

## **Creating the Design**

### **Step 4** - Getting the detailing right

## 2.4 GETTING THE DETAILING RIGHT

### 2.4.1 Public realm: the spaces between buildings

Public realm is the streets and open spaces that make up the area between buildings. It can create an environment where people come together to meet or sit down, or simply form an attractive walking route. The quality of detailing, including choice of materials, street furniture, lighting and signage (*and their maintenance*) all send out a message about the character of a place and whether it is a safe and hospitable environment.

Streets are places in their own right and not just movement corridors; they should be designed as a cohesive component of the buildings that front them. The best public realm follows the same rules as a well designed highway network:

- The hierarchy of routes and spaces is easily identifiable through the scale and proportion of the space or street, the degree of privacy/visibility and selection of materials and street furniture
- Nodes of activity are created that are easily identifiable and offer places to sit down as well as space for children to play
- Routes reflect natural desire lines between destinations
- The design and detailing reinforces local character and identity
- Street clutter is avoided

English Heritage 'Streets for All – South East – 2005' provides detailed guidance on the design of the public realm ([www.englishheritage.org.uk](http://www.englishheritage.org.uk)).

#### Public art

*Public art is encouraged in development proposals and planning for its provision should be an integral part of the design process.*

Works of art on existing and new buildings or within developments can be a potential means of improving the quality of the environment. Distinctive works of art can contribute to and enhance the creation of a sense of place and local identity.

*Successful public art will:*

- engage with the public and develop their understanding and appreciation of these works
- involve educational projects and promotional activities
- encourage collaboration and partnership with both public and private sector organisations, and between arts organisations.

The provision of public art will vary according to the nature of the proposal and its location. There are layout and detail design implications in making provision for public art, which need to be embedded in the development process from the beginning rather than as an add-on.

Suitable locations for public art might include public open space, key gateways to districts, arrival points within towns and villages and integral parts of buildings and structures themselves.

*Public art might be found in:*

- new infrastructure - for example within the design of roads, viaducts, bridges and public utilities structures
- landmark buildings - with public access such as retail centres, civic buildings, stations, ports, schools
- new and existing public areas - enhancing streets, open spaces, cycle ways, bridleways and footpaths with, for example, signage, street furniture, paving and lighting
- new landscaping - using land form and planting
- temporary or moveable structures – for example on construction site hoardings or moveable light shows

Development of larger sites that could accommodate a series of public art pieces should have a strategy for their location, design and commission. There are a number of ways to achieve this including art masterplans, public art strategies and policies included within local plans, local development frameworks, development briefs and community participation programmes. It is recommended that specialist public art consultants are engaged at an early stage to develop such strategies.



**Public art.** Individual pieces of public art can lift a public space and form a focal point. The most successful public art relates to the history or character of its location. At Kings Hill (top left) the figure of a pilot represents the site's previous use as an airfield and serves as a memorial to those who served there. At St Mary's Island Chatham (above) a large scale sculpture celebrates the site's long history as a naval dockyard. Chummeys's Folkestone (left) this fish stall was designed and built following a competition and incorporates seafood and seafaring motifs throughout. A mosaic produced by school children enlivens this blank frontage in Snodland (far left).

## Street Furniture

*Good quality street furniture including seating can play an important part in creating the character and enhancing the function of a place.*

Designers should always avoid street clutter. This includes new types of street furniture such as electronic surveillance and security equipment, speed cameras, etc. It is all too easy to spoil sensitive urban and village environments by over-engineered solutions. Reference should be made to guidance from English Heritage 'Streets for All – South East – 2005' provides detailed guidance on the design of the public realm ([www.englishheritage.org.uk](http://www.englishheritage.org.uk)).



In addition to street lighting columns and sign posts, items such as railings, bollards, service kiosks, substations, etc., that need to be included require careful consideration as to their necessity and to location. It is unacceptable for these to be an afterthought imposed onto a layout with no regard to the overall design. Service providers should be consulted at an early stage so that requirements can be properly integrated. Street lighting can produce unacceptable levels of street clutter. Wherever possible, lamps should be fixed to walls.



**Street furniture.** *Distinctive and individual street furniture can greatly enhance the street scene.*

*Above. Dover. A new sea front shelter provides a memorable landmark and takes its inspiration from a more traditional example.*

*Top right. Electronic surveillance need not be obtrusive. A CCTV camera in Broadstairs installed in a traditional street lamp.*

*Middle right. Benches provide resting points when sensibly placed within public spaces or on well used pedestrian routes.*

*Bottom right. Dramatic new structures bring new life to public open space but should be robust and relatively maintenance free (Maidstone)*



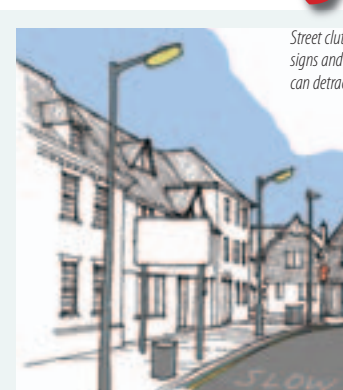
## Signs

*Signs should only be provided where they are absolutely necessary.*

In a legible place with a strong sense of character there should be little or no need to direct people or to warn them against the unexpected. In rural areas through signing should be avoided if this is likely to encourage rat-running. Tourist destination signs will help visitors locate attractions but should be located only on appropriate routes.

Where signs are considered essential or are a legal requirement, designers should carefully consider their size, type and siting and possible contribution to 'visual clutter' in order to ensure that they detract as little as possible from the quality of the place. The number of sign posts should be minimised by attaching signs to lamp columns and walls or to existing signposts provided that this does not result in clutter. If proposing wall-mounted street furniture, consider the location and design of supply boxes, cable runs and access for maintenance.

Street name plates should be in keeping with the locality and, where possible, should be mounted on buildings or walls. (*The naming of new streets is dealt with by local councils*).



Street clutter caused by street furniture signs and public utilities infrastructure can detract from 'sense of place'



A comprehensive approach to traffic management, location of utilities and the sensitive location of street furniture can protect and enhance an area's 'sense of place'



Co-ordinated signage. Commercial schemes and street improvements offer the opportunity to think comprehensively about a range of signage. Co-ordinated designs will enhance public space (Right and below right, Whitefriars, Canterbury and Bluewater).



## Lighting

*High quality lighting is fundamental to safety and can lift environmental quality in terms of the illumination and the design of the lighting equipment itself. Development should result in a high quality public realm with streets and public spaces that enhance sense of place.*

Carefully considered or innovative lighting can enhance buildings and outdoor spaces by highlighting architectural features and displaying form, materials, colour and texture. Lamp-posts can be a feature, reinforcing the identity of an area or creating a gateway. It helps to reduce crime levels including arson. Lighting will generally be required in all urban public areas. A lighting strategy should be prepared as appropriate. Provision should be made for maintenance access for lighting fixed to buildings.

Fear of personal crime often results in people staying off the streets after dark. The separate lighting of public areas, particularly footways and cycleways where these are segregated from the carriageway, can do much to ensure the safety and security of pedestrians. There is a direct correlation between the quality of lighting and the levels of casual vandalism. An appropriate overall level of street lighting for carriageways, footways and footpaths will help reduce the need for intrusive and high energy-consuming security lighting. Adequate access must be allowed for maintenance. Design specifications for lighting are contained in the technical specifications produced to accompany this guide and in 'A Guide for Crime & Disorder Reduction through a Public Lighting Strategy (Institution of Lighting Engineers 1999).

Lighting should be regarded as an integral part of the design rather than being purely to illuminate the highway and superimposed onto the layout at a later date. Lighting should be for people and particular care should be taken to ensure that places are well lit for pedestrians.



Street lighting around the harbour side in Folkestone. The distinctive lamp column designs are co-ordinated with a range of street furniture and reflect the maritime heritage of the site (Shepway District Council and Kent County Council).



## Street lighting

*The design and performance of street lighting needs to relate to the function of the space being lit.*

Lighting should generally be provided by overhead street lamps. To minimise clutter, these should be attached to buildings wherever possible. However illumination from lamps that are lower in height can meet the needs of pedestrians, minimise light pollution and spillage, and be attractive in their own right.

Light pollution has become a prominent environmental concern and the subject of advice in 'Guidance Notes for Light Pollution' (Institution of Lighting Engineers, 2000). External lighting should be integrated with the fabric and character of the environment and based on the needs of users, the location, the space and the activities to be lit. Skill and careful planning can avoid overpowering lighting or inappropriately large equipment. Many dwellings in sensitive locations have minimal external lighting. These locations are not necessarily rural; they can include streets or districts within towns and villages where light levels have traditionally been low. External lighting should be positioned to avoid light penetrating bedroom windows.

*Right, Lamps mounted on the sides of buildings reduce the amount of street clutter and are particularly effective in narrow historic streets or intimate new spaces. (Sandwich)*

*Above and far right, a comprehensive approach to district lighting in Gravesend shows how effective a lighting strategy can be in making public spaces attractive and safe. High Street is lit by conventional street lamps and unique lighting blocks in specially designed gateway features. Low energy lighting brings an historic facade to life at night (Gravesend Old Town Hall and High Street, Gravesend by Urban Projects).*



## Services

### *All services should run below ground in common trenches.*

Where possible, service and drainage runs should share common trenches to minimise disturbance to the site around the buildings, and be sited under verges and service strips rather than roads or footways. Dimensions for the relative location of service and drainage pipes in a common trench can be obtained by reference to the Highway Authority. Proposed private foul drains that affect proposed or existing highways should be discussed with the Local Authority.

Services and drainage runs should be located in such a manner as to:

- (a) prevent damage to the root system of any retained tree including those along highways and in paved areas
- (b) be on routes which avoid areas reserved for new tree planting. Service runs should not be located within tree root spreads, but where absolutely unavoidable and in exceptional circumstances, there is provision for moling services within tree spreads (*BS5837 (Trees in Relation to Construction)* and *NJUG10 (Guidelines for the planning, installation and maintenance of utility services in proximity to trees)*).

## Service Runs, Sub-stations and water pumping stations

### *Detailed planning applications should indicate main service runs (water, gas, electricity, telephone and television) and drainage runs.*

Where public utilities require sub-stations, their enclosures should form an integral part of the overall layout, using the same type of walling or fencing as elsewhere in the development. Where they can be overlooked from a higher level they should be roofed over if possible, or screened by planting.

Rectangular manhole covers in paved areas should be placed parallel or at right angles to the line of the path or paving. They should not straddle two different paving materials, nor should they be closer than 100mm to the edge of the paving. Covers should never be positioned partly within a paved area and partly in a grassed or planted area.

When in sloping surfaces, whether paved or not, manhole covers should be laid parallel to the slope, to ensure an unobtrusive appearance and to ease maintenance.

## Mobile phone masts

The Mobile Operators Association (MOA) have published ten best practice commitments to help address concerns relating to the siting and design of mobile phone masts or 'radio base stations'. Launched in 2001, the aim of the Ten Commitments is to provide more information to the public and local planners including a commitment to involve the community in the siting of radio base stations. A copy of the best practice note 'Developing Mobile Networks - Ten Commitments to best siting practice' can be found at [www.mobilemastinfo.com](http://www.mobilemastinfo.com).



*Masts can be designed to blend in with the surrounding landscape. This mast is clad in timber and sited within a heavily wooded area.*



*Top, a manhole cover showing how paving can run across the top within a recessed cover.*

*An enclosure for river navigation equipment on the Thames in London. Design and materials used make this an attractive building rather than a utilitarian structure.*



*Above, where existing paving is disturbed to allow for the installation of services it should be reinstated with the original or closely matching materials, particularly in the case of traditional brick, stone, stone setts and cobblestone pavings.*

## 2.4.2 BUILDING DESIGN

*The most successful buildings and places are the result of careful attention to detail, including the choice of materials.*

### Style

New design should avoid the confused application of architectural styles or inappropriate historic imitation. Emphasis should be placed on the quality of the design solution, whether it is a reflection of a historic style or a contemporary approach. An applied veneer of cladding in a traditional material can weaken the integrity of the building. This form of design often lacks the detailing or sense of scale of the original and imitations offer a poor copy. Details derived from local buildings should retain the scale of the original.

A modern house dressed up in 'period' costume is immediately obvious and merely devalues the original concept. Local constraints normally dictate the design approach, but there may be circumstances where freedom of design is possible. Infill developments will almost always be expected to harmonise with their context. Quality and detail of all materials and components will be of paramount importance. Such matters can easily be settled at feasibility stage through informal discussions with the Local Planning Authority.

**Historic building styles.** Domestic architecture in Kent relied, in part, on the availability of inexpensive sources of local materials. But along with distinctive 'Kentish' looking buildings, there are many building styles in Kent that could be found in the rest of the country.



**New Kentish vernacular** Top, at St. Mildreds Mews Canterbury, designers Clague have taken a vernacular look and re-interpreted it as a clean contemporary design. (Ward Homes)

Below, the same designers adopted a different approach to vernacular at Stonegate Place in Wye. Authentic detailing and careful use of materials make this scheme a seamless extension to an historic village centre.



**Local distinctiveness** Top, a former fisherman's hut in Dungeness has been extended to form an attractive modern beach house. Recycled materials have been used to give this a contemporary appearance in keeping with the black tar coated timber huts and cottages that surround it. (Architect, Simon Conder)

Above, this new house near Tunbridge Wells replaced an existing bungalow and is a unique response to the challenges of a multi levelled site. A more traditional form would have failed to capitalise on the site's topography. (MKA Architects)





## Attention to detail

New buildings and alterations to existing buildings need to be designed around the requirements of modern life. The arrangements of a building's services can have a fundamental impact on the layout of the building and its appearance in context. These include:

- **Roof top plant** – lifting gear, air conditioning units, ventilation and heating ducts
- **Telecommunications equipment** – satellite dishes, aerials, mobile phone masts
- **Ventilation** – vents for boilers or fan assisted room ventilation for bathrooms
- **Power** – internal sub-stations and generators, power plants, solar panels and wind turbines and externally mounted meters



*At Bluewater, building services create a distinctive silhouette inspired by the classic Kentish oast house coving. (Lend Lease)*



*Air vents, close attention to material specification can lead to attractive and distinctive features instead of 'off the peg' solutions.*



*Telecommunications masts compete with church spires and towers as skyline landmarks (above). New buildings need to be designed from the outset with the location and appearance of mechanical and electrical plant in mind. (top)*



*Above, conversions to other uses presents the challenge of accommodating important plant within buildings that were not designed for their new purpose.*



## Colour

*Colour of materials and finishes should be carefully considered as an integral part of the character of new development and should be used to complement and enhance the site's context.*

Colour, both of materials and as applied, makes an important contribution to the character of buildings, groups of buildings and their setting and may be subject to planning control – particularly on listed buildings and in conservation areas.

With the exception of black and white, harsh contrasts of colours should be avoided. Care should be taken to blend the colours of new developments into the existing context. The most successful colours are generally variants of those found naturally in Kent's building materials such as browns, earth reds and creamy sandstone or flint grey, perhaps with a complementary colour applied to details (*doors, windows, and rainwater pipes*). There are exceptions to this in Kent, particularly the pinks, blues and yellows in the architecture of some coastal towns. Colour does not have to be bound by tradition but careful consideration should be given to context and to the shade, intensity, reflectiveness and area of coverage of the colour.



*Top. Gravesend High Street. The colours used in this infill scheme help it blend seamlessly into the strong existing street frontage.*

*Bottom left. Hextable Dance Studio. A distinctive modern facility uses colour to highlight the building entrance. (Architects Lee Evans Partnership)*

*Bottom right. Leybourne Lakes. A distinctive colour palette helps define the new area's character and strengthens legibility. (Berkeley Homes)*



## Building Materials

*Development should result in a palette of new materials that are attractive, durable and complement the character of the sites' context.*

The number of different materials used should generally be kept to a minimum - attempts to include brick, stone, render and timber in a single elevation are rarely successful. The roofing material can provide a unifying element when the tile or slate is of good quality and the walling material changes within a group of houses.

A series of designs using a variety of materials and colours to express individuality set side by side along a street will cancel each other out visually. In the event one will be no more or less noticeable than another. Individuality is undermined by the use of mass-produced materials and components and can only be achieved in the way a building is related to its site, to other buildings, and to the space enclosed.

### Building Materials & Local Character

Good quality design relies on the choice and combination of materials. This is crucial to the success of a scheme. A richness of design and texture can be achieved through careful detailing and use of materials, and through a fine balance between variety and uniformity in a building or development.

Materials and combinations of different materials used historically vary in different parts of the county. Using local materials reinforces the character and identity of an area whilst reducing the need for transport of materials. Depending on context, contemporary materials can be used to produce innovative and unique buildings and these are encouraged.

Materials for walls should conform to the dominant local character, colour and texture where these are of a consistent quality and type. The use of tile hanging, stained or painted boarding, render and brick varies across the county. These differences should be respected and used to reinforce local character.

The recycling or re-use of building materials, particularly tiles and bricks, can assist in integrating a development into its setting as can the use of new but traditionally produced materials sourced from local suppliers.

### Information on Materials for Planning Applications

Detailed planning applications must give precise descriptions of materials, whilst samples may be required by the Local Planning Authority as part of the application. Sometimes, as in areas intended for adoption, the Local Authority may instruct the use of a certain range of materials. This also applies to listed buildings and to conservation areas.

### Sustainable Materials

*The lifecycle environmental cost of construction materials and components should be considered, including their suitability for adaptation or re-use.*

*This should cover:*

- the costs of extracting raw materials
- the renewable nature of raw materials
- energy costs in the manufacture of materials
- the environmental costs of transportation to site.
- the ease of re-use and/or recycling

The Building Research Establishment (BRE) Green Guide and British Council for Offices Fit-out Guide provide relevant guidance.

Specification and procurement should consider:

- use of Forestry Stewardship Council (FSC) certified timber
- avoiding PVC
- low VOC paints, varnishes etc
- no CDS and low GWP insulation and coolant materials

‘Sustainable Settlements: a guide for planners, designers and developers (Barton, H. et al 1995)’ offers a good basic evaluation. The Building Research Establishment and the Construction Industry Research & Information Association can also provide more detailed data, and organisations such as the Forestry Stewardship Council provide information on sustainable sources of timber.



*Kent buildings use a variety of materials in their construction. Some materials are closely associated with the character of that area or building type. Contemporary materials can be successfully blended into such areas by careful selection and application. Texture and colour are important considerations in combining modern and traditional materials.*



## Building Alterations and Extensions

*The external fabric of new or altered buildings needs to be considered as a whole and all details affecting its design submitted for approval.*

For major alterations and extensions to buildings, the main principle is that the character of the building and surroundings must be maintained or improved by the work done. This is particularly important in conservation areas. Further detail is given in the Glossary/Advice Pages. Many Kent planning authorities also produce their own detailed guidance on this and the advice of the local planning office should be sought before embarking on a design.

## Alterations and Extensions to Historic Buildings

The restoration, modification or extension of any building requires a sympathetic approach and this is particularly the case with heritage areas including historic buildings and townscape. Even a seemingly minor alteration can be damaging to an individual building or group. Features and ornamental details are often important elements of character. But there may be scope for new additions or alterations to old buildings to be innovative if they remain sensitive to the original design and do not overwhelm it.

The conversion of historic buildings should always keep the characteristic features which give the buildings their identity and show their past use. This applies whether or not a building is 'listed' as a 'building of architectural or historic importance', or is located within a conservation area. This means, for example, keeping the cowls on oasts, the hoists and loading doors on barns, the bell cupolas and clocks on chapels and schools. New features necessary for the conversion must respect the character of the building. This means that the sweep of an original barn roof should not be broken by dormers or inappropriate roof-lights (*where sensitivity is needed in determining the location, size and number of openings*) and that oast kiln roofs should be left intact and the kiln brickwork only punctured by narrow windows.

The restoration of redundant rural buildings can benefit the local environment and economy. The merits of re-use are subject to considerations such as traffic generation and the impact on rural character.

*Proposals to alter or extend buildings need to be accompanied by good quality drawings showing how the original building will be affected.*



*This redundant 18th Century barn has been renovated and a new wing built to house an office. (Home Barn, Forum Design)*



*This former gymnasium at Deal Barracks has been converted into new homes with entrances facing onto a central atrium. The architectural integrity of this deep plan building has been preserved as a result.*



*This listed farmhouse has been extended with a contrasting modern design with a 'garden wall' creating a central courtyard space. (Iden Farm Cottage MKA architects)*



## Boundaries

*The boundaries to new development should clearly define the edges of the site and mark the division between public and private space.*

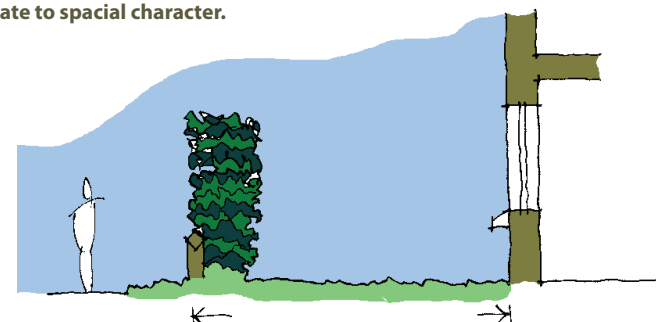
Many new developments are made less attractive by the use of unsightly boundary treatment. Boundaries work well where:

- Walls, railings and fences have a character appropriate to their location and should be selected with durability in mind, particularly on public boundaries.
- Their form varies according to their surroundings and to the degree of enclosure required.
- an existing wall, hedge or fence, which already gives an overriding form to an area is retained and incorporated into the new development.
- an existing watercourse is used as a boundary as well as a positive asset for the development. They should not be culverted, fenced-off or excluded from proper maintenance, unless required for safety reasons.

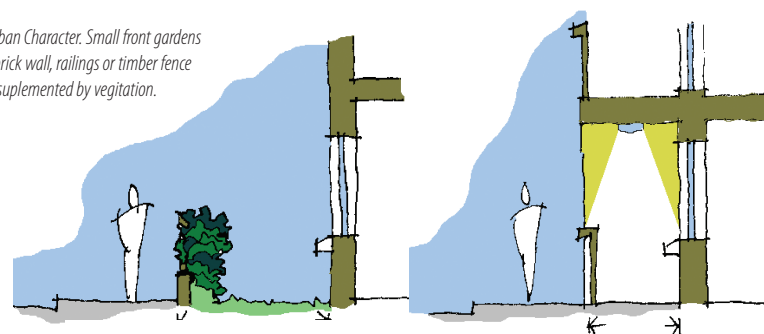


### Boundary treatments and their relationships to building entrances need to relate to spacial character.

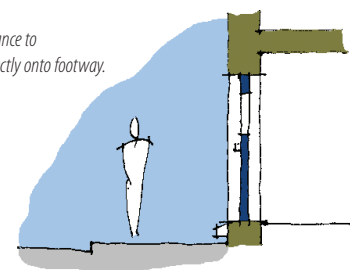
*Rural Character. Generous space for landscaping around buildings. Generally acceptable boundaries will be timber fencing and mature hedgerow.*



*Suburban Character. Small front gardens with brick wall, railings or timber fence often supplemented by vegetation.*



*Urban Character. Entrance to buildings opening directly onto footway.*



*Urban Character. Recessed porch with small area in front of entrance to building.*

### 2.4.3 WASTE MINIMISATION AND RECYCLING

*New development should incorporate facilities which encourage reuse and recycling.*

Communal facilities should be designed in at the outset.. Provision should be made for the storage of recyclable waste so that it does not deteriorate or become contaminated, particularly in the case of commercial operations. Dwellings should be designed with adequate refuse storage for disposal containers and for waste separation for recycling. Recycling collection points should not normally be more than 25m from the carriageway . Careful consideration also needs to be given to the security of litter receptacles for the avoidance of anti-social behaviour, arson, vermin and the creation of street litter.

The EC and UK Government are putting stringent reductions on landfill, and stressing that waste management must be sustainable. This has led to compulsory recycling targets for all authorities, plus a need to minimise the waste that households generate. All Councils are therefore running initiatives to reduce and recycle waste. This may entail different collections of recyclables, green waste and general refuse, with local collection cycles in place. Developers and designers must be very aware of which scheme operates in the area they are working, and early consultation with the Waste Collection Authority (*usually the Borough/District Council*) is essential.

*All new development, including homes, offices, industrial premises and shops must be designed to:*

- Encourage residents to minimise their waste through good design, and deal with what they do produce in a responsible manner.
- Provide adequate storage space for segregation of recyclables and general waste.
- Consider the routes for collection vehicles. Recycling collection points should not normally be more than 25m from the carriageway.
- Consider providing specific waste disposal facilities e.g. static recycling centres near to communal facilities in larger developments.
- Avoid opportunities for fly tipping, which has a significant detrimental environmental impact.
- Communal recyclable / refuse storage areas can be misused for dumping and as they are not the responsibility of any one household, lack of “ownership” does nothing to foster waste minimisation or recycling. Where it is necessary to include such areas (eg in the case of flats) they should be designed to encourage recycling.

Waste minimisation and recycling also applies to the construction process – Site Waste Management Plans should be produced to ensure this has been thought through at an early stage.

A design advice note on designing for waste management will be produced to accompany this guide.

Communal bin stores within apartment buildings and mixed use buildings need to be capable of being accessed by workers, residents and collection service alike.



Storage of waste for collection or recycling must not be left to chance.



An external, communal bin store in Ingress Park, Dartford. This attractively landscaped store is screened, but the paths to it are accessible and overlooked to provide security. (Crest Nicholson)

Recycling points should be encouraged within developments but need to be carefully located and managed.



A bin store for an individual house. If designed from the outset, these need not be unattractive afterthoughts.

#### 2.4.4 ENVIRONMENTALLY SUSTAINABLE DESIGN

*All development should contribute to a sustainable pattern of movement, economy, community well-being and use of natural resources.*

A sustainable approach to development requires that location, transport connections, mix of uses and community facilities, together with careful husbanding of land and energy resources all combine to produce social and economic benefits:

- healthier living and working environments
- improved efficiency and productivity in use
- reduction of fuel costs and the costs of vehicle ownership.

##### SEEDA Checklist

The South East England Development Agency (SEEDA) has produced a comprehensive checklist for use when planning or constructing all kinds of development including regeneration projects, housing estates, urban villages etc. The checklist is designed to be a flexible framework that can be adapted to the user's needs. It is aimed primarily at planners, developers and land owners.

The Checklist enables the user to identify good practice for their development by considering positive measures to reduce environmental impact and enhance social and economic benefits. The key issues are grouped under ten headings that represent the underlying principles of sustainability.

The checklist, provided on CD-Rom and on the web ([www.sustainability-checklist.com](http://www.sustainability-checklist.com)) is comprehensive and designed to ensure that all sustainability issues in a site's development have been addressed; it is not just a test.

#### Sustainable construction

The UK strategy for more sustainable construction, 'Building a Better Quality of Life' (DEFRA 2004), suggests key themes for action by the construction industry. These are:

- design for minimising waste
- lean construction
- minimise energy consumption in construction and use
- do not pollute
- preserve and enhance biodiversity
- conserve water resources
- respect people and the local environment
- monitor and report (*i.e. use benchmarks*).

Further information on sustainable construction can be found in 'Making It Happen', available from 2006.





*This new amenity block at Trosley Country Park has a number of sustainable construction techniques designed in. It houses office and storage as well as public toilets and Rangers at the park were heavily involved in its design. The building was built using timber felled in the park. Cutaway panels show its construction (below). Mouchel Parkman for KCC*



*Canadian technology went into creating this highly insulated timber framed house cutting energy bills to a minimum. Kings Hill*

*Highly efficient modern design cutting energy consumption and helping protect our environment through sustainable construction methods. The Boundary House, Tunbridge Wells*



*Romney Marsh visitor centre was built using a simple timber frame construction with straw bale infill with lime render and loose aggregate on floor and walls. Everything is either 100% salvageable or bio-degradable. (BBM for Shepway District Council)*

## Measures of Environmental Performance

*The Local Planning Authority will require developers to demonstrate how sustainability has been addressed in the design.*

A comprehensive assessment of the environmental performance of a building should go beyond the conventional evaluation of energy efficiency.

The assessment will typically consider:

- materials choice – embodied energy and transport costs including the use of local-sources
- use of renewable energy, for example passive solar heating, photovoltaic cells, wind turbines
- assessment of the feasibility of using combined heat and power (CHP) in larger developments
- indication of how the proposal encourages use of public transport, cycling and walking
- assessment of the use of natural light, natural ventilation, sound insulation and non-toxic materials
- water conservation through storage of rain water, grey water recycling and permeable storm water drainage systems
- waste minimisation – the use of recycled materials and re-using demolition waste.

Buildings and open spaces will tend to be designed to allow for climate change i.e. increases in year round temperatures, humidity and rainfall. Greater shading and protection from heavier rainfall is likely to be needed in external areas in future.

## Whole-Life Costs

*Local planning authorities, the Highways Authority, developers and occupiers all have a responsibility for the stewardship of a development over its whole life.*

Sustainability mechanisms should be put in place relating to the durability of construction, and the care and management of planting and amenity space. Investing in quality design, construction and materials will result in less maintenance over the life of the development. It will lower overall costs and ensures that resources are used more efficiently. This should be embodied from the outset of the design for all development projects. The Green Guide (BRE) and the forthcoming ODPM Guide to Sustainable Construction contain more guidance.

## Adaptable Buildings

*Spaces and buildings should be designed for a broad range of present and future uses.*

Genuinely sustainable buildings have the ability to adapt over time to different occupiers and uses. Some of our best loved older buildings have changed successfully from industrial buildings or institutions to offices or homes, and residential areas have seen conversions from single dwellings to flats and back again. Terraces and other traditional urban forms have proved to be adaptable over time, and buildings that accommodate a variety of uses vertically can be a versatile model. Adaptability can be aided by:

- providing separate entries from the street to upper floors of mixed use buildings
- configuring rooms so that internal uses and circulation can be changed easily
- allowing adequate 'breathing space' between uses and activities
- ensuring access for all, including people with disabilities, those with pushchairs and the elderly
- providing good acoustic insulation between units and activities
- allowing for future extension.

*Kent has many historic buildings that are adaptable enough to accommodate new uses. This former railway goods shed has been converted to a farmers market and restaurant. It has become a new community hub at the edge of Canterbury city centre.*



## 2.4.5 UTILITIES & ENERGY

*Developers should consider options for efficient and renewable sources of energy at the earliest stage of the design process.*

Global warming is related directly to the emission of carbon dioxide and other gases through fossil fuel use. A resulting climate change will have adverse consequences for the UK environment and economy. Energy-efficiency measures should reduce energy demand substantially and there will be further benefits if energy can be supplied from renewable sources occurring naturally and repeatedly in the environment.

Currently only around 3% of UK electricity is generated from renewable sources. Government proposes that 60% reduction in CO<sub>2</sub> emissions be achieved by 2050. To this end, local authorities are encouraged to promote renewable energy in design briefs and supplementary planning documents.

### Energy Efficiency

The buildings of today will dictate the future pattern of energy consumption. It is important to invest in energy-saving technology now to reduce future demand. It is easier and more economical to incorporate this in the initial design than later as an add-on. A number of developments with zero or low-energy use offer examples of good practice within a limited budget.

*To improve the thermal efficiency of a building, the design may include:*

- a south-facing conservatory or atrium buffer zone to trap heat
- insulation to the north elevation through reduced glazing, location of lower occupancy rooms such as bathrooms or garages, or setting the building partially into the ground
- a compact plan form to reduce the external wall surface

- passive energy and natural ventilation
- glazing part of the roof, particularly on very tight sites with limited natural light
- well-insulated roof and walls, and good quality double glazing
- high thermal mass to retain heat, if this is appropriate for the use pattern of the building
- solar ventilation and cooling.

Action Energy and Envirowise both provide free advice on energy reduction. Designers should aim to exceed the minimum standards. *(Further information can be obtained from the Creative Environmental Networks' (CEN) web-site at [www.cen.org.uk](http://www.cen.org.uk) telephone 020 8683 6625.)*

The use of combined heat and power (CHP) which utilises the heat created in the generation of electricity should be considered. This is particularly effective when building uses are balanced between daytime and evening use *(for example housing and offices)* or within hospitals. CHP is highly efficient and affordable. The CEN website has a case study of a small scale CHP plant.

### Mechanical Energy Savings

Timers and thermostats to control heat, hot water and light are an inexpensive way of saving energy. Building management systems in larger buildings operate on similar principles and can provide significant cost savings.

Mechanical ventilation, air-conditioning and lighting incur major energy loads in commercial buildings. Overheating can be overcome with screens or shutters, overhanging eaves and opening windows. These features allow occupants to control their internal environment rather than through a centrally controlled heating or air conditioning system. Buildings which are shallow in plan or provide atria can offer greater use of natural ventilation and lighting.



## Renewable Energy Technology

An advantage of renewable energy is that it can be harnessed close to the point of demand for electricity, reducing the power losses associated with long-distance transmission. Some renewable energy technologies can be integrated into buildings and neighbourhoods.

*The following should be considered:*

- active solar systems
- photovoltaic (PV) systems
- wind Energy
- biomass Heating
- heat Pumps

## Water Supply and Conservation

*Developers should take a long-term view of the impact of their proposals on future water consumption and how changes to the water table will affect the local landscape and natural habitats.*

They should consult with water companies and the local planning authority. According to PPG12, water availability should be a consideration for the local authority in its development plan.

Much of the potential for saving water cannot be realised without behavioural changes by consumers. Metering of water supplies provides a financial incentive and has proved successful in pilot studies, it is now compulsory in new buildings and efficiency

measures will save water and hence money. In addition, water companies may wish to manage the pressure and flow rate to individual properties as a means of moderating peak water demands where this can be achieved within accepted standards of service.

There are many simple measures that can be incorporated into new buildings to reduce water consumption and save money. Water tap controls are inexpensive and effective. Spray taps can halve water flow. Push top taps switch off automatically after a pre-set time delay. Electronic sensor taps work on the same principle. Shower restrictors can halve water use by adding a flow valve to the shower hose. Power showers are particularly water intensive.

A design guidance advice note will be produced to accompany this guide on measures for conserving water.



*Historically, Kent residents and businesses have used the earth's natural resources to provide energy efficiently. Bottom, Swadelands Comprehensive school in Lenham was the first secondary school in Kent to receive eco-school status in 2001. They have installed a solar thermal space heating system with the help of Creative Environmental Networks (CEN).*

## 2.4.6 SUSTAINABLE SITE MANAGEMENT

*All new development should minimise waste and disturbance during its construction*

Construction can have a destructive impact on the soil and land surface. This can be minimised by:

- preventing unnecessary disturbance of soils which have an ecological or agricultural/food-producing function
- minimising the removal of topsoil and retaining that which has to be stripped so that it may be re-used, or exported to another site
- preventing cross-contamination of weeds and other imports by the monitoring of new soil
- preventing unnecessary use of earthmoving equipment which can erode or compact soil
- using geotextile mats, planting or environmentally-friendly forms of land engineering
- preparation of an Environmental Management Plan for the construction process
- aiming for zero construction waste going to landfill
- treating soils which have been damaged
- using plants suited to specific site conditions.

The amount of material wasted on site can be reduced by introducing regular audits to monitor and control site activities. Detailed attention to the quantity of materials purchased and the way that these are stored and handled, can significantly reduce waste.

### **‘Considerate Construction’**

Formal environmental management systems such as ISO 140016 are beginning to be adopted in construction. These will reduce costs and nuisance during construction when the impact of potential disturbance on the surrounding area needs to be considered.

*Examples include:*

- equipment and traffic – noise levels and vibration
- mess – dust, spoil, stock heaps
- waste – burning is generally unacceptable
- time – certain working times for a variety of trades
- lighting – position, direction, glare, intrusion, light pollution
- management – workers and site processes
- security – plant and tools should be secured to avoid opportunities for crime.

### **Construction (*Design and Management*) Regulations**

#### **Client Duties**

Clients must make appropriate arrangements to ensure that projects are properly managed at all stages. Under the Construction (*Design and Management*) Regulations clients who do not have sufficient knowledge or resources to do this must appoint one or more competent people to help them.

A client is an organisation or individual for whom a construction project is carried out whether by others or in-house.

#### **Designers Duties**

Designers have specific duties under the Construction (*Design and Management*) Regulations and all designers must be familiar with those requirements.

In general, designers have to:

- ensure that their clients are aware of their duties under CDM
- seek to eliminate or reduce hazards and risks in their design
- co-operate with the planning supervisor and other designers
- provide information for the pre-tender health and safety plan and health and safety file

Designers should note that clients are required to provide the planning supervisor/designers with information that they could reasonably be expected to obtain, which will be relevant to the management of hazards and risks.

### Design Risk Assessments

Designers need to examine ways in which hazards can be avoided or mitigated or, if neither is possible, designed so that the level of risk is acceptable (*given proper controls*), applying the principles of prevention and protection. This process is known as design risk assessment and is an iterative process whereby a designer can logically identify, assess and manage risks.

The stages of the assessment are:

- identify the hazards in a proposed design
- eliminate each hazard, if feasible (*or substitute a lower risk hazard*)
- reduce the risk during construction work – this includes cleaning, maintenance or demolition
- provide information necessary to identify and manage the remaining risks

This involves making judgements between possible courses of action and may significantly influence design. The approach should be structured to suit the particular project, including consideration of foreseeable hazards, the site and the local environment.





## Checklist for Creating the Design

This checklist is intended as an aide memoir for the design process. It is not exhaustive, but should cover the key issues relating to most development scenarios. It can be used as a framework for discussing a proposal with local planners.

### Step 1 Understanding the site

- ☐ Has everyone involved in the design visited the site?
- ☐ Has the site been surveyed?
- ☐ What are the key characteristics of the site's context?
  - ☐ Urban
  - ☐ Coastal town
  - ☐ Suburb or urban fringe
  - ☐ Rural area or village
- ☐ Has a site appraisal been carried out?
- ☐ Did this include a movement and access appraisal?
- ☐ Has a statement of design principles been prepared?
- ☐ Is a flood risk, contamination assessment, archaeological survey or tree survey required?

*Does this cover :*

- ☐ how the site was analysed?
- ☐ how the design concept has evolved as a result?

*Has an outline sustainability strategy been prepared? Does this cover how the development might contribute to:*

- ☐ Developing on 'brownfield' or recycled land rather than on 'greenfield' sites
- ☐ Promoting more mixed-use development to reduce commuting
- ☐ Planning to reduce car use
- ☐ Reusing buildings and minimising waste during the construction process
- ☐ Designing buildings which are adaptable for different uses over their lifetime
- ☐ Designing and adapting buildings that use less energy to build, heat and light
- ☐ Using materials that take less energy to produce and are easy to recycle

- ☐ Provision of recycling facilities for waste in the home and neighbourhood
- ☐ Use of water saving devices and natural drainage to prevent depletion of the water table
- ☐ Reducing long term maintenance costs
- ☐ Community development

### Step 2 Generating the Layout

*Are existing features being removed to accommodate the layout?*

- ☐ Historic buildings or structures
- ☐ Walls or other means of enclosure
- ☐ Existing road, paving or hard surfacing
- ☐ Soft landscaping
- ☐ Mature trees
- ☐ Existing vegetation
- ☐ Hedgerow
- ☐ Water features (ponds, drainage ditches, brooks)
- ☐ Paths, and informal pedestrian desire lines
- ☐ Utilities infrastructure (drainage, power lines, underground services etc)
- ☐ Topsoil or other land form

*Do any of these contribute to local distinctiveness or character?*

- ☐ has the current pattern of movement around the site affected the design of the layout?

*What spatial types have been adopted for the network of streets and open spaces within the layout?*

- ☐ Industrial, commercial and mixed use area
- ☐ Street
- ☐ Avenue
- ☐ Crescent
- ☐ Square

- ☐ Green
- ☐ Lane
- ☐ Mews
- ☐ Courtyard
- ☐ Private development
- ☐ Culs de sac
- ☐ Homezone

***Does the layout provide for:***

- ☐ Active streets with buildings fronting public spaces
- ☐ Ease of movement without the car dominating
- ☐ Connection with the existing street network
- ☐ A clear and understandable pattern of movement
- ☐ Safety and security for all users
- ☐ A human scale of development in a walkable neighbourhood
- ☐ Variety in form and function
- ☐ Access to local facilities
- ☐ Has the impact of the development on the surrounding context been assessed?
- ☐ Has an Environmental Impact Assessment been produced?
- ☐ Has a Transport Assessment been produced?
- ☐ Has adequate parking been designed into the scheme in a way that does not dominate the development?
- ☐ Have opportunities for illegal or inconsiderate parking been eliminated?

***What measures have been taken in the layout to protect new and existing residents from:***

- ☐ Crime and disorder

- ☐ Loss of privacy
- ☐ Impact of noise
- ☐ Potential pollution
- ☐ Does all external space within the development have a future owner and a use?

***Is new public open space within the development :***

- ☐ accessible by pedestrians, cyclists and the less mobile
- ☐ overlooked by buildings and at the heart of the layout
- ☐ well sited for sunlight, shade and a good quality environment
- ☐ meeting the needs of residents outside the site
- ☐ linked to the availability and quality of existing public open space, and maximising opportunities to enhance this
- ☐ designed with young people in mind
- ☐ capable of accommodating kick-about areas
- ☐ to include play equipment
- ☐ to include seating
- ☐ designed for dog walking

***Does new green space within the layout:***

- ☐ Incorporate features of existing landscape
- ☐ Work with the landscape grain
- ☐ Allow the extension of the site's bio-diversity

***Does new landscaping within the site:***

- ☐ Contain predominantly native species
- ☐ Extend the use of distinctive local materials



- ☐ Has a strategy for the aftercare of all new public space within the layout been developed and agreed with future maintenance providers?
- ☐ Has the layout been designed to maximise sunlight, daylight and solar gain?

***Does the layout accommodate a mix of uses?***

- ☐ Residential
- ☐ Retail
- ☐ Commercial
- ☐ Industrial
- ☐ Leisure
- ☐ Public buildings
- ☐ How does the development complement the broad mix of uses contained in the area of the site?
- ☐ Does the development provide new facilities likely to be used by people living outside the site?
- ☐ How does the scale and massing relate to the site's existing context?
- ☐ Are there opportunities for landmark buildings within the layout?
- ☐ Are any tall buildings proposed? (See page111)

**Step 3 Designing for Movement**

***Have the movement needs of different users been considered?***

- ☐ Pedestrians
- ☐ Cyclists
- ☐ Horseriders
- ☐ People with disabilities
- ☐ Cars

- ☐ Public transport
- ☐ Taxis
- ☐ Service vehicles
- ☐ Emergency services

***What highway design has been adopted for each of the spatial types contained within the layout?***

- ☐ Local Distributor Road
- ☐ Major Access Road
- ☐ Minor Access Road
- ☐ Minor Access Way
- ☐ Lane
- ☐ Shared Private Drive
- ☐ Path
- ☐ Homezone

***What measures have been taken to keep vehicle speeds low?***

- ☐ Arrangement of buildings – narrowings
- ☐ Junction design – turning restrictions
- ☐ Junction design – pedestrian tables
- ☐ Highway geometry – gateway features
- ☐ Highway geometry – restriction of forward visibility and bends
- ☐ Lateral shifts
- ☐ Roadway surface texture
- ☐ Has the road and pattern of movement layout been subject to a safety audit?

*Do you feel the layout has been adversely affected by the need to accommodate one or more of the following users?*

- ☐ Pedestrians
- ☐ Cyclists
- ☐ Horseriders
- ☐ People with disabilities
- ☐ Cars
- ☐ Public transport
- ☐ Taxis
- ☐ Service vehicles
- ☐ Emergency services

*Are the materials used in the construction of roads, footways and paths:*

- ☐ Robust and fit for purpose
- ☐ Attractive
- ☐ Sympathetic to local character
- ☐ Co-ordinated with the design of buildings within the layout

#### Step 4 Getting the Detailing Right

- ☐ Has the design resulted in a public realm (streets and open spaces) that all users can be proud of?
- ☐ Has the scope for public art within the scheme been pursued?
- ☐ Is every item of street furniture essential to the success of the scheme?
- ☐ Is signage kept to a minimum?
- ☐ Are all public areas lit to an appropriate standard relating to their use?

- ☐ Are there opportunities for lighting key features within the scheme?
- ☐ Do the utilities and services needed for the development enhance or detract from the appearance and operation of the scheme?

*Has a waste management plan been compiled? Does it deal with:*

- ☐ adequate storage space for segregation of recyclables and general waste
- ☐ the routes for collection vehicles
- ☐ static recycling centres near to communal facilities in larger developments
- ☐ prevention of fly tipping
- ☐ security of communal recyclable / refuse storage areas
- ☐ and does it encourage residents to minimise their waste through good design and deal with what they do produce in a responsible manner

*Can you demonstrate how local distinctiveness has been brought into the design of buildings and public realm through:*

- ☐ Architectural style
- ☐ Colour
- ☐ Materials
- ☐ Boundary treatment
- ☐ If the proposal involves alterations or extensions to existing buildings does it maintain or enhance their character?
- ☐ How does the proposal maintain or enhance their character?

*Would future generations applaud the design for the way:*

- ☐ the buildings can be easily adapted for different uses?
- ☐ the buildings are constructed?
- ☐ the buildings are not expensive to maintain?
- ☐ energy is gained from renewable sources?
- ☐ water consumption is minimised?

