensions result in the loss of garden space, the Council will ensure that a reasonable private garden area commensurate with the size of the property is retained to serve the dwelling.

LANDSCAPING

Proposals for extensions should not result in the loss of attractive trees or hedgerows. Where it is necessary to remove landscaping, appropriate replacements will be sought. This will help to maintain biodiversity in line with sustainability objectives.

6.2 FRONT EXTENSIONS



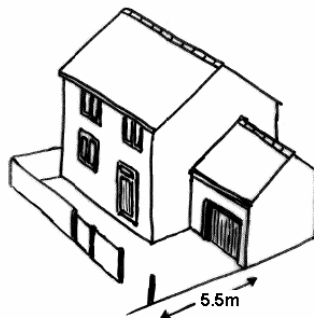
Extension is within the 1.5m criteria for a front extension which abuts the boundary of another house.

Generally, modest single storey front extensions will be acceptable subject to the following criteria:

a) Where the extension to a semi-detached or terraced house would abut the boundary of another house, it should normally project no more than 1.5 metres. A further distance may have detrimental effects on outlook from and light to neighbouring properties. A greater projection may be acceptable for detached houses.

b) The shape and projection of the extension should not be over-dominant in views along the street or destroy the harmony or balance between existing houses. It should not affect the architectural integrity of groups of homes.

c) The extension should not reduce the amount of parking space available on the site below the Council's adopted maximum standards specified in the Vehicle Parking SPD. Where the extension incorporates a garage it should ensure a minimum distance of 5.5 metres between the garage doors and the back edge of the footway, so that a parking space is retained.



This garage extension ensures enough space is retained to incorporate a parking space.



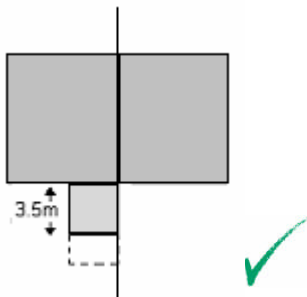
It is also important that if any hard standing is added/rebuilt it is created using permeable materials, as specified within the principles for sustainability set out in chapter two.

The addition of a porch to a property generally falls under permitted development. However, where planning permission is required it will be subject to the same criteria as front extensions, listed above. The entrance to a house is its focal point; therefore the addition of a porch can have a significant effect on a property's appearance. On semi-detached and terraced houses in particular, the porch must be carefully designed so that it follows good examples from other properties along the street and is in keeping with the design of the dwelling. Porches must also not be located too close to windows as this can destroy the look of the property.

Two storey front extensions will generally not be acceptable, as they are likely to have a significant impact on the street scene, as well as seriously affecting the outlook and light of adjoining properties. In circumstances where these impacts will not occur, a two storey extension may be approved.

6.3 REAR EXTENSIONS

Rear extensions generally have the least impact, as they do not usually affect the street scene. They can often, therefore, be the simplest way of extending a home. The most important factors to consider when assessing rear extensions are the length and height of the extension and its proximity to the neighbouring property.



Extension is within the 3.5m criteria for single storey rear extensions within 1m of the side boundary.

SINGLE STOREY REAR EXTENSIONS

Often, single storey rear extensions do not require planning permission; particularly if there have been no previous extensions on the original property.

This type of rear extension will be acceptable providing the following criteria are met:

- a) On terraced or semi-detached dwellings, or where detached houses stand very close together, extensions within 1 metre of the side boundary of the house should not exceed 3.5 metres in depth.
- b) Side windows will not normally be permitted where they would cause overlooking of the adjoining property and subsequent loss of privacy.
- c) Where a flat roof is proposed this should not be designed for use as a balcony.



Single storey rear extension has minimal impact on neighbouring property.



Two storey rear extension causes high level of overshadowing for neighbours.



Two storey extensions on adjoining dwellings. Overshadowing is now only created by the owners' extension.

TWO STOREY REAR EXTENSIONS

Two storey rear extensions usually have a greater impact on adjoining properties and the appearance of the area. These will only be permitted where the following criteria are met:

a) On terraced or semi-detached houses extensions within 1 metre of the side boundary of the house should not project more than 2.5 metres. On detached houses the degree of separation from the adjoining house will be taken into account.

c) Side windows will not normally be permitted except for high level windows which have a lower sill level of at least 1.7 metres above the internal floor level of the room which they serve.

BOTH SINGLE AND TWO STOREY REAR EXTENSIONS

a) Exceptions to the above criteria may be made when joint or simultaneous applications are made by applicants in adjoining dwellings, or where adjoining properties have been extended already.

b) Where the existing houses are in a staggered line, the depth and width of the extension should be reduced to compensate.

c) Where the extension would be to the south of a neighbouring dwelling or changes in ground level increase the apparent size or impact of the extension on light and outlook, the depth and or width of the extension must normally be reduced to compensate.

6.4 SIDE EXTENSIONS

Extensions to the side will be considered in the light of the same criteria as front and rear extensions in terms of their projection forwards or backwards relative to adjoining dwellings. Special account will also be taken of the following criteria:

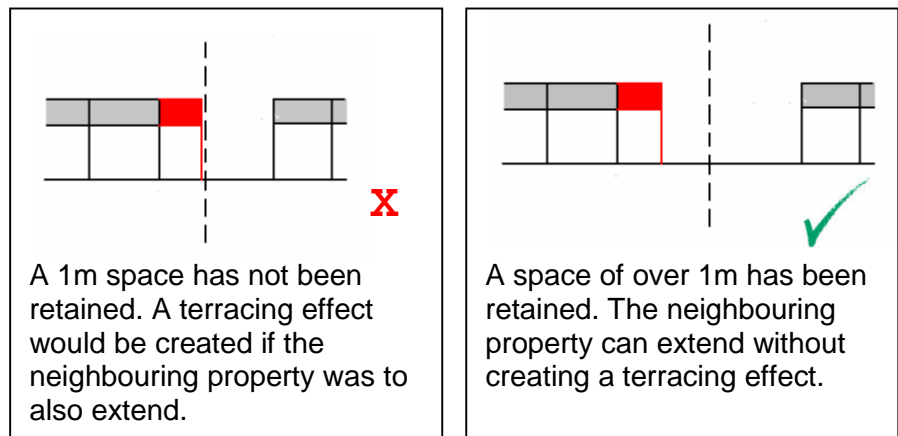
a) The importance of the space between houses in establishing the character of the area and the need to prevent a cramped appearance. A terraced appearance should not be created, and the rhythm of the street should not be compromised.

b) The introduction of overlooking windows over a previously private area of an adjoining dwelling will not be acceptable.

c) Where the side extension would come closer to a road or footpath it should not be overbearing or create an alleyway effect and should respect the context of the street scene.

d) In certain circumstances, for two storey side extensions, it may be appropriate for the first floor element to be set-back from the front elevation to reflect the rhythm of the street scene and maintain the character and appearance of the area

d) In two storey extensions a space of at least 1 metre must normally be retained between the new side wall and the boundary of the site to prevent a terracing effect and to prevent an extension to one dwelling removing the ability of the adjoining property to similarly extend.



6.5 ROOF EXTENSIONS



Rooflights often offer a favourable lighting solution. However, these rooflights are not in line with existing windows, and are uncoordinated in terms of size and style. ✓ X

The use of the existing roof space of a dwelling can allow previously underused space to become available for use as additional habitable accommodation, such as bedrooms or studies. The conversion of the roof space of a house normally does not require planning permission if no extension of the roof is necessary. Roof extensions which project beyond the plane of any roof slope which forms a principal elevation and fronts a highway or which increase the height of the roof above the existing ridgeline will require planning permission. Similarly, roof extensions to dwellings located within a conservation area will require planning permission.

The addition of dormer windows can have a significant effect on the appearance of a property, as well as impacting upon the street scene as a whole.

Light and ventilation can often be provided by rooflights; these are less visually intrusive, reduce overlooking problems, and are also normally permitted development.

Where a roof alteration is proposed, the following criteria should be applied:

a) The extension should not extend above the existing ridgeline and must be kept as low as possible

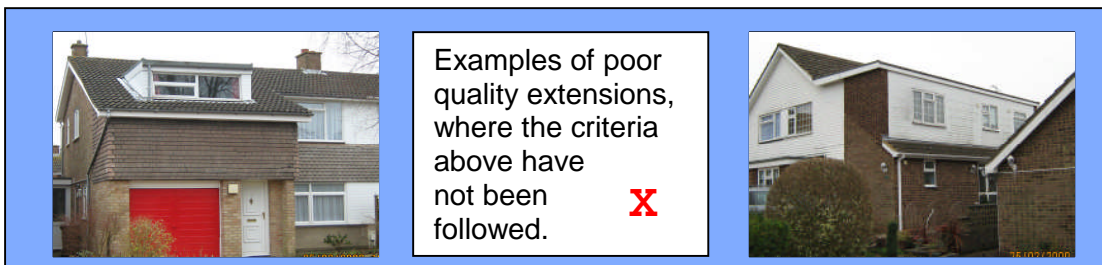


Dormer windows work well here, they do not over dominate the roof, line up vertically with the existing windows, and are of a consistent style and size.

Below, the flat roof dormer is visually intrusive and does not follow the principles of good design.



- b) No extension should extend over more than half of the roof slope.
- c) In order to preserve the original roofline and proportions of a building, no extension should extend off the main outside walls of the house. A minimum 500mm wide area of original roof should be retained at the bottom and both sides of the dormer.
- d) The roof extension should not extend below the height of the new window sills.
- e) The raising of the ridge height of a dwelling to accommodate a loft conversion will normally be considered unacceptable.
- f) In terraced houses the visual impact of a new extension on the appearance of the block can be greater. The proposal must not threaten the integrity of the group or the street scene. The introduction of such extensions, where there are no other examples within the street scene will be discouraged.
- g) The shape and size of the windows should reflect the proportions and finish of windows in the house, as well as lining up vertically with the fenestration on the property.
- h) The new windows should not introduce overlooking of windows or private open space of adjoining houses or increase such overlooking unreasonably. In exceptional circumstances, windows containing frosted glass and permanently fixed closed may be acceptable.
- i) Where possible dormer windows or roof extensions should be designed with a pitched roof. Large flat-roofed dormer windows proposed in houses with pitched roofs will generally not be acceptable.



Examples of poor quality extensions, where the criteria above have not been followed. **X**



Appendix 1: Building for Life Criteria

The Building for Life criteria are a series of 20 questions which are used to evaluate the quality of new housing developments:

Environment and community

01. Does the development provide (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafes?
02. Is there an accommodation mix that reflects the needs and aspirations of the local community?
03. Is there a tenure mix that reflects the needs of the local community?
04. Does the development have easy access to public transport?
05. Does the development have any features that reduce its environmental impact?

Character

06. Is the design specific to the scheme?
07. Does the scheme exploit existing buildings, landscape or topography?
08. Does the scheme feel like a place with distinctive character?
09. Do the buildings and layout make it easy to find your way around?
10. Are streets defined by a well-structured building layout?

Streets, parking and pedestrianisation

11. Does the building layout take priority over the streets and car parking, so that the highways do not dominate?
12. Is the car parking well integrated and situated so it supports the street scene?
13. Are the streets pedestrian, cycle and vehicle friendly?
14. Does the scheme integrate with existing streets, paths and surrounding development?
15. Are public spaces and pedestrian routes overlooked and do they feel safe?

Design and construction

16. Is public space well designed and does it have suitable management arrangements in place?
17. Do the buildings exhibit architectural quality?
18. Do internal spaces and layout allow for adaptation, conversion or extension?
19. Has the scheme made use of advances in construction or technology that enhance its performance, quality and attractiveness?
20. Do buildings or spaces outperform statutory minima, such as building regulations?

