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MAKING PLACES: a design guide for residential estate development

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TECHNICAL INFORMATION

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Any comments should be sent to:

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making places: a design guide for residential estate development

by Melville Dunbar Associates

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foreword

This Design Guide has been prepared to give additional practical guidance on how the policies on Developing Sustainable Residential Communities in section 8.7 of the 2009 County Development Plan can be realised, and good housing estate layout and design achieved. It supplements the 2009 DoEHLG Planning Guidelines on Sustainable Residential Development in Urban Areas, and the accompanying Urban Design Manual.

The 2009 DoEHLG Guidelines ask planning authorities to "promote high quality design in their policy documents", and continue to seek higher densities, and higher qualitative standards of design, layout and residential environment (paragraphs 3.2, 5.0-5.1). The Urban Design Manual which accompanies the Guidelines sets out 12 questions which should shape the design process, and assessment of its results. These are accompanied by indicators and examples of good practice. The 12 questions are performance criteria, which designers are asked to address, while allowing them flexibility on how they are addressed.

Local market conditions can affect the viability of the various options for raising densities. The simplest way of raising them is to increase the proportion of apartments. However, in Cork County, only 7% of dwellings built between 1996 and 2006 were apartments, and this reflects tenure, as well as consumer preferences. 71% of those living in recent dwellings in Cork County are owner-occupiers, and only 3% of those owner-occupiers live in apartments.

Table 1. Dwellings Built 1996-2006

| | Cork | | | Dublin City & Counties | Galway City | State | State (excl. Dublin) |
|--------------------------------|------------|--------|------|------------------------|-------------|-------|----------------------|
| | City & Co. | County | City | | | | |
| % owner-occupied | 63 | 71 | 25 | 49 | 35 | 62 | 66 |
| % apartments | 12 | 7 | 36 | 38 | 33 | 17 | 10 |
| % of apartments owner-occupied | 19 | 29 | 9 | 36 | 15 | 29 | 21 |
| % of owner-occupiers in apts. | 4 | 3 | 13 | 27 | 14 | 8 | 3 |

Source: Unpublished CSO data from 2002 and 2006 Censi. Percentages are of occupied dwellings.

As Table 1 shows, the market for new dwellings in Cork County differs greatly from that in Dublin, or even Cork City. The difference implies greater dependence on skilful, spatially efficient design and layout, applied mainly to conventional houses, and traditional scale streetscapes, to achieve the aims in sections 8.3 and 8.7 of the 2009 Development Plan on housing density and urban design. This Guide addresses this need.

Street Design in Residential Areas

Section 4 of the Design Guide sets out principles and standards for design of residential roads, which reflect in a more detailed and specific manner the objectives of section 3 of the DoEHLG Guidelines and section 7 of the accompanying Manual. These standards aim for housing areas in which speeds are kept to 30kph or less, primarily by street width and alignment, so that the function of giving access to houses and providing for pedestrians takes priority over traffic

speed and volume. This approach has been well tested elsewhere, and leads to pleasanter places, which are less car-dominated and make better use of space.

Initially, the Council will not insist on all housing estate developments conforming to the approach to road design set out in section 4, unless this is required in a specific zoned area under the relevant Local Area Plan or Masterplan, but it will require developers to indicate clearly whether they propose to follow it or not. If they do wish to follow it, they should do so consistently, at least within the areas required to have a design speed of 30kph or less, under the sub-section on 'General Principles'. Cherry-picking, or otherwise mixing different and potentially inconsistent approaches to road design and road safety in an ad hoc manner, will not normally be accepted. The appropriateness of requiring more general compliance with the approach outlined in section 4 will be considered further, 5 years after publication of this Guide.

Promoting Recovery in the Housing Market through Design

At least initially, any recovery in the housing market will probably differ from the pattern in the boom, for instance by relying more on smaller developments, and on demand from owner occupiers who intend to stay more than a few years.

As a result, purchasers may seek a house with a stronger sense of individual identity. This Guide suggests systematic ways in which this can be enhanced, eg by varying the relationship of the house to the street (p.39) and the way parking is provided (p.101-4) within streets. Around 40% of new dwellings built in County Cork between 1996 and 2005 were semis. While this proportion should be reduced, the individuality of semis can also be increased by mixing them with other house types within particular streets, and having houses which 'turn the corner' at the end of a block (eg through an L-shaped end unit).

If purchasers are less inclined to assume they will move on after a few years, they will value having adequate space to meet changing needs more. There may thus be a sales advantage to builders - as well as a sustainability one - in demonstrating extendibility and/or making full use of roof space (as sought on p.52).

While this Guide deals with housing estates, developers should also consider infill sites suitable for smaller groups of houses, and close to town, village or suburban centres. This is a sustainable alternative in the environmental sense, and often also in the financial sense.

Related Publications

This Guide deals with residential estate design and layout issues, and complements the criteria based approach set out in the DoEHLG Guidelines and Manual. Guidance on related issues is available from Cork County Council's Specifications for the Provision of Services in Housing Estates (2005), the Department of Transport Traffic Management Guidelines (2003), and the Building Regulations. For developments which include apartments, see also Sustainable Urban Housing: Design Standards for New Apartments (DoEHLG, 2007). The Department has also produced advisory documents concerned with good residential design, from a broader housing policy perspective - ie Delivering Homes Sustaining Communities and Quality Housing for Sustainable Communities (both 2007).

For the Council's policies on housing, see Chapter 8 of the 2009 County Development Plan, and for more locally specific policies, see the relevant Local Area Plans and Special Local Area Plans. These were adopted in 2005, are currently being reviewed, and will be replaced by new or revised Local Area Plans in the summer of 2011.

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part one

the need for urban design guidance

- Introduction
- Scope of the Guide
- Application of the Guide
- Planning Policy Context

roinn 1

an go ata le treoir dearadh uirbeach



introduction

New residential development presents a major opportunity to enhance people's quality of life. The quality of its design and layout will determine whether this opportunity is seized or squandered. New residential developments are where the communities of tomorrow will live. The design and layout of these developments can either encourage or militate against the establishment of a community.

Over the last few decades, most new housing estate development in County Cork has been laid out at relatively low densities and in a way that is at variance both with traditional patterns of town and village development in the County and with the general thrust of Government advice. Monotonous layouts of identical houses create a utilitarian environment unsuited to social interaction or chance encounter. Houses are set back from the road on plots with parked cars in front in contrast with the continuous frontage of traditional urban areas and are often designed without concern for the quality of the place that is created as a result.

Cork County Council is concerned about the effect of this type of urbanisation, or more accurately, sub-urbanisation on the traditional scene. Also, since the publication of the Government's Residential Density Guidelines for Planning Authorities in 1999, the Council is also required to secure a less profligate use of land and more environmentally sustainable forms of development. At all levels, a pattern of development which is less car and energy dependent is also sought. The Cork County Development Plan adopted in 2009 contains objectives designed to achieve densities which conform with the Government's Guidelines on Sustainable Residential Development. Accordingly, the County Council has prepared this Guide with the purpose of demonstrating to planning applicants how to produce more acceptable residential development in line with the County Development Plan's objectives.



scope of the guide

This Guide is intended to cover housing for sale on the open market, affordable housing and social housing and thus to secure achievement of the targets in the Cork Planning Authorities' Joint Housing Strategy in an integrated fashion. It supersedes Sections 2-3 of Cork County Council's "Guidelines for Housing Estates" 1986. Traffic management proposals are intended to influence new housing estates at design stage, and may not be suitable for retrofitting into existing ones.

The Government's "Site Development Works for Housing Areas" 1998 contains recommendations on the construction of road and drainage infrastructure. However it also contains some road layout standards which the Residential Density Guidelines make clear "are not intended to be comprehensive and relate to traditional type housing layouts only". Accordingly, this Guide supersedes paragraphs 2.1-2.13 on road and footpath design of "Site Development Works for Housing Areas" 1998 within County Cork. This Design Guide is consistent with the general approach promoted in the Department of Transport's Traffic Management Guidelines 2003, but has been specified in relation to the particular local circumstances and criteria. Accordingly, where there are specific standards given in this Guide these will take precedence over those set out in the Traffic Management Guidelines. The Traffic Management Guidelines can, however, be used to supplement the standards and advice in this Guide.

This Guide is intended to apply to new housing estates of 15-20 dwellings per hectare (6-8 per acre) or above. It will not usually apply to single dwellings or groups of four or fewer dwellings, nor to houses in rural situations, for which reference should be made to the County Council's Rural Design Guide. Proposals for development in Architectural Conservation Areas or which affect the setting of historic buildings will need to take conservation issues into account in their design. In all such cases the Heritage and Conservation Officer must be consulted. The Guide does not purport to replace or explain the requirements of the Building Regulations, and the requirements of the Regulations are additional to and not affected by the Guide. Attention is drawn in the Guide to Building Regulations only where they are considered particularly relevant to the design issues under discussion. In the event of any conflict between the advice in this Guide and the Building Regulations, the Regulations will take precedence.



application of the guide

It is intended that this Guide will help developers to innovate and to re-think their approach to producing a quality living environment. The flexibility and imagination necessary to do so will require the involvement of more architects and skilled designers than has been customary in the past. This document will act not only as a guide to planning applicants but also as a yardstick by which development control planners will judge applications before making their recommendations to the Council. Its contents will not be used as "pass or fail" criteria for every aspect of a scheme, but a failure to take account of the majority of the principles in this Guide could be justification for refusing a poor scheme.

The Guide is split into six main Sections.

Section 1 (The need for urban design guidance) sets out the purpose of the Guide. In addition, it provides information on the overall planning policy context and the need for sustainability, which have an important bearing on the design of new housing estates.

Section 2 (Visual design considerations) is concerned with establishing the essential urban design principles that are to be employed in producing layouts that are of a high quality and relate to and consolidate the existing character of settlements in County Cork.

Section 3 (Physical design considerations) sets out the technical requirements that have to be met to ensure that proposed house envelopes, dwelling curtilages, services etc. are satisfactory.

Section 4 (Providing for Movement) specifies standards for means of access for cars, pedestrians, cycles, buses etc, so that within housing areas, giving access to houses and providing for pedestrians takes priority over traffic speed and volume.

Section 5 (Case Studies) for various types of development are provided to demonstrate how the urban design code and technical standards can be used to good effect.

Section 6 Provides a worked example that shows how an average sized housing development (approx 80 houses) in a main town outside of the Cork Metropolitan Area can be designed using the principles of this guide.

The Appendices contain recommendations for planting and space provision for social housing.

In using the Guide, designers are encouraged to refer to each of the first three Sections in turn so that the overall form of the housing development can be gradually refined as more detail is added.

Officers of the Council are available to advise on the use of the Guide if needed. Depending on the type of advice being sought, contact numbers are:
(planning applications) - Planning Department, Floor 3, County Hall, Tel: 021-4285804;
(design advice) - Architects Department, Floor 9, County Hall, Tel: 021-4285430;
(policy issues) - Planning Policy Unit, Floor 13, County Hall, Tel: 021-4285900.

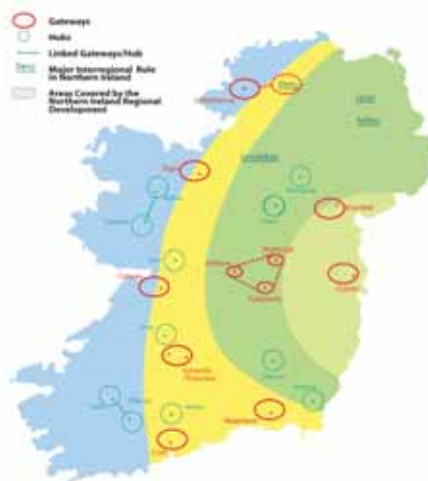
County Council website: www.corkcoco.ie

planning policy context

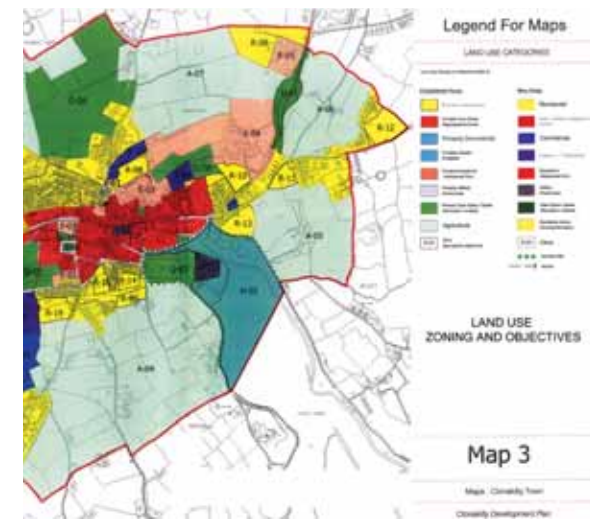
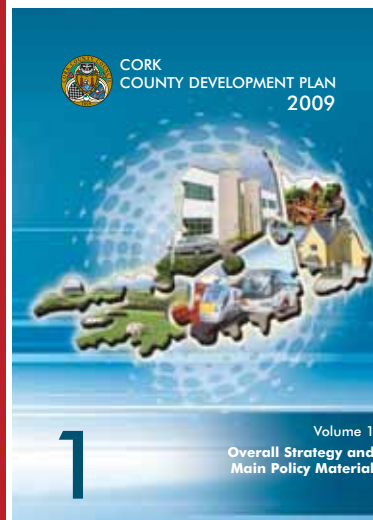
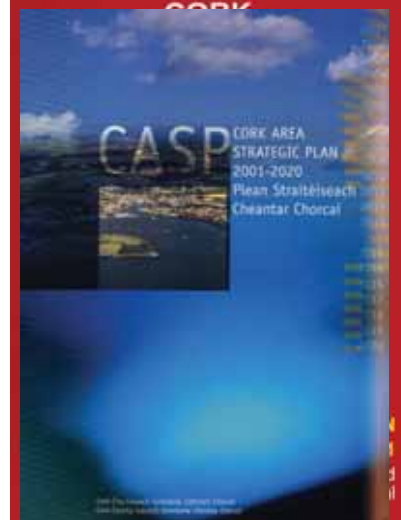
development plan and government guidance

This Guide supplements, and is to be read in conjunction with, the County Development Plan and Local Area Plans. When adopted by Council, the design guide will be used as supplementary guidance to the County Development Plan when determining planning applications for housing estates in urban areas. Mapped information which may be relevant to particular sites includes Heritage and Conservation, Green Belt, and Landscape Character Maps in Volume 3 of the County Development Plan.

Both the County Development Plan and the Government's Residential Density Guidelines call for the net density of new housing to be normally within the range of 20-50 dwellings per hectare (8-20 per acre) and during the plan period densities below 35 per hectare (14 per acre) will be increasingly discouraged. It is the purpose of this Guide to demonstrate how this may be achieved using development consisting primarily of houses rather than apartments. For lands proximate to existing or proposed public transport corridors, brownfield and town centre sites, the Residential Density Guidelines call for net densities in excess of 50 dwellings per hectare (20 per acre) and a number of such sites are zoned in the County Development Plan. Such developments are likely to consist primarily of apartments and town houses. The County Development Plan also provides some sites for low-density development, some of which will fall outside the scope of this guide. The County Development Plan is prepared in the context of the National Spatial Strategy (NSS), the Regional Planning Guidelines for the South West Region, the Cork Area Strategic Plan (CASP) and the North and West Strategic Plan. Policy for residential development in the County Development Plan includes policies and objectives for the provision of housing with open spaces, crèches and other social facilities in addition to the requirement for physical infrastructure (water, sanitation, public utilities). These topics are discussed in more detail in Section 3 of the guide.



National Spatial Strategy



sustainability

The County Development Plan seeks to promote environmentally sustainable locations of development through its land use, density, transport and settlement policies. At the other end of the scale, the Building Regulations seek to reduce heat loss and improve energy efficiency through their insulation requirements. In between, there are a number of ways in which layout and building design can avoid placing an unacceptable burden on the environment and promote environmentally friendly patterns of activity, often with the result of cost savings to occupiers.



Planning applications should be formulated so they meet the following requirements : -

- 1 The development must be laid out in such a way as to maximise proximity to facilities and public transport and encourage walking and cycling instead of the use of cars (*see paragraph on Proximity page 17*).
- 2 It is desirable that developments of more than 400 dwellings should have adequate provision of local facilities in order to reduce the need to travel (*see paragraph on Local Facilities page 16*).
- 3 All developments are to have a mix of dwelling tenures and sizes as required by the Cork Housing Strategy (*see paragraph on Social and Affordable Housing page 15*).
- 4 Development must be laid out in such a way as to safeguard the existing ecology, improve the natural habitat, minimise heat loss from buildings through shelter from land form or tree planting, and absorb storm water run-off into the ground (*see paragraph on Landscape Structure page 26*).
- 5 Buildings should be designed and orientated to take account of the possible use of passive solar gain and reduction of heat loss from openings whilst at the same time avoiding excessive solar gain (*see paragraph on Planning For Daylight and Sunlight p54*).
- 6 A major proportion of dwellings should be joined to one another in terraces or blocks (including apartments) to minimise heat loss through external walls, as well as to promote a sense of enclosure
- 7 Building design is to accord with national sustainability and energy conservation policies (*see paragraph on Energy-efficient building design page 57*).
- 8 Dwellings should be adaptable during their lifetime in order to make best use of resources.
A good proportion of dwellings should be designed to accommodate loft conversion by having suitable roof pitches and timbers. Similarly, adequate size gardens will allow sufficient space for ground-level extensions (*see paragraph on Extendibility page 52*) which may need planning permission.
- 9 Buildings including apartments, should have secure ground-level storage for bicycles and ground floor storage which is screened from public view for refuse bins (*see paragraph on House : Street Relationship page 37*). Also refer to Sustainable Urban Housing Design for Applicants published by Department of Environment, Heritage and Local Government.

the 2010 EU Directive on the Energy Performance of Buildings

This Directive requires all new buildings to be 'nearly zero-energy' by 2020. It also requires member states to ensure that

- (a) decentralised energy supply based on renewable resources
- (b) cogeneration (ie combined heat and power)
- (c) district or block heating, especially if renewably powered
- (d) heat pumps

are considered before construction of a new building.

Planning applications should describe the process of consideration given to (a)-(d), and the extent to which such features are incorporated into the proposed development.

Housing layout is relevant to (a), as solar heating is a form of renewable energy readily installed in an individual house, if part of the house roof faces within 45 degrees of south. This should not mean layouts dominated by long lines of houses which run east-west and face north and south, but could influence disposition and design of some houses on streets which run north-south. There are several ways of increasing the proportion of south facing roofs on such streets, including hipped roofs, houses which are gable end to the street, or have a secondary roof with its ridge at right angles to the main one, or a lean-to roof attached to a south facing gable.

(c) and some forms of (b) involve supplying energy collectively, to a number of dwellings or other buildings. The presence of large individual energy users, substantial shared buildings (eg apartment blocks) or higher density conventional housing in development proposals may create more favourable conditions for such collective provision. The manner in which development components of these types are grouped may affect the practicability of collective heating systems, and should be a factor in considering how they are positioned within an overall layout.

(d) is one of a number of ways of increasing the energy efficiency of individual buildings, discussed further on p.57-8.

social and affordable housing

Housing developments on sites in excess of 0.1ha. and involving 5 or more dwellings are subject to Part V of the Planning and Developments Acts, 2000 and 2002 and to the Cork Planning Authorities Joint Housing Strategy, adopted under that legislation. The Joint Housing Strategy requires the transfer of 20% of the development, in the form of land, dwellings or serviced sites, to the local authority or its nominees, for social and affordable housing. The 2002 Act allows for the alternatives of transferring land, dwellings or serviced sites on other land within the functional area of the planning authority, or payment of a contribution. A developer has the right to transfer 20% of the land to which the application relates: other types of transfer are by agreement with the planning authority. The Council's first preference is normally for the transfer of completed dwellings on site.

The County Council has produced a Developer's Guide on the Joint Housing Strategy, in collaboration with the CIF and other interested parties. This is available on request from the Planning Department, and gives more detailed information on the procedures involved. Pre-planning discussion of the Part V aspects of housing proposals with Council officials is advised. Whether there have been pre-planning discussions or not, applications for planning permission for housing estates must be accompanied by written proposals on how the applicant envisages Part V being complied with (e.g. what land or units they propose to transfer). If permission is granted, a condition is attached to the permission, requiring the applicant to conclude a formal agreement with the Council prior to commencing development. This agreement will cover the price to be paid, as well as identifying the property to be transferred.

Sustainable Community Proofing is outlined in "Delivering homes, Sustaining Communities" (box 6.2). It includes looking at the interaction between proposals and the local context, having regard to site size, existing tenure mix, how the community will develop in the next 5-10 years, and connections to schools, public transport, infrastructure, and civic amenities.



local facilities

Except where a development directly adjoins an existing local centre which should be consolidated, or one for which there is a firm proposal, it is desirable that most larger developments incorporate facilities for residents such as shops, community facilities, 'bring sites/recycling centres' and sites for schools. Their location within predominantly residential areas will reduce the need for travel to work and facilities. It would be good practice for any development of more than 400 dwellings to have such facilities grouped together, in a reasonably central position, easily accessed from entry points to the estate. It may be desirable to include such facilities in smaller residential developments as well.

Childcare Guidance for Planning Authorities Document July 2001 also requires purpose-built creches in any development of 75 or more dwellings. Set down spaces for crèches and schools should provide for set down in forward gear.

The development of a layout of a large residential estate will require a mix of uses in close proximity in order to justify a reduction in car parking requirements in the locality.



proximity

The location of dwellings and facilities in close proximity encourages walking and cycling instead of car use for local trips. Where developments are large enough to contain shops, employment, schools etc. the facilities should be grouped together on pedestrian or vehicular routes which lead from the surrounding, predominantly residential areas. Residential accommodation should be included with these other uses where possible.

Where new residential development is part of a town with a range of facilities, or is large enough to contain such facilities itself, the bulk of the residential area should be within: -

- 500m from a bus stop or potential bus route (if likely to be served by 5+ buses a day)
- 500m from a primary school* or
- 1,000m from a secondary school*, community hall, pub, library, church, leisure centre and health centre.

Within 100m of a neighbourhood centre or town centre, net residential densities could be above 50 dwellings per hectare (20 per acre) so as to place a greater proportion of residents within closer walking distance of facilities.



* Whilst it is recognised that there is no guarantee of the timing or location of school provision relative to new development, sites of suitable size should be provided in locations complying with the above proximity requirement.

public open space

The Planning Authority will ensure that a full range of facilities for recreation and amenity are provided commensurate with the size of the new development. Also, the recreation and amenity area shall form an integral part of the residential area and shall be maintained in perpetuity for the benefit of the local population. The appraisal of the proposals will include an assessment to determine the most appropriate and economically sustainable form of ownership/management. The standards of provision are set out over the page.

In determining the form of the provision to be made, the characteristics of the site such as its location, size, relationship to existing residential areas, physical attributes and any limitations to access shall be taken into account. Provision shall be made on or off site or, if there are existing facilities nearby, consideration should be given to the option of improving them. In the case that facilities are to be provided elsewhere, a special contribution will be charged to cover their cost.

Open spaces may form part of wildlife corridors (see p.26). It can take qualitatively different forms, including parks, gardens, greenways, woodland, natural reserves, courtyards, playgrounds, and communal areas. Providing basic recreational needs can be met, and practical arrangements for maintenance are possible, differentiation of open space should add interest to developments.

The planning authority will seek to approve well located open space that is both visually and functionally accessible to the maximum number of dwellings, is well overlooked and is informally supervised by nearby dwellings. School sites and their sports fields should also be treated in this way. In bigger developments, the Local or Action Area Plan should identify the location of larger open spaces for playing pitches, all-weather surfaces and recreational facilities well linked to but if necessary outside and adjacent to the development area.



18



19

Boundaries of open space should usually be fronts, nor rears, of dwellings. In general, the grouping of open space provision into large, multi-purpose, informally supervised parks can be more effective than a scatter of poorly located and equipped open spaces which comply with quantitative standards but create nuisance to dwellings and add nothing to amenity. At the same time the detailed design of the street, by adding a small amount of extra paved area, benches or railings, can create opportunities for children's play closer to home. Similarly an open space, which is fronted or backed onto by or adjacent to a group of houses, as is the case with the traditional Georgian square, can be a positive amenity feature and would justify a reduction in the private garden area of the dwellings concerned. The quantitative standard to cover all the provision described above, and subject to appropriate relaxations and reductions, is in the range 12%-18% of the total site area (excluding areas unsuitable for development). The percentage shall increase as the density of the development increases. The area of open space may be reduced and recreational facilities, as detailed below, may be provided in its place. So far as is practicable, these facilities shall be distributed throughout the development and shall be operational before the adjacent housing becomes occupied. The provision of open space should be on a hierarchical basis varying in size from large regional parks to small children's play areas close to people's homes. More emphasis will be placed on the quality of space provided than on strict adherence to the quantitative standard.

| Point Value of Items | Points | Point Value of Items | Points | Point Value of Items | Points |
|-------------------------|--------|----------------------|--------|--------------------------|--------|
| Local Play Area | 1 | Multi-use Games Area | 6 | Dressing Rooms | 6 |
| Neighbourhood Play Area | 3 | Double Tennis Court | 7 | Community - 2 Badminton | 23 |
| District Play Area | 6 | Grassed Pitch | 42 | Community - 1 Basketball | 58 |

Provision of Recreation Facilities

- Recreation facilities shall be provided as part of the housing development, as detailed below, at a rate of 1 point per 6 housing units.
- A minimum of 30% of the required points shall be satisfied by the provision of on-site local facilities.
- The remainder of the points requirement shall be satisfied by the provision of facilities, as detailed below, on-site or off-site at an appropriate agreed location.
- Where deemed appropriate by the Planning Authority, a cash equivalent may be accepted to enable the Local Authority provide some of the recreation facilities. In these circumstances the value of the facilities in question shall be arrived at by using the current housing land value and the construction cost of the said facilities. The monies raised in this manner can only be spent on the provision of recreation facilities to serve the development from which the cash equivalent is raised.
- Alternative facilities other than those outlined below, or of another nature, i.e. minority sports, can be considered for substitution for those items listed. In these circumstances the facilities to be provided shall be equivalent in recreational and/or arts or culture value to the item being replaced. The acceptability or otherwise of substitute facilities shall be at the discretion of the Planning Authority and shall be decided as part of the Planning Application process.



Informally supervised park

20

planning policy context - coverage assessment

| | Yes | No |
|--|--------------------------|--------------------------|
| Development Plan and Government Guidance | | |
| Has reference been made to the County Development Plan and Government advice? | <input type="checkbox"/> | <input type="checkbox"/> |
| Sustainability | | |
| Is the development in a location that is environmentally sustainable? | <input type="checkbox"/> | <input type="checkbox"/> |
| Key consideration are:- | | |
| is the development within convenient reach of local facilities and public transport? | <input type="checkbox"/> | <input type="checkbox"/> |
| if over 400 dwellings in size, does the development include provision of local facilities and a mix of dwelling tenures and sizes? | <input type="checkbox"/> | <input type="checkbox"/> |
| does the development safeguard the local ecology and take advantage of physical attributes of the site? | <input type="checkbox"/> | <input type="checkbox"/> |
| are the buildings designed and orientated on the site to utilise solar gain and reduce heat loss? | <input type="checkbox"/> | <input type="checkbox"/> |
| are as many dwelling as possible attached to each other in terrace form to minimise heat loss? | <input type="checkbox"/> | <input type="checkbox"/> |
| can the dwellings be adapted to make the best use of resources and to permit enlargement? | <input type="checkbox"/> | <input type="checkbox"/> |
| do apartment blocks have appropriate storage for bicycles and refuse bins? | <input type="checkbox"/> | <input type="checkbox"/> |
| Social and affordable housing | | |
| Have the requirements of Part V of the Act been met? | <input type="checkbox"/> | <input type="checkbox"/> |
| Local facilities | | |
| Have local facilities been provided on developments of over 400 dwellings? | <input type="checkbox"/> | <input type="checkbox"/> |
| Proximity | | |
| Is the development within a reasonable distance of local facilities? | <input type="checkbox"/> | <input type="checkbox"/> |
| Public open space | | |
| Is the provision of public open space adequate? Key consideration:- | <input type="checkbox"/> | <input type="checkbox"/> |
| does the total area of open space to be provided amount to 10% of the site area? | <input type="checkbox"/> | <input type="checkbox"/> |
| is a higher proportion justified to meet either specific zoning objectives or the development of a site with a substantial mature landscape? | <input type="checkbox"/> | <input type="checkbox"/> |
| has provision of facilities been made on a hierarchical basis depending upon the size of the development? | <input type="checkbox"/> | <input type="checkbox"/> |

part two

visual design considerations



- Site context
- Landscape structure
- Townscape
- Building form
- Materials and detailing

roinn 2
cuinsi dearadh amhairc

site context

Depending on the context, the planning authority will have to determine whether a new scheme should perpetuate the format of the surrounding area or establish a new one. If adjoining development has a strong pattern and character that could be detracted from by insensitive new development, the new scheme should pick up the theme of the existing and seek to enhance it. If, more typically, the surrounding area has a character which is not particularly distinctive, the preferable course may be to establish a strong, new pattern, based on the principles in this Guide that contrasts with the surrounding area and forms a focus for it. This would be the case, for example, with a site adjoined by average suburban housing.

The net residential density called for by the Residential Density Guidelines and County Development Plan will result in new development being in the urban rather than suburban category. The urban tradition in County Cork, as in many parts of Ireland, is largely Georgian and Victorian with buildings joined together and either directly fronting the street or set behind enclosed front gardens. In the case of towns based on a medieval plan, the streets meander and focus on irregular-shaped squares and spaces, whilst in the case of planned estate towns of the 18th and 19th century the streets are straight and centre on rectangular squares or market places. County Cork has many sloping sites which add drama and interest to the townscape, with housing stepping up hills and historic key buildings sited in prominent positions.

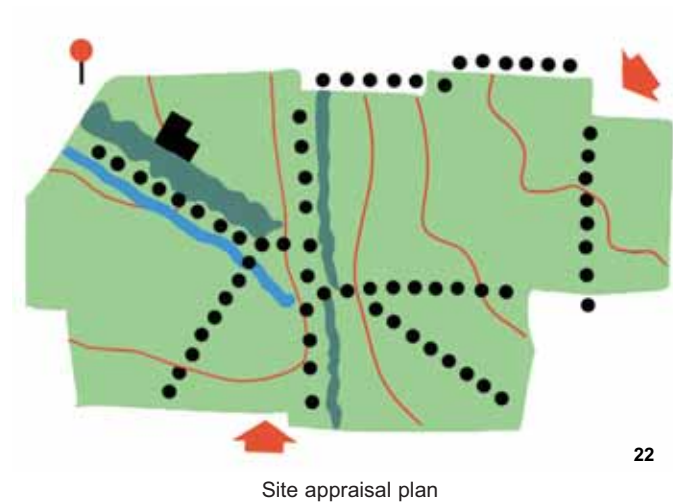
Apart from occasional examples of small-scale urban infill, 20th century development has typically rejected urban groupings and been characterised by plot layouts at lower densities. The Residential Density Guidelines imply a move away from this pattern towards greater urban coherence.



site appraisal

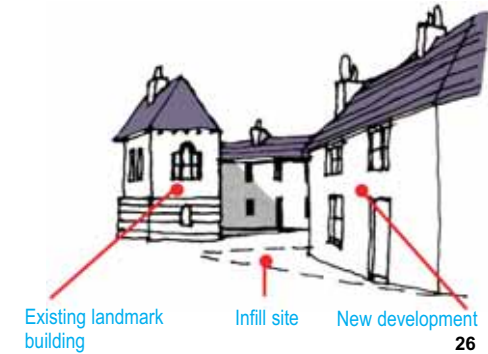
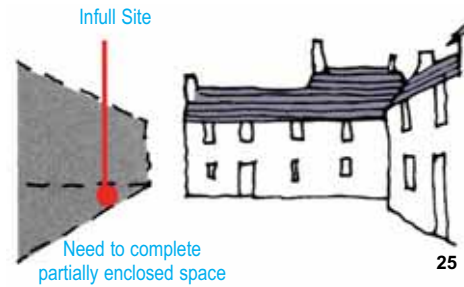
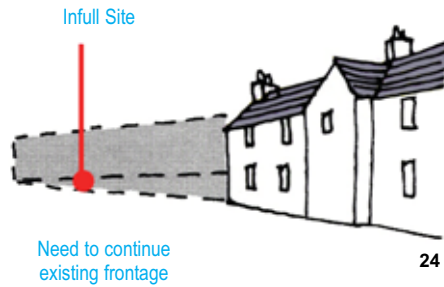
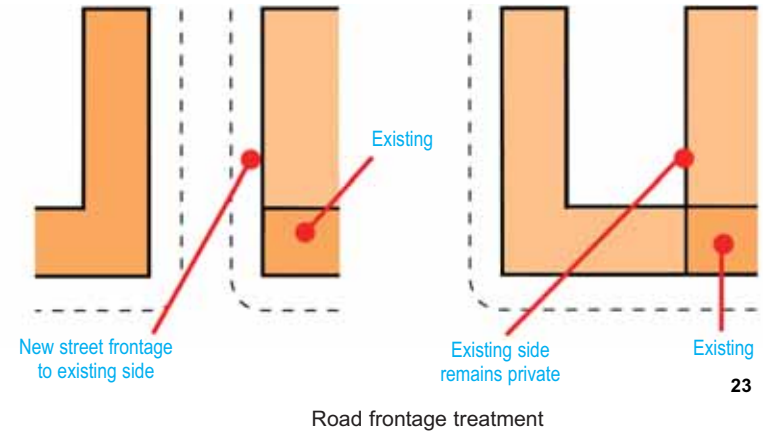
A thorough appreciation and assessment of the overall site context is the starting point for designing a distinct place. This should be gained by an appraisal of the site before designing the scheme. Submission of this before or with the planning application will help the planning authority assess the proposals. The site appraisal should cover the following aspects, which should be plotted on a plan:

- An analysis of the visual and physical character of the site and the visual and physical relationship of the site to its townscape and landscape context.
- Views into and out of the site, landmarks in the surrounding area.
- Existing movement pattern and desire lines across and around the site.
- Access points to the site.
- Existing and potential nodal points within or near the site.
- Existing buildings and structures on and adjacent to the site and whether they are to be retained.
- Wayleaves and easement strips that cannot be built on.
- Slopes, wind shelter, overshadowing. Contours to be shown on plan and cross-sections produced.
- Trees, their spread, height, condition and species, hedges, boundary features and whether they are to be retained.
- Wildlife habits and corridors and whether they are to be preserved.



Decisions should be made as to where built frontages are required and to what scale in terms of building heights. For example, an existing road frontage may need continuation, or a space, which is already partly enclosed may need completion of the enclosure by the new development. Attention should also be paid to ensure that the new development is a good neighbour to existing properties e.g. that the sides and rears of existing properties do not become a frontage to a new road or publicly accessible area.

Existing important views and landmark buildings should be identified and respected by the new scheme. Similarly, points where new key buildings and views are required and the desirable form they should take should be established.



Example of existing landmark buildings

landscape structure

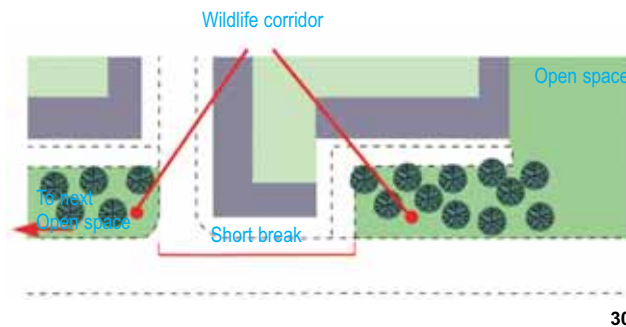
Any larger development should be designed around a landscape structure. This should precede rather than follow formulation of a layout. The landscape structure should take as its starting point any existing land forms, water, vegetation and built features, which would act as formgivers for the development with the purpose of assisting in achieving uniqueness of character. Existing ecology and natural habitats must also be taken into account and safeguarded as far as possible. Natural lines of drainage which will avoid the need for pumped sewers should also be identified

The landscape structure should encompass the public open space system and surface water management systems (see sections on p.18-19 and p.27) but should also provide visual contrast with the built environment and constitute a legible network based, where appropriate, on existing trees and hedgerows. A block of trees visible above rooftops, for example, helps the legibility of a development from outside. The landscape structure should, in addition, create a network of wildlife corridors linking with public open spaces and nearby countryside. These could be combined with sections of off-street cycle or pedestrian route. Where based on retention of hedgerows, wildlife corridors should be within the public realm (not just in back gardens where they are liable to be removed piecemeal over a period). There is a leaflet on Conserving Hedgerows on the Council website. The links should be fairly continuous (i.e. short breaks are possible) and should contain mixed indigenous tree and other plant species and some long grass which provides protection for wildlife and attracts some species of nesting birds. Attention should be given to the creation of interdependent plant communities.

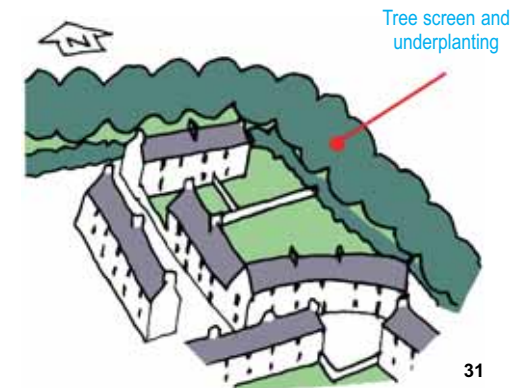
Where there is an exposed edge to open countryside, the siting of new development in the lee of sloping ground or the planting of tree shelter belts, especially on the north-east side, can reduce heat loss from dwellings within 150m in cold weather. Indigenous woodland tree species should be used, together with a mixture of evergreen and deciduous underplanting. Trees also have an important role to play in more urban spaces. Adequate and appropriate tree and shrub planting for the landscape structure is essential and will be covered by planning condition. During construction all existing trees need to be retained and they should be enclosed by protective fences which also protect root systems. Natural habitats such as badger setts should be protected, and work not carried out during breeding seasons or at times of year when particular species feed or roost. Watercourses must be protected from pollution, and construction materials and waste stored away from protected landscape features and habitats. The Green City Guidelines (see references) provide some case studies on protecting biodiversity in housing developments.



Retained landscape features as formgivers for development



Example of independent ecosystems



Use of trees as screening

surface water management

In accordance with the 2009 guidelines on the Planning System and Flood Risk Management (see references), applicants should assess whether there is a flood risk issue, and how it will be addressed in the development they propose if there is. Where it may be an issue, a more detailed flood risk assessment should be carried out

The capacity of any culverts or bridges adjacent to or within the development (existing or proposed) should be considered in Flood Risk Assessments, as should all source of flood risk in the area. Developers need to obtain consent from OPW for any culverts or bridges on watercourses proposed as part of such developments.

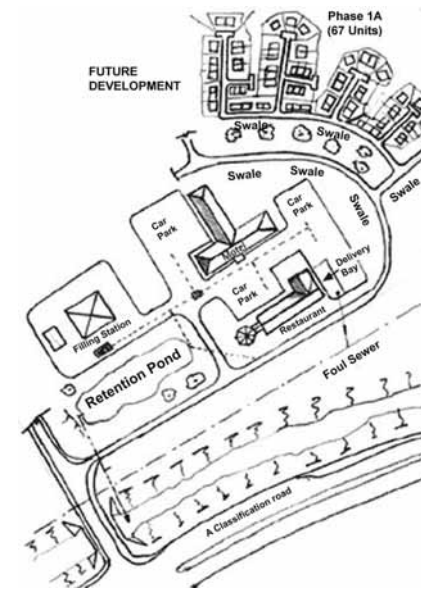
The 2009 County Development Plan (para. 6.5.20) requires all new developments to include Sustainable Urban Drainage Systems (SuDS). As a mandatory requirement for developers, it will help to achieve environmental improvements to the county's water resources.

The overall principle behind the SuDS process is to minimise runoff. Therefore the extent of impermeable surfaces such as road surfaces, parking areas, driveways, patios, etc. should be minimised by careful attention to site layout and the specification of porous surfacing materials where practicable. The management of storm water drainage should emphasise retention and infiltration at source, which reduces runoff volumes and slows the rates of runoff as well as providing partial treatment. The latter will help meet the requirement to protect watercourses from hydrocarbon run off from hard surfaces and other pollutants. A conservative approach should be taken in the design of SUDS, particularly in the estimation of permissible run off rates, to allow for situations where the capacity of SUDS facilities is exceeded. Guidance on the design of SuDS is contained in the Greater Dublin Strategic Drainage Study (2005)

The design of the surface water run-off system should be considered in conjunction with the landscape structure. Balancing ponds for storm-water should contain a permanent body of water¹, and can be a valuable ecological and landscape feature. The design of the landscape structure may also accommodate swales² and reedbeds which can be used to filter and purify the run-off from road and parking surfaces before allowing it to percolate into the ground. Where the absorption characteristics of the ground permit, this is beneficial to the water table and preferable to overloading local watercourses. Similarly, naturally contoured forms are necessary for balancing ponds, swales and reedbeds, and angular, engineered shapes or concrete linings are not acceptable.

¹ Safety railings, gradual slopes or other measures should be used around ponds and water features to minimise risks.

² A swale is a broad and shallow earthen channel vegetated with erosion resistant and flood tolerant grasses. The purpose is to convey stormwater run-off at a non-erosive velocity in order to enhance its water quality through infiltration, sedimentation and filtration.



Extract from Scottish Executive PAN 61-2001



townscape

layout principles

the street system

The creation of satisfactory street spaces requires the enclosure of space, primarily by buildings, or where appropriate, by trees that will grow into substantial mass. Enclosed spaces are visually reassuring and create a particular identity. They are also safer environments and usefully influence a drivers perception of speed.

In order to encourage walking spaces should be pedestrian scale wherever this is practicable. At walking pace, a great deal of visual intricacy is required to satisfy the observer's curiosity and provide rich visual stimuli. This can be created in diverse ways, including the use of a variety of frontage widths, eaves height, surface textures and architectural features. In Cork, blank gables and chimney stacks are particularly noticeable features of the existing townscape. Making positive visual use of changes of level can be a simple device to enhance the difference from one place to another. Gradients can be emphasised by being contrasted with man-made horizons. The application of an horizontal plinth is an easy method. The relationship between unity and variety needs to be considered. Too much unity will lead to monotony while an abundance of variety will appear chaotic.

In Cork the established tradition of extremely straight frontage lines, can, if taken to excess, create problems. A regular corridor of terraced houses, will imply a speed of movement that is too rapid to capture the interest of the pedestrian. However, such terrace will be satisfactory if there are no more than four or five units in one length. This, of course, suggests frequent changes of alignment, or alternatively, a 'distorted grid', to ensure strict limits to the view ahead. Curiously, one feels more impelled to hasten up a hill rather than down, as an outcome of the powerful effect of perspective diagonals. The distorted grid has many advantages in allowing permeability, (see layout principles), and in allowing informal, 'static spaces', where grids collide.



permeability

It should be possible for pedestrians and cyclists to move freely between all parts of a layout, both locally and on a wider scale. The disadvantage of a layout based entirely on culs-de-sac and loops is that routes for pedestrians are indirect and boring and therefore pedestrian movement is discouraged. This creates a dead residential area which is vulnerable to property-related crime. Furthermore, cul-de-sac layouts result in higher traffic levels on feeder roads and longer routes for delivery traffic.

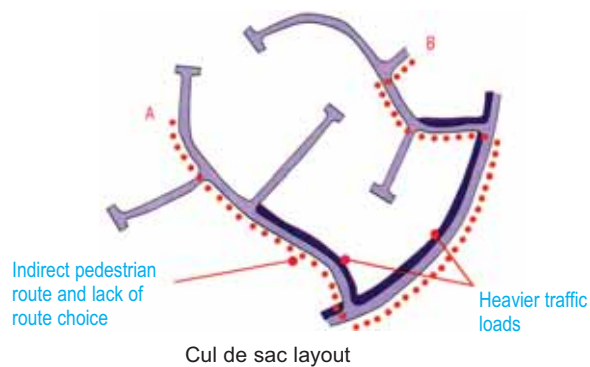
A more permeable layout offers the pedestrian a choice of routes providing greater visual interest. Also, the higher level of pedestrian activity generated provides greater security. If there are more pedestrians around in the street there is a greater chance of casual social encounters and less chance of thieves being able to gain access unobserved to houses or cars. In order to allow free movement the ideal pattern would be a deformed grid based on the use of small residential blocks.



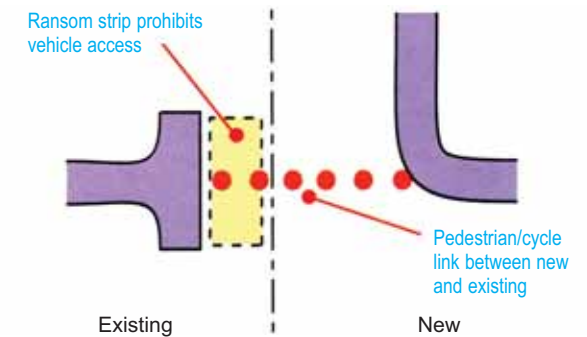
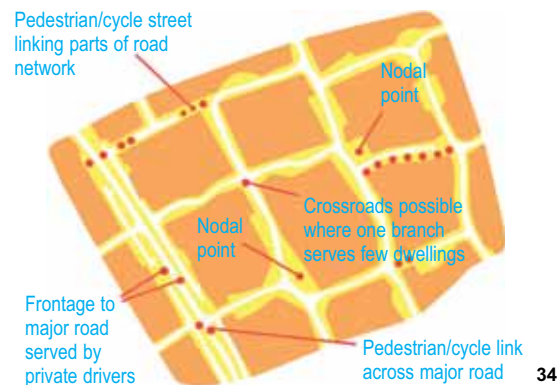
Example of small amenity area created in the street

The advantages of culs-de-sac and loops in preserving amenity and quiet and supervising urban space can be combined with those of a permeable layout for pedestrians by bringing heads of culs-de-sac together. This can be achieved by creating pedestrian/cycle streets between parts of the road system and by creating pedestrian/cycle links across major roads that would otherwise form a barrier. Where off-road pedestrian or cycle links are formed within residential areas they should be overlooked, preferably by dwelling frontages.

There should be good connections between adjacent housing developments, and wherever possible, a choice of route between one location and another. Where it is not practicable to provide vehicular links between old and new residential areas, there is often no reason why pedestrian and cycle links cannot be achieved. Opportunities to organize permeable layouts in a way which extend or link into established cycle routes should be taken.



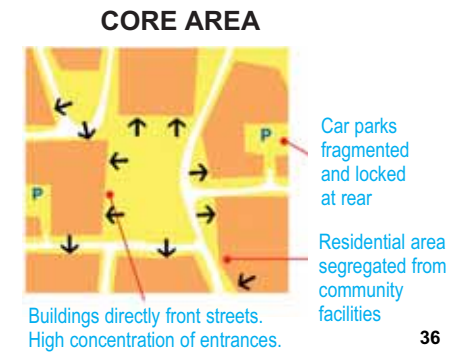
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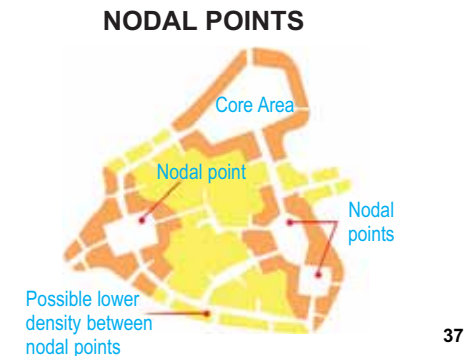
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legibility

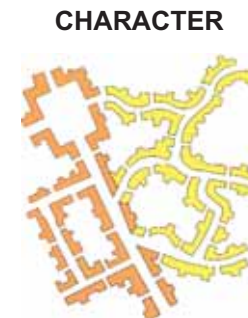
With large developments of new neighbourhoods the street network should focus on a CORE AREA of greatest pedestrian concentration. It is here that any non-residential uses should be located e.g. local shops, community hall, pub, primary school site and bus stop, and residential densities should be higher in this vicinity. The core area should be characterised by a high concentration of entrances to buildings opening directly off the street. Buildings should not be located in an isolated fashion, separated by car parks or access roads, and residential and non-residential land uses should be mixed and adjacent to one another. The core area could often be better located on the perimeter of a scheme so that the local shops could benefit from passing trade-this would also not encourage extra traffic movements into the centre of the residential area.



In addition to a core area, it is desirable to structure a residential area around a series of NODAL POINTS. These may be irregular or regular shaped urban spaces formed at junctions of routes and may be given visual emphasis by key buildings or groups of buildings. Residential densities may be higher in the vicinity of such nodal points, forming a 'village' cluster with lower density areas between one cluster and the next.



A large residential area should have a VARIATION IN CHARACTER between different parts. This variation should not be based on social differences e.g. between social housing and housing for sale, but on different types of space, building forms and materials. The creation of a particular identity in different parts of the development will do much to define the special character of each area.



There should also be LANDMARKS at locations other than the NODAL POINTS if navigation would otherwise be difficult.



There will be EDGES, such as the outside urban edge to countryside, an edge against a major road, an edge against an open space, or a line of transition between an area of one character and that of a different character.



LEGIBILITY

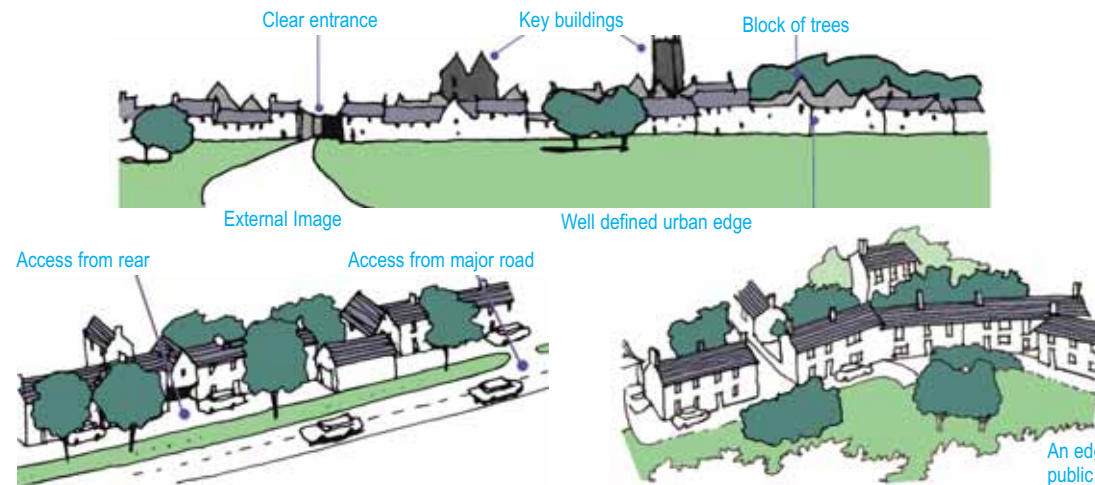
- Core Areas
- Nodal Points
- Characters
- Landmarks
- Edges
- External Image

According to their importance, edges should be treated in different ways. Public open spaces should be treated as focus on to which houses front, rather than be tucked away out of sight. In order to avoid unsightly back fences, major roads and countryside edges should also be fronted by houses, even where vehicular access needs to be indirect. Private drives paralleling the road can offer convenience, but on occasions a rear access might be necessary.

As seen from the surrounding landscape, the development should have a clear and well-defined EXTERNAL IMAGE.

This is achieved by:

- skyline and roofscape, which is made up of,
 - a texture of roof forms generated by the forms of individual houses, and
 - the location and roof treatment of key buildings within the development which will aid orientation. Taller buildings and blocks of trees also serve to structure the external view
- a clear design treatment of the urban edge (see preceding paragraph)
- clear and defined entrances to the development (eg. pinch points)



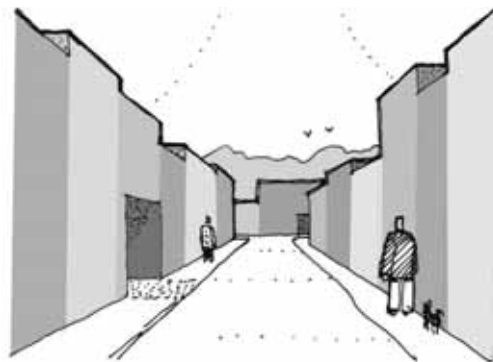
street spaces

The creation of satisfactory street spaces requires the ENCLOSURE OF SPACE, primarily by buildings but also possibly by trees. Enclosed spaces are visually pleasing and create a sense of place. They also create safer and more secure environments and influence drivers' perception of speed in residential areas.

In order to encourage walking and create spaces in which people feel comfortable, any publicly accessible spaces must be visually satisfactory at the PEDESTRIAN SCALE. This means that there must be sufficient visual interest within the planes of the enclosing buildings to engage the eye in terms of changes of frontage width and building line, surface texture of facing materials, detail, window and door types, features such as gables, projecting wings, bays, etc. and a varied skyline with chimneys and dormers. A balance must be struck between a chaotic proliferation of detail on the one hand and severe simplicity on the other.



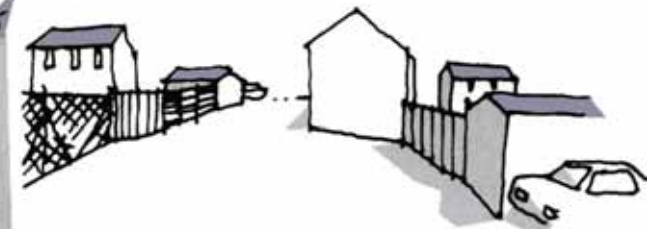
In order to create satisfactory enclosure of space related to the human scale it is necessary to establish a suitable ratio between the width of the space and the height of its enclosing buildings. A wider space can be compensated for by an increase in the height of frontage buildings, but it should be noted that streets with a HEIGHT TO WIDTH RATIO of more than 1:2 generally feel too wide. In certain circumstances roof slopes, gables, chimneys and other skyline features can increase the apparent height of buildings and thus their ability to enclose space. In order to reinforce visual character, define spaces and promote pedestrian movement, most streets should be faced by the FRONTS of buildings and their entrances, not by a predominance of flank elevations or side or rear boundaries. This will contribute to security by enabling informal supervision by residents of public spaces.



Example of height to width ratio



Good frontal practice



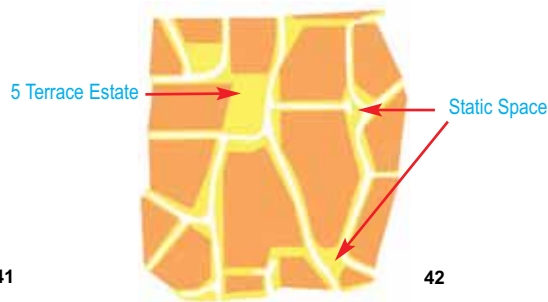
Undesired rear elevations

The normal linear DYNAMIC space of a street of buildings should be balanced by the insertion at intervals of contrasting STATIC spaces such as squares or more irregular shaped spaces, that are of equal dimension in each direction. These spaces encourage the pedestrian to linger and should include benches, trees and more varied paving to facilitate this.



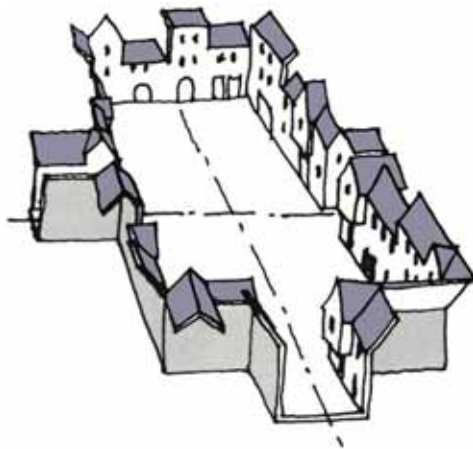
Static formal space in matrix of informal layout

41



42

The VISUAL LENGTH of a street can be reduced with the purpose of increasing interest for the pedestrian by complete or partial closure of the view by a terminal building, by a curve in the street, a change in the building line, a pinch point or a change in level. These devices conceal the way ahead and arouse the curiosity of the pedestrian. A long street may also be broken into a series of linked sub-spaces more related to the human scale by means of changes in frontage line, projecting buildings or buildings bridging over the street.



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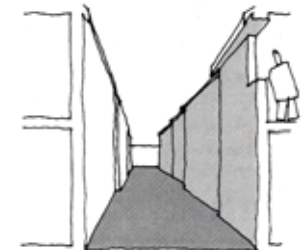
Limiting visual length by taller terminal building

44

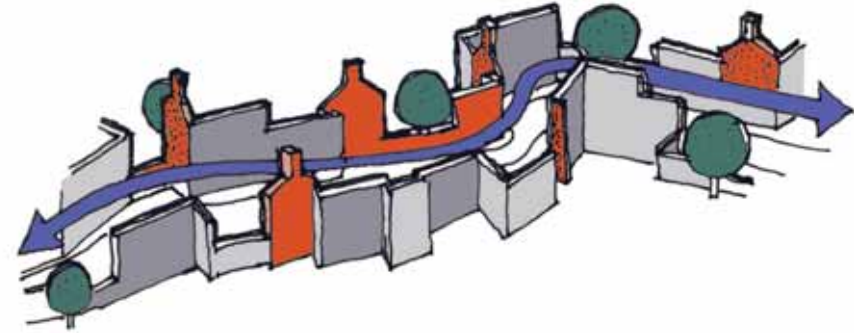


Limiting visual length by curve in street

45



The CONTINUITY of a route needs to be emphasised by minimising breaks in the built frontage. Gaps for road junctions etc. need to be sited so as to have as little impact as possible on the visual continuity. The route should be a unifying element, tying groups of buildings together and making its whole length a composition in itself.



A large development is more attractive if there is a contrast in the CHARACTER of streets and spaces. For example, a network of informal streets with varied building forms and alignment may contrast with streets of squares of formal design with a unified and symmetrical treatment which can act as focuses within the informal matrix. This is better than a large network consisting entirely of formally designed streets and spaces which could be monotonous and disorientating. Another balance to be struck is that between diversity and unity in the design of buildings. Many Irish towns have varied building heights, frontage widths, alignments and detailed treatment but are unified by consistent facing materials and proportions of window openings.

hard and soft landscape

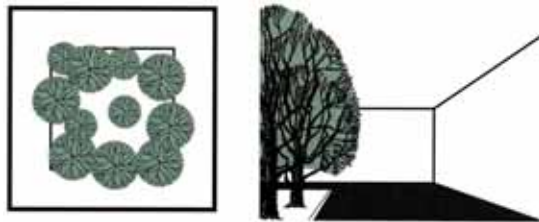
The use of trees and planting to articulate a large development has been described under Landscape Structure above. Trees and hedges can also be used as part of built frontages or used to articulate spaces in the form of a barrier or screen. For example a block of trees in the centre of a square may transform the square into a linear circuit of spaces, or a block of trees across the middle of a large or long space may transform it into two separate spaces.

A tree may also be used as a centre point to punctuate and reinforce the character of a space, or rows of trees may give directional emphasis to a street and reduce the impact of traffic on frontage dwellings. It is important that the design of the street or space is such that it can accommodate the mature growth of trees suitable for these purposes. The proportion of tree enclosure to built enclosure will affect the identity of a space, giving it a 'hard' or 'soft' character. Suitable tree species for urban spaces are listed in Appendix A.

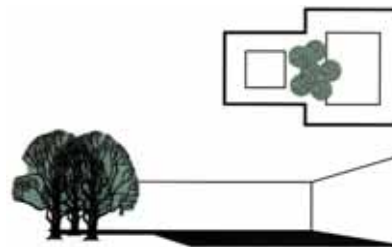


Ground surface utilisation

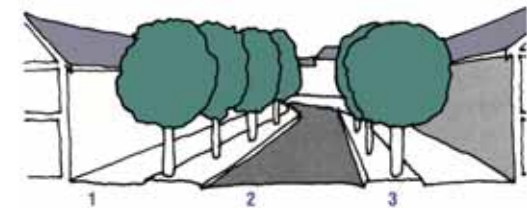
The ground surface is one of the enclosing planes of any space and can be treated in such a way as to either complement or contrast with the character of the enclosing buildings. It may have a greater or lesser proportion of hard paving to soft planting, and it may be designed to achieve varying degrees of formality.



Block of trees transforms square into linear circuit



Block of trees transforms long space into two separate spaces



Street as three parallel spaces

For example, exceptionally large spaces can be unwelcoming, if entirely hard paved, unless the use of space is an important factor. Arbitrary changes in paving material should be avoided, with changes instead being used to delineate function or the psychological boundaries between public and private areas. Where, however, the intention is to emphasise the visual characteristic of the space, other function divisions can be suppressed as long as this does not introduce confusion.



Ground Surface Utilisation



Wider space with higher proportion of planted surface area

house to house relationship

A scheme composed of a majority of detached or semi-detached houses on plots is unlikely to achieve the densities required by the County Development Plan and the Government's Residential Density Guidelines satisfactorily, except on sites zoned for low-density development. Whilst at some later date extra dwellings could be squeezed in, this is unlikely to be satisfactory.

In order to enclose spaces and create continuous routes (see paragraph on Street Spaces *page 32*) as much continuity of built frontage as possible should be achieved. Joining dwellings to one another also minimises heat loss through external walls and allows more economic construction. This need not mean suppression of the individuality of the dwelling; historic towns are largely made up of individual buildings which happen to be joined to one another. It may also be possible to position detached and semi-detached houses in ways which enhance the impression of continuity of frontage.

Even where space for the access of cars is required between buildings, it is possible to maintain continuity by bridging over at first floor level. At the ends of terraces, or in the case of detached buildings, the illusion of continuity may be created by forming an overlapping right-angled corner which, on approach, conceals the gap. The flank of the garden of an end house is the frequent cause of a break in frontage continuity and a loss of informal surveillance of the street. These flanks should be minimised in length and located in non-prominent positions in the layout, or else the house should be designed as a corner-turning building which screens at least part of the garden flank, with the remainder screened by a wall at least 1.8m in height. The length of garden walls on the street frontage should, however, be kept to a minimum. Another device for turning a corner is the insertion of apartments, which have little private open space requirement.



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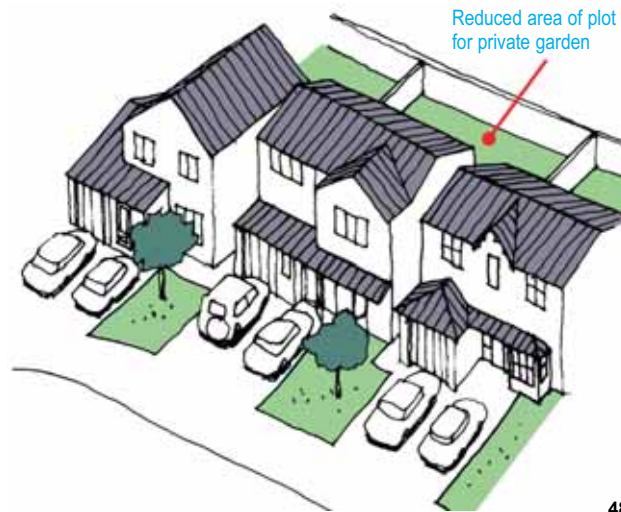
36

house to street relationship

To achieve required densities and at the same time leave sufficient space for rear private gardens it is necessary for houses to be sited either at the back edge of the public footway or set back no more than 2m behind enclosed front gardens, with walls and railing in traditional Irish style. This will require car parking to be sited between houses, beneath upper storey structures, or to the rear. This has the advantage of reducing the visual impact of on-site parked cars. The setting back of houses to accommodate parking spaces in front results in a car-dominated street scene and, at the required density, unacceptable pressure on back garden size and rear privacy. Use of a mixture of parking solutions will increase the individuality of dwellings.



Houses set forward



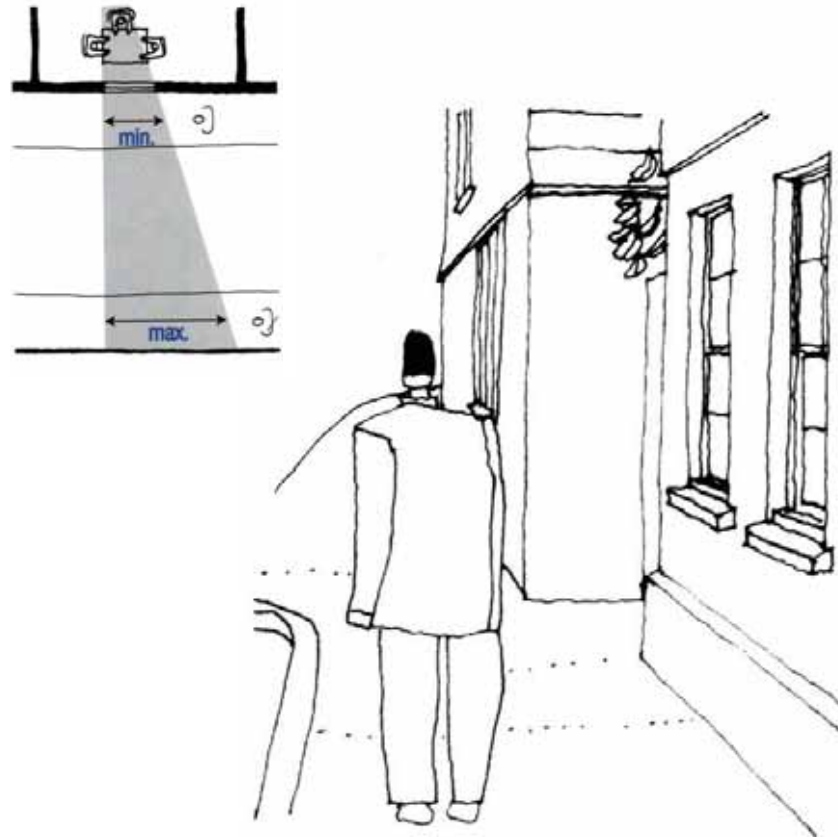
Houses set back



Walled front gardens with their requisite planting, to provide a soft, green contrast.

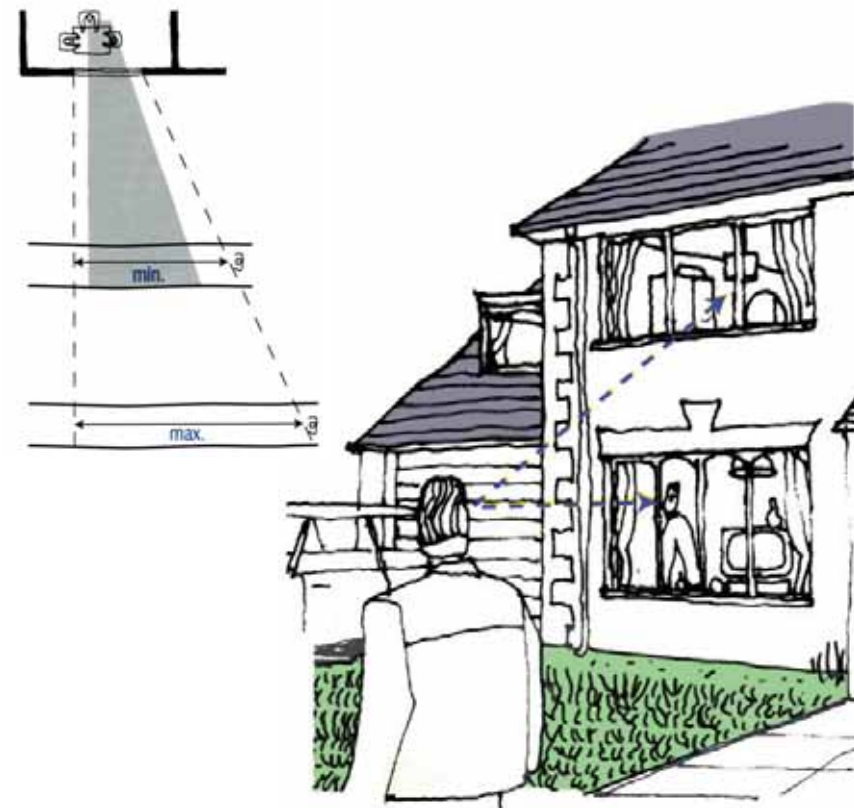
There may, however, be places in a layout where space permits one or two dwellings to be set back a considerable distance to create an incidental feeling of extra space and greenery. Alternatively, three-storey houses are tall enough to maintain a feeling of enclosure even with front gardens large enough to contain a tree. Attention should be given to the provision of covered, secure cycle storage in a position at least as convenient as the parking space. One of the greatest deterrents to cycle use for local trips is the inconvenience of the home storage.

Care should always be taken to ensure that all spaces are perceived to be overlooked by windows, and that alcoves and corners where an intruder could hide are not created. Experience shows that residents have a lower expectation of privacy from the public or access side of the dwelling, and it is therefore not necessary to be as stringent in requirements for privacy on this side. Traditionally, houses were often set forward up to the back edge of the footway in the street, but because of the narrowness of the windows and the fact that they were well inset, a wide field of vision into the interior was not offered. Where houses were set back, a screen of hedge or wall to the front garden inhibited the view. Houses that are set back with open plan front gardens and wide windows offer less privacy from the street. The vertically proportioned window of the double-hung sash type offers many utility and privacy advantages.



50

The restricted field of vision presented by small windows and set forward buildings

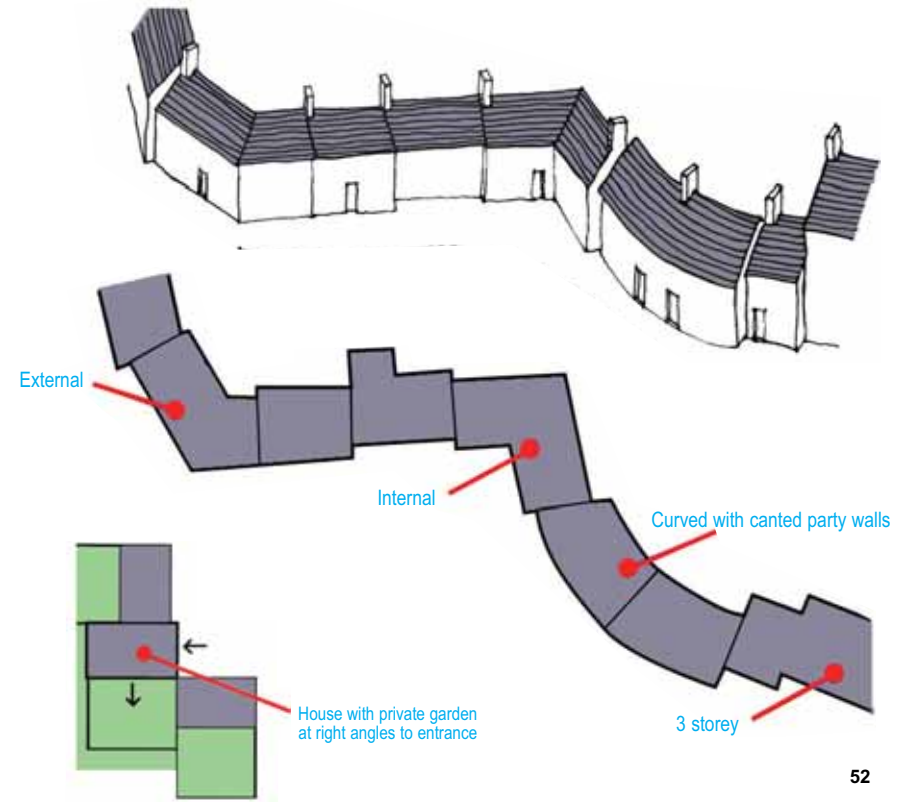


51

Privacy lost through set back houses giving wider field of vision

house to layout relationship

Rather than deploying a range of house types which all have the same relationship to the road, the developer should have at least a proportion of houses which perform a particular role according to their position in the layout. The plan forms of houses should, for example, be capable of turning both internal and external corners, there should be houses of sufficiently distinctive design to be capable of terminating a vista or changing the direction of a road, and there should be houses whose private garden side is at right-angles to the entrance side. Other useful houses could be of tapered plan form, capable of use in curved terraces or crescents, and houses of three or more storeys for use where extra height is required. There may be situations where a combination of several of the attributes is needed.



house to topography relationship

Steeply sloping sites will have an effect on the relationship between the street, the house and its garden. Aligning a street along or diagonally across the contours will result in a shallower gradient for pedestrians and vehicles, but the dwellings each side of the street are then at differing levels and their gardens slope away from or towards the house.

If front doors are at street level, the rear of the house on the uphill side of the street will be sunk into the ground whilst that on the downhill side will be above ground level. This will require specially designed house types (see fig below). Alternatively houses may be set back but this lowers the density. The solution which should be avoided at all costs is the use of standard house types on bulldozed level platforms, as this results in unsightly and unmanageably steep slopes or retaining walls around the edge of these platforms



Standard house types unable to accommodate steeply sloping sites without extensive ground works

Other solutions which can make the most of a cross-fall are the use of split-level house types, in which one side of the house can function as a garden room, adding to the amenity and value of the house, and the use of apartments whereby an upper level apartment can be accessed from the uphill side and the one below from the downhill side, reducing the need for internal stairs. A complete extra floor is less likely to create access/mobility and construction stage problems than use of half levels. In some circumstances cross-falls may allow the insertion of car parking underneath buildings, but this should be arranged so as not to dominate street frontages or prevent entrance to buildings. Instead of running streets along or diagonally across the contours, running streets directly up hill provided the gradient is below the maximum permissible (usually 1 in 10) will result in the street, house and back garden being on the same level. However, overuse or excessive lengths of such streets should be avoided and they are more suited to picturesque, minor, side roads.

Alternatively the more steeply sloping parts of a site could be developed at a lower net density than the rest of the site so that level changes could be accommodated within larger plots without resorting to retaining walls or steep banks. The overall net site density would, however, still have to fall within the range specified for the site in the County Development Plan or local area plan or, in other cases, the appropriate range required by the Residential Density Guidelines. Clearly, a grid layout, deformed or otherwise, is less suitable for noticeably undulating sites.



residential areas of lower density

On sites larger than 2ha. (5 acres) it will be possible for a proportion of the land to be laid out at net residential densities below the minimum specified for that zoning in the County Development Plan (or, on un-zoned sites, that required by the Residential Density Guidelines), provided the overall net site density is above this figure. To do so, the density of the remainder of the site would have to be correspondingly higher to compensate.

Within an area of lower density, provided the net residential density of that area were below 20 dwellings per hectare (8 per acre), it would be possible for the majority of houses within it to be detached or semi-detached. Generous tree and hedge planting would be necessary to enclose the street and give a landscape-dominated character. This would be helped by the footway being separated from the carriageway of the road by a tree-planted verge of 3m to allow trees to grow to maturity. For suitable tree species see Appendix A.



building form

Although this document is about improving layout design, building form can influence the layout and it is necessary to look at some additional Irish towns. For development in the medium density range (20-35 dwellings per hectare) it is appropriate to look to the urban building traditions of the region. The character of buildings in the countryside reflects their isolation and so has little relevance in urban densities. Houses in settlements date largely to the 18th and 19th centuries, and are conjoined to form terraces with remarkable uniform frontage lines.

Buildings are often of three or four storeys on the main streets, with rarely more than two adjoining of the same design resulting in considerable variety of eaves line. In such situations, the main block is usually double-pile, (two rooms in depth), often with narrow rear wings or extensions. Fronts are of two or three bays, of double-hung sash windows, with the ground floor strongly differentiated. Two-storey buildings abound in lesser streets, with, most often, symmetrical three bay fronts and a somewhat more shallow plan-depth. Tucked away, are short terraces of one-storey and attic cottages, a particular feature of towns in Ireland. In all cases it is only the fronts that are elaborated with two-dimensional neoclassical detail, these becoming eclectic from mid 19th century onwards.

The elevations of the two-storey dwellings tend to be more modest, but the current tendency to paint facades in bright hues, only serves to emphasise the individuality of each house. The visual 'scale', is largely determined by the tall ceiling heights of up to 3 metres which provides wall-space for large windows. Door surrounds are particularly significant and introduce a special degree of inventiveness. Strict building lines discourage bay windows, although shallow bows can be seen. In the late 19th century, dormer windows became more popular, and these are usually seen as a vertical continuation of the wall face.



Roofs are virtually always constructed of slate to a pitch of between 30 to 40 degrees with deep chimney stacks. Hip roofs are rare. These are either of later date or as a result of special constraints. Walls are mostly of stuccoed rough masonry, with brick as a bedding armature for applied features. Facades completely constructed in brick are rare, because brick was, from the 19th century, a prestigious material used mainly in the construction of important public or commercial buildings. Walls hung in slate have a place in the local architectural vocabulary, providing a more 'vernacular' appearance.

It is recommended that new residential developments should take their cue from the above-mentioned local and established traditions. Where this takes place, new construction can be seen to be rooted in the particular building location, providing a continuation of cultural identity. There is, obviously, plenty of room for inventiveness and creativity within the above-mentioned parameters.



materials and detailing

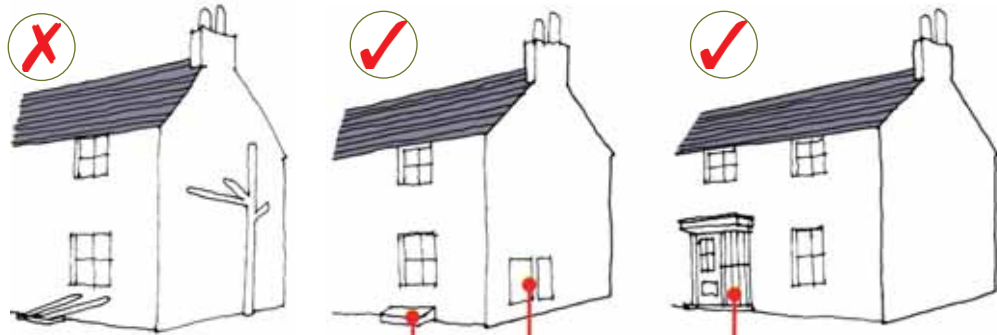
Smooth render painted or integrally coloured is the preferred wall facing and should be used on the majority of buildings in a development. Red brick with stucco detail is occasionally found on key buildings in the streetscape dating from the 19th century and unfaced stonework on warehouses and industrial buildings, but these materials should be used sparingly in modern development. Roofs should be clad in slate, whether real, reconstituted, fibre or blue-black concrete. In high quality contemporary designs, other materials such as zinc may be appropriate.

Windows and doors should be inset by at least 100mm and provided with a stone or concrete sub-cill. Other details can be used to enhance and individualise each building, for example door and window surrounds, keystones over openings, eaves corbels and quoins (in the same colour as the wall). Generally, eaves should be simply detailed with a flat soffit and no more than 100mm overhang, and verges should be a simple junction between roofing slate and rendered gable with no overhang or bargeboard. If balconies are provided, they should be either proper accessible balconies or else full-height, inward-opening doors with a balustrade in front, not 'clip-on' metal structures in front of waist-high windows. Porches should be in the form of a simple, flat-topped hood over the door.

Traditionally, chimneys play an important architectural role in the composition of houses and should, therefore, be substantial in appearance with generous capping. They offer flexibility in the choice of heating fuel, provide ventilation and contribute to the structure of the building. They should be positioned on the ridge line of the roof and should also be present on any gable end. In the case of small dwellings or apartments without fireplaces, gas flues, ventilation, radon vents, or soil and vent outlets can be combined into chimney structures. If not dealt with in this way, vent pipe outlets should be located on rear roof slopes.



Soil and waste plumbing should be run internally and not appear on the outside of buildings. Grey rainwater goods should be avoided and either black or the same colour as the render used. Meter cupboards and service intakes should either be located out of sight on flank elevations, in ground level chambers, or accommodated in purpose-made joinery that fits in with the pattern of doors and windows on the elevation. Another possibility is to build meter cupboards inconspicuously into the inside face of a front garden wall. If there is a rear parking area or access way it may be possible to bring in underground services and locate meters to the rear instead of the front of the house.



Soil and waste pipes should be run internally

Ground level chamber

Cupboards on flank

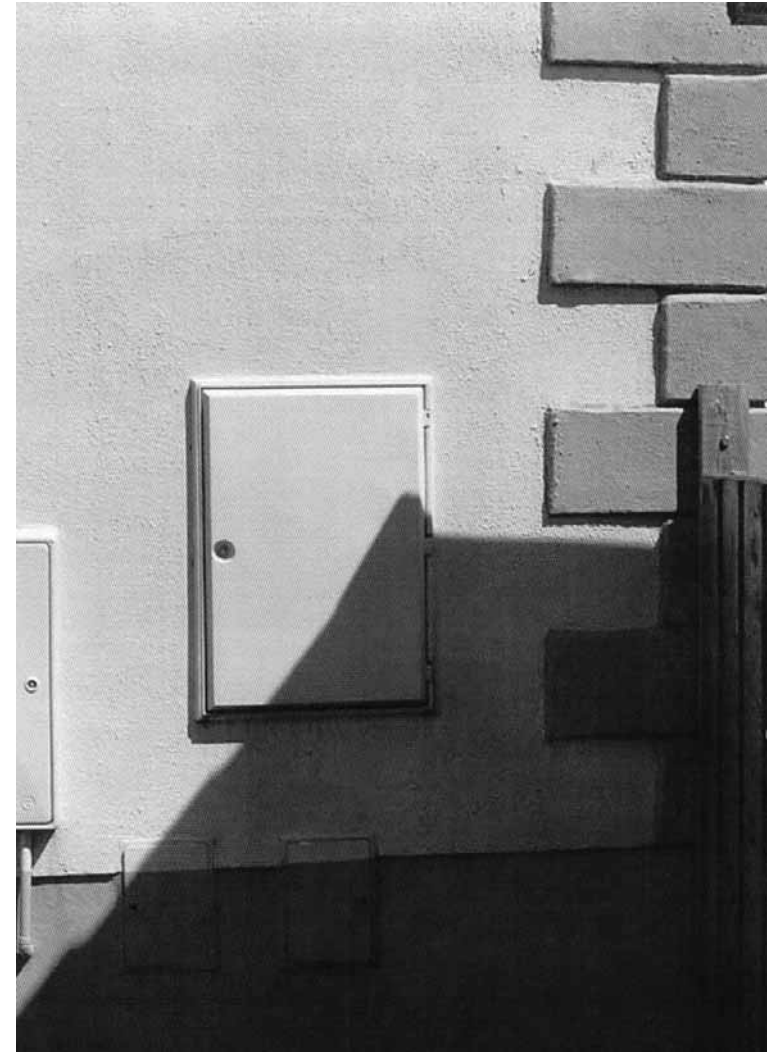
Purpose-made joinery

60

Acceptable positions for meters and service intakes



61





Coverage Assessment

SITE CONTEXT

Does the development relate to its context?

Yes No

Key considerations are:-

does the development perpetuate the existing character or create a new one?

Is a 'site appraisal' submitted with the application?

LANDSCAPE STRUCTURE

Does the development retain key elements of the landscape structure and how are they used to advantage?

Key considerations are:-

adequate public open space

promotion of local ecology

provision of sustainable drainage which takes account of natural lines of drainage, avoids the need for pumping, and includes where appropriate surface water storage features such as ponds and swales

reinforcement of existing landscape structure

Layout Principles

Is the proposed system of road and streets appropriate for the site?

Yes No

Key considerations are:

permeability

legibility with particular reference to important features such as the core area of pedestrian activity modal points, character areas, landmarks, edges and external image

Street Spaces

Is there sufficient enclosure of space to create an attractive urban environment?

Key considerations are:-

pedestrian scale

height to width ratio of the 'street'

building frontages

provision of dynamic and static spaces

continuity of routes

variation in character of spaces

part three

physical design considerations

- The House Envelope
- The House Curtilage
- Services

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the house envelope

internal space standards

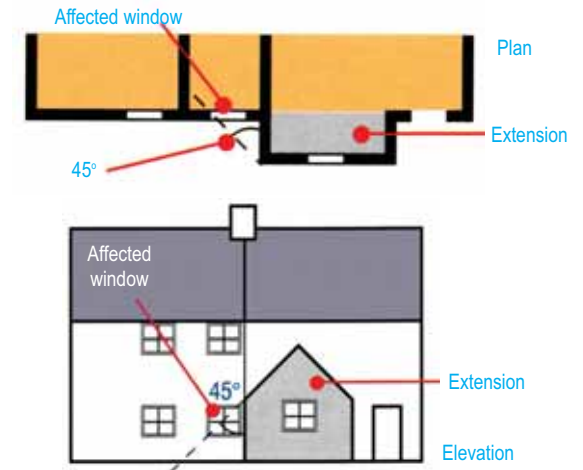
It is important that new houses and apartments do not, due to their size or plan form, become obsolete before their constructional life expires. This possibility can be reduced by providing adequate space within the new house or apartment at the outset. Whilst it is recognised that the market at the time of initial sale will be the main determinant of acceptability of space provision in dwellings for sale, there are space standards which have to be applied to social and affordable housing (see Quality Housing for Sustainable Communities: Department of the Environment, Heritage and Local Government, 2007). These are reproduced for reference in Appendix B. As it is an aim of this Guide to ensure that the design of social and affordable housing is of a standard comparable with that of housing for sale on the open market, developers may wish to have regard to social housing space standards in the design of private housing as well. The Sustainable Urban Housing Design Standards for New Apartments (Sept 2007) give guidance to developers for the size of rooms, balconies and outside space for new apartment buildings in residential estates.



extendibility

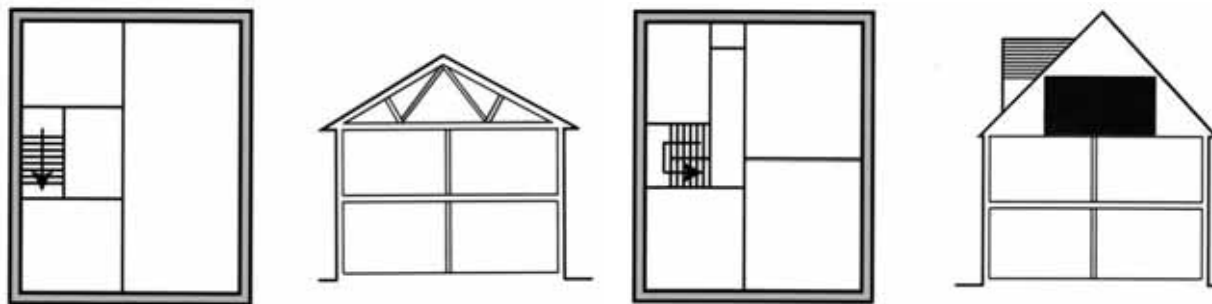
A majority of houses within a development should be designed to be extendible, and drawings showing how this can be achieved should be submitted with planning applications. This will help prevent future obsolescence in the facing of rising expectations, and lead to more stable communities. Extendibility may be built into a dwelling either by providing sufficient private garden area to accommodate a ground level rear extension or by providing roof pitches and timbers capable of accommodating a loft conversion, or both. In some cases, fully fitting out an attic floor may be more economic than providing for a future attic extension. As making full use of roofspace (or creating lower ground floor 'garden' levels to cope with slopes) also allow greater future flexibility, they will be treated as equivalent to demonstrating extendibility.

The 48m² minimum permissible garden size for one and two-bedroom houses is not sufficient for an extension, and in such cases a condition should be attached to the planning permission requiring no extension of any size within the curtilage without further planning permission. Where the developer wishes to provide for rear extendibility, he should indicate a likely extension footprint and appropriate garden size on the initial application, the garden area remaining after construction of the extension to be no less than 48m². Any extension should not overshadow an existing window by throwing a combined plan and section 45 degree overshadowing zone over the centre of the window.



65

To avoid unacceptably bulky dormer structures, a loft conversion requires a steeply pitched roof (40 degrees or more) of purlin rather than trussed rafter construction. The stair will have to rise in the centre of the house plan rather than under the eaves. Rooflights should preferably be confined to rear elevations and not mixed with dormers. Regard should be had to the requirements for means of escape/rescue under the Building Regulations.



Stairwell layout for loft conversion

66



Example of roof types that could accommodate loft conversions

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sound insulation

Despite Building Regulation requirements for sound reduction through party walls, many people prefer detached houses because of the lack of neighbour noise problems through party walls. Clearly, the need to join houses together to achieve higher densities and reduce heat loss requires higher sound reduction performance from party walls than has been the case in the past in order to gain public acceptance.

Designers should aim to exceed the sound insulation of party walls specified in the Building Regulations so that their performance is equivalent to the detached house. It is also prudent to zone the rooms of adjoining houses so that, for example, living rooms, stairs and toilets do not abut neighbouring bedrooms.



Semi detached housing

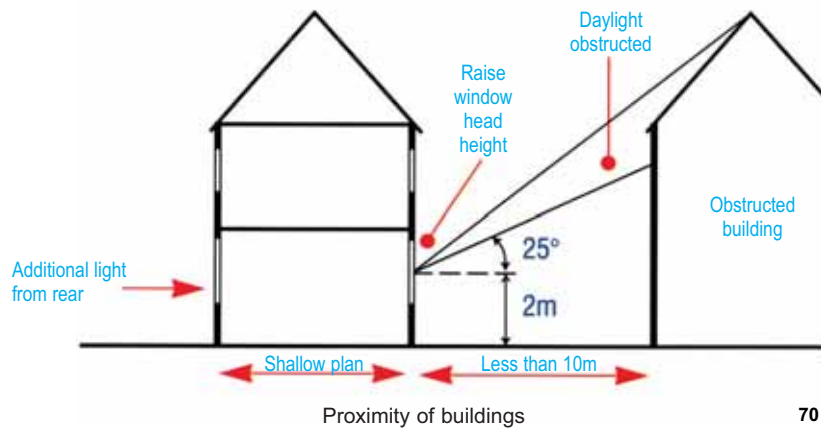
daylight and sunlight

Overshadowing will generally only cause problems where buildings of significant height are involved or where new buildings are located very close to adjoining buildings. The planning authority will require submission of a daylight and shadow projection diagram in such cases.

Requiring all dwellings to have sunlit rooms or optimum solar orientation may unduly constrain layout in other respects. A view of a sunlit space may be an acceptable substitute for sunlit rooms in some dwellings. In fact any wall containing windows oriented within 30 degrees of south will benefit, and rear wings can project from houses to take advantage of this, so there is no justification in requiring all roads and houses to run east-west. However the benefits can be increased by placing living rooms on facades within 30 degrees of south and by increasing window sizes in these locations. Also the loss of heat on north facades can be reduced by not having projections which cause permanent shade on this side.



Good natural light makes dwellings more attractive, pleasant and energy-efficient. Housing layouts may be designed to maximise daylight and sunlight to dwellings as far as possible, but not to the exclusion of other considerations, such as privacy or the achievement of an attractive streetscape. Where buildings are close together it is possible to supplement the amount of daylight from the other side of the building by having through rooms, and by raising window head heights. Also overshadowing of windows by projections and extensions may be avoided by ensuring that the centre of no window lies within a combined plan and section 45 degree overshadowing zone thrown by the extension.



placing of openings

The best solution for the front elevation of a single average medium-to-narrow frontage house is a symmetrical pattern of openings arranged around a front door placed on the central axis. This arrangement provides a tightly ordered grouping of features and a strong visual presence. Departures from strict symmetry are possible as long as the central axis is still strongly emphasised. The worst solution is one that is almost but not quite symmetrical, which is visually irritating, particularly when repeated on a number of houses.

In the case of a wider frontage elevation, the need for a strongly centralised composition is less great, due to the weakening of the implied central axis, and asymmetrical arrangements can look attractive. Even in such cases the front door is the most important element and should form the basis of the pattern. Similarly, when houses are linked in terraces, the elevation encompasses more than one house. There is, as a consequence, greater scope for freedom of design because each unit contributes towards the larger composition.

Normally, in the case of masonry buildings, the total area of window and door openings should be less than the area of solid wall. Openings should be arranged so as to emphasise the visual strength of the wall by allowing as wide a solid pier as possible between openings, and keeping openings as far away as possible from the corners of the building to give an impression of solid corner buttressing. This approach can be varied with a framed building where an impression of lightness is appropriate. In such cases, the module of the frame should determine the positioning of the openings, and the proportion of glazed area can be greater.



Symmetrical elevation has powerful presence and usefully commands the adjoining space thus tying house and space into one composition

Arrangement of fenestration



Casual arrangement with house tenuously connected to street space

73



74

windows

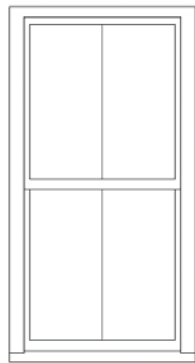
On front elevations window openings should generally be vertically proportioned or at least square. Vertically sliding sash windows of slim frame profile, i.e. no thicker than 70mm viewed from the exterior, are preferred, and these can be of painted timber, colour-coated metal or uPVC but not stained timber or silver-finish metal which give a drab effect.

Glazing bars for small-pane windows are too thick when used with double-glazed panes and instead should be stuck on the face of the glass and no thicker than 20mm viewed from the exterior. Large unsubdivided panes of glass should not be used, as they distort the visual scale of the building and prevent escape in case of fire. Small top vents should also be avoided as they unbalance the appearance of the window. A change in pattern of subdivision, e.g. to a three-light window, can be used to highlight particular parts of the elevation, such as the central axis. The use of casement windows of slim frame profile is appropriate for square proportioned windows and on rear or side elevations.

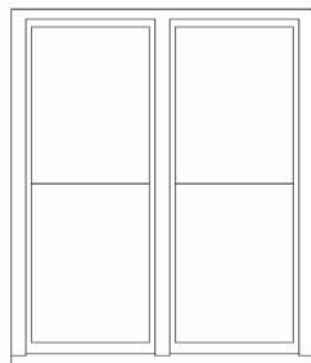
More demanding insulation requirements will naturally result in changes to window design. While the drawings on this page show traditional designs, and the photo a more modern one, the common principle underlying both is vertical emphasis, and this principle should continue to influence window design.



Sophisticated example of balanced fenestration



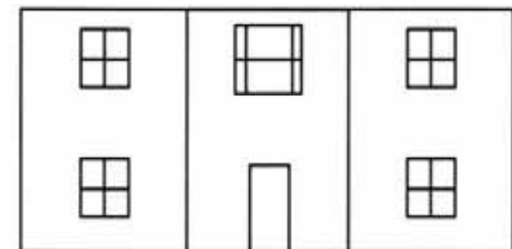
Preferred sash window



Casement Style



Unsuitable multi-size glazing



Variation of subdivision highlights central axis

75

energy-efficient building design

approach

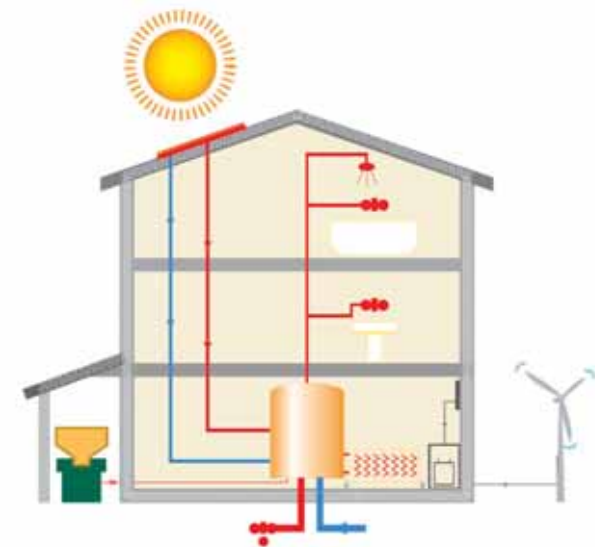
Cork County Council is committed as a priority to encouraging more sustainable development through energy end use efficiency, and increasing the use of renewable energy in all new building projects.

It will achieve this by:

- Encouraging responsible environmental management in construction
- Promoting sustainable approaches to housing developments by spatial planning, layout, design and detailed specification
- Ensuring high standards of energy efficiency in all housing developments under its remit, and encouraging developers, owners, and tenants to improve the environmental performance of the building stock, including the deployment of renewable energy
- Anticipating the operational implementation of the EU Directive on the Energy Performance of Buildings (EPBD) by encouraging the energy rating and labelling of building energy performance, so as to give visible recognition of such improvements.



The specific approach proposed for developers is to set a target, accompanied by a menu of design and technology options, including renewable energy technologies, as a means of offering flexibility towards meeting that target in the most technically and economically feasible manner on a case by case basis.



menu of options

In pursuit of these targets, a strong menu of superior design and specification options will include the following:

- Enhanced levels of insulation in walls, roofs, floors, glazing and doors
- Use of healthy and controllable ventilation systems
- Use of daylight
- More sustainable building materials, with low embodied energy and reduced construction waste improved heat generation appliance efficiency, e.g. condensing boilers
- Intelligent heating system configuration and time/temperature/zone/function controls
- Efficient provision of domestic hot water
- Reduced uncontrolled air infiltration losses
- Heat recovery systems
- Water conservation measures, including means of capturing and storing greywater, and rainwater from roofs
- Incorporation of renewable energy systems e.g. active solar such as direct-lay photovoltaic slates, heat pumps, biomass
- Fuel switching to low or zero CO² emitting fuels
- Energy efficient lighting systems
- Provision of appropriate group or district heating systems.

In the case of non-domestic buildings, additional options include:

- Heating, ventilation and air conditioning systems and controls
- Electrical energy use including motive power
- Efficient lighting systems and controls
- Building Energy Management Systems
- Occupancy controls
- Monitoring and Targeting systems
- Combined Heat and Power (CHP)

Other measures which can contribute to the energy efficiency and renewable energy targets can also be considered.

This menu approach enables specifiers and developers to adopt approaches which are responsive to site and client circumstances and constraints, and offers the flexibility to explore and employ different mixes of options on a case by case basis, to maximise technical and economic feasibility.

All buildings will be required to incorporate provisions to reduce water use including low flow fittings (toilets, taps, shower heads).



the house curtilage

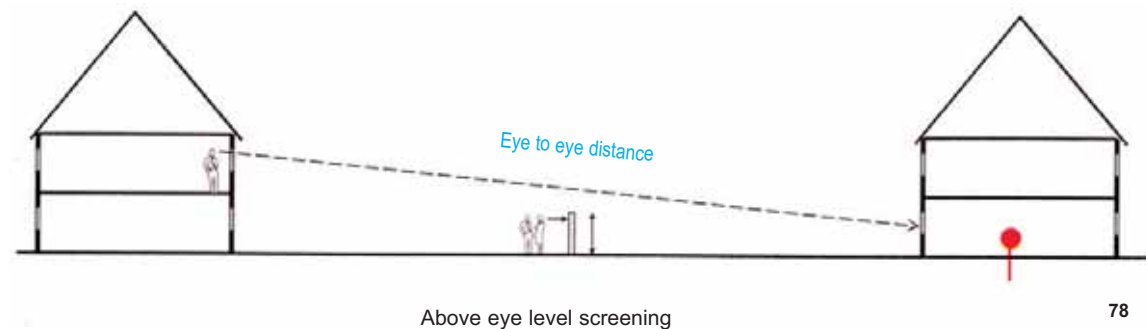
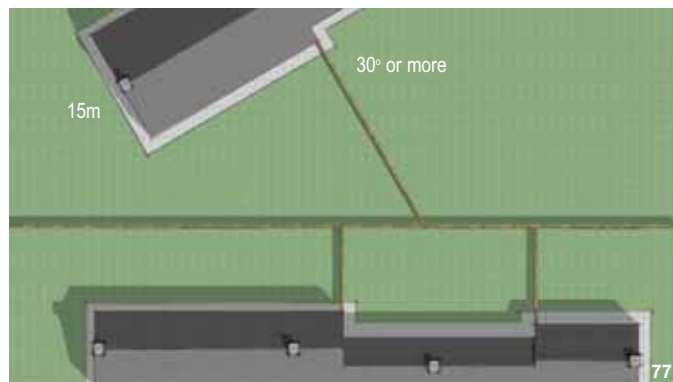
rear privacy

Residents have a higher expectation of privacy from the private or garden side of the dwelling than from the front. At medium to high densities some overlooking is inevitable, but as a minimum every effort should be made to avoid overlooking of rear-facing living room windows and adjacent sitting-out areas. This may be achieved (a) by remoteness, or (b) by design, or by a combination of the two. Usually privacy achieved by design is more effective.

(a) Remoteness

With rear-facing habitable rooms, the rear faces of opposite houses approximately parallel, and an intervening wall, fence or other visual barrier which is above eye-level from the potential vantage point, a minimum of 22m between the backs of houses will be acceptable. Where the backs of houses are at more than 30 degrees to one another, this separation may be reduced to 15m from the nearest corner. Where houses are at right angles to one another, see (b) below. These dimensions should also be applied when considering future extensions which have rear-facing windows.

Where new development backs on to the rear of existing housing and the rear faces of the new houses are approximately parallel to the existing, the rear of the new houses may not encroach any closer than 11m to an existing rear boundary. Where the new houses are at an angle of greater than 30 degrees to the existing, proximity may increase proportionately down to 1m from the boundary where the new houses are at right angles to the existing. Upper storey apartments can cause problems of overlooking from living rooms, and therefore any rear-facing upper-storey living room or balcony should be a comfortable distance to the rear of any other dwelling. It should, however, be borne in mind that oblique views over side boundaries from upper storey living rooms can also be a problem, and this should be safeguarded against.



(b) Design

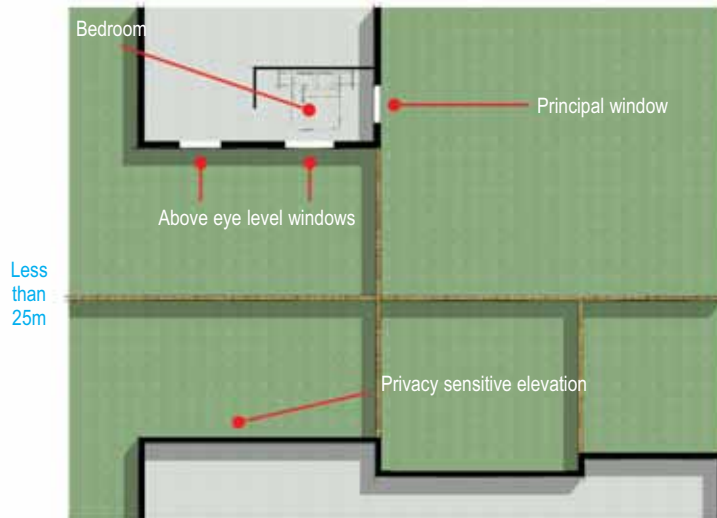
The rears of houses may be positioned more closely together than as stipulated under (a) above if one or both of the houses concerned are designed in such a way as not to overlook one another. This would require an intervening above-eye-level wall, fence or other visual barrier between facing ground floor windows and no rear-facing, upper storey bedroom or living room windows. This may be achieved by facing upper storey windows in other directions, by having projecting rear wings that block the view, or by internally zoning the accommodation so that only bathrooms and landings are rear-facing, and provided with above-eye-level windows.

An above-eye-level secondary window to a bedroom is also possible on a privacy-sensitive elevation. In the case of a completely windowless elevation, the house could be positioned on the boundary, provided it did not cause unacceptable overshadowing of a neighbouring house or garden.

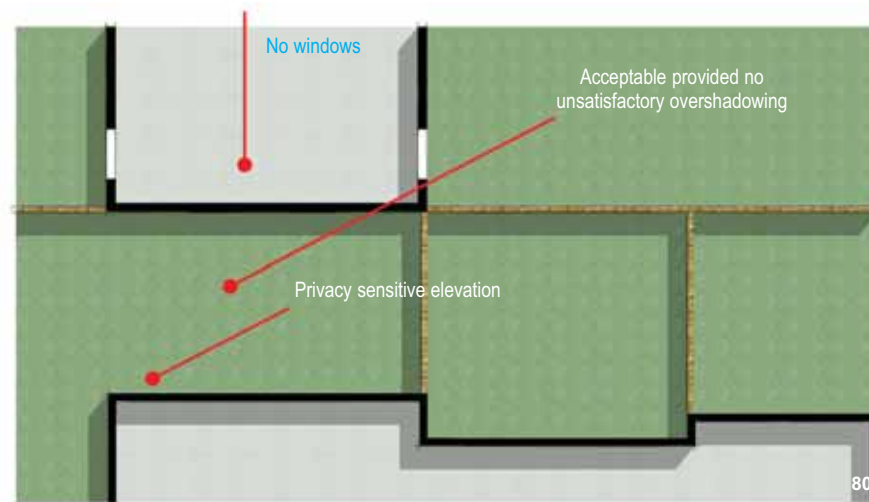
Houses with rear windows placed to allow reduced back to back distances may limit scope for exempt extensions



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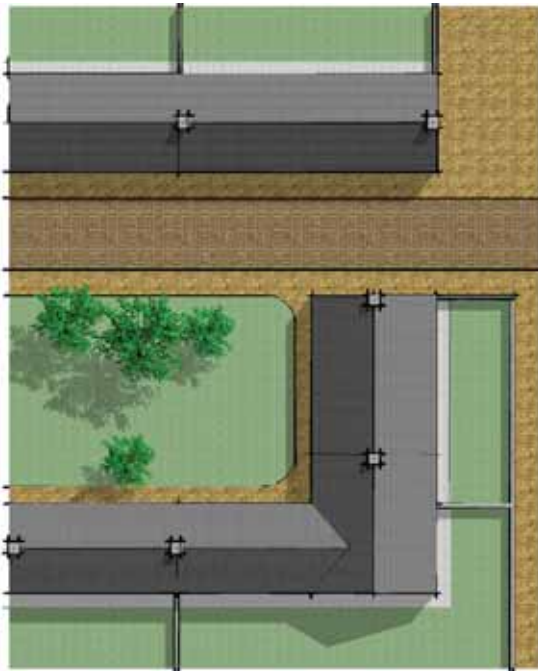


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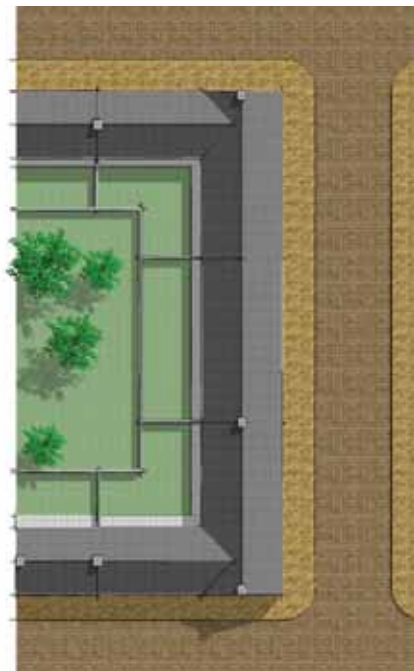
garden size

All houses should have a rear private garden area. For 3 bedroom houses and larger, the minimum size is 60m², which is sufficient to accommodate most household activities and at the same time adequate to offer visual delight, receive some sunshine and encourage plant growth. For one and two-bedroom houses this minimum size may reduce to 48m². In such cases a condition could be attached to any grant of permission requiring no extension or other development within the dwelling's curtilage without further planning permission, notwithstanding the exempted development provisions of the Planning and Development Regulations 2001.

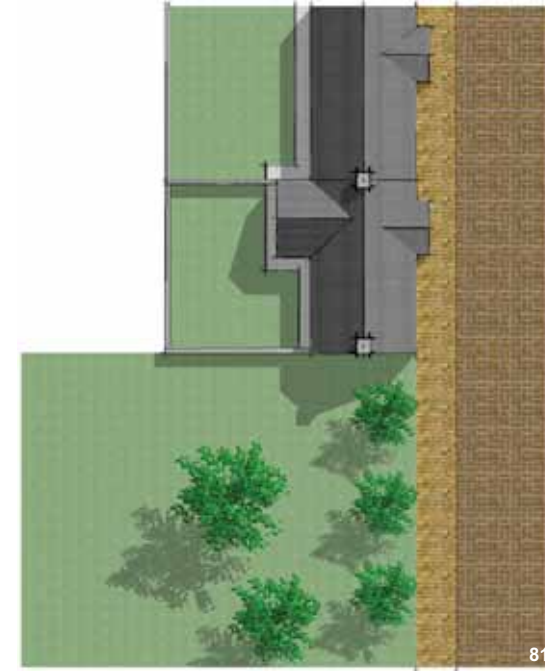
It is also acceptable to provide a combination of private and semi-private spaces, for terraces of houses or squares for example. This could take the form of small private gardens for each dwelling opening directly on to a semi-private enclosed landscaped space solely for the use of the dwellings which directly adjoin this space. Alternatively the semi-private space could be in front of and overlooked by the dwellings as in the traditional Georgian square. In these cases the sum of the area of both private and semi-private spaces will be accepted as satisfying the private open space requirement for these dwellings.



Facing open space



Backing onto open space

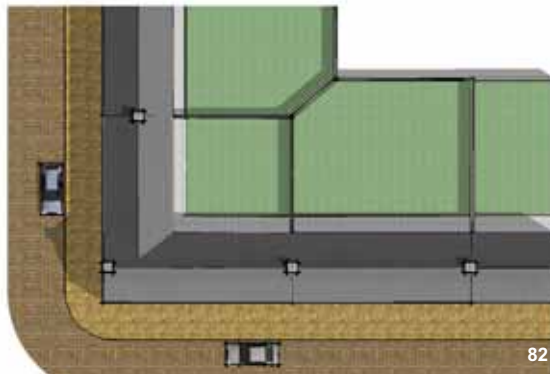


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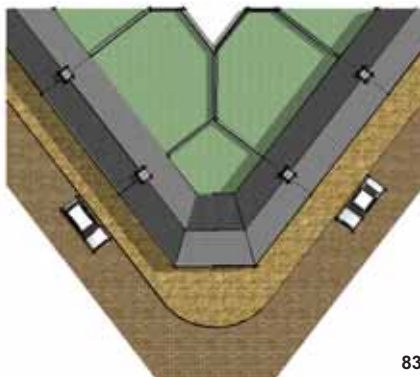
Adjacent to open space

Where the majority of houses comply with the above requirements there may be some houses which, due to their situation in the layout, cannot be provided with a private garden to the required standard. These may be, for example, houses which turn external corners or are required for townscape reasons in locations which are hemmed in at the rear. If the standard were strictly adhered to there would be gaps in these positions, and the whole street scene would be the poorer for their lack. In a development comprising a number of houses, purchasers will have the choice whether or not to buy one of these 'special' houses, and the planning authority will therefore be flexible as to how much private garden area it will require in such situations.

For apartments, private open space will be in the form of landscaped areas, courtyards, terraces, patios and balconies. Each apartment or duplex unit should have a usable private open space which gets some sunlight and is not directly overlooked. If in the form of a balcony or other small area, it should be supplemented by ground level communal garden(s). These should be usable, attractive amenity space, screened by above-eye-level walls or hedges and provided with seats. Unusable strips of space between car parks or roads and buildings will not count as communal open space.



External corner



House performing townscape role



walls and fences

All rear or side plot or garden boundaries facing public roads, footpaths or open spaces should be in the form of 1.8m high walls, which may be of stone, facing brick or blockwork rendered both sides. Unfaced blockwork is not acceptable. Where rear or side boundaries face parking areas or footpaths not accessible to the public, 1.8m high black-stained close-boarded fences are acceptable.

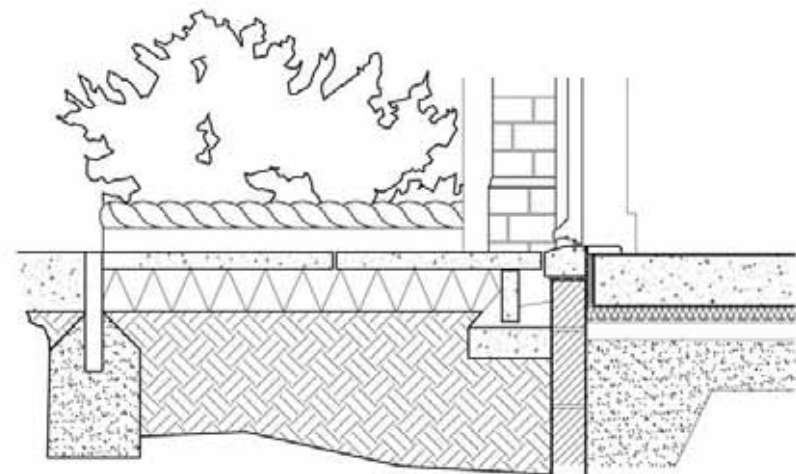
Care should be taken to route walls well clear of trees to avoid damage to tree roots during construction and damage to walls from tree growth or shrinkage. Hedge and screen planting is acceptable in low density areas (below 20 dwellings per hectare) but it should be backed by wattle fencing until it becomes well-established.



accessibility to dwellings for all

The designer should follow the principles of inclusive design, and take account of the needs of persons with mobility, sensory or intellectual impairments. Part M of the Building Regulations currently requires that dwellings are visitable by people with disabilities, and sets out a minimum level of provision to meet these requirements. It also requires, if possible, wheelchair access as far as the front door of every dwelling with a minimum 1.2m x 1.2m clear area in front and garden gates being a minimum of 800mm wide. In such cases the front door threshold should be a maximum of 15mm above the clear area in front and the door opening width a minimum of 775mm. If this is not practicable, e.g. because the gradient of approach is steeper than 1 in 15 or because the front door opens straight off the footway and its threshold is more than 15mm above the footway level, either steps negotiable by ambulant disabled people (for dimensions see para. 1.22 of Building Regulations Technical Guidance Document M) with a 900mm x 900mm landing at the top, would be acceptable, or else wheelchair access to a door at the side or through the back garden to a back door. For further details, and for access requirements to apartments and other building types, see Building Regulations Technical Guidance Document M.

Reference should be made to National Disability Authority document "Building for Everyone" for further guidance on pathway widths, gradients, steps, kerbing, dished kerbs, tactile paving etc. Streets and paths should provide for safe access by all users including those with mobility impairments.



Section through typical access

services

Supply and disposal services are to be provided in a manner that is technically and visually satisfactory i.e. both inconspicuously and accessibly. They are to be considered early in the design process as an integral part of a housing layout, and both the local authority and other service suppliers are to be consulted at an early stage.

Overhead distribution of electricity or telecommunications is unacceptable and a condition to this effect will be applied to planning permissions. Similarly it is unacceptable to build new housing development under or in close proximity to existing high tension overhead power lines and such lines will have to be removed as a condition of development. In no case may a dwelling be any closer than 25m to a power line.

The economic use of space in a layout means that underground services will almost inevitably be located under roads and footpaths. The laying of services under areas which are publicly taken in charge also results in ease of access for maintenance. The local authority prefers to avoid the necessity to negotiate a wayleave across land controlled by private householders, but if necessary such wayleaves are to be made available free of charge to the local authority or service supplier and entered into the title deeds of the property. For the design of sewerage, drainage and water supply services to be taken in charge, applicants should refer to 'Recommendations for Site Development Works for Housing Areas': Department of the Environment and Local Government 1998, and 'Specification for the provision of services in housing estates 2005.

routing of underground services

(a) Carriageways

Foul and surface water sewers will normally be laid at a depth of at least 1.2m under the carriageway. There is to be a horizontal separation between a sewer and any other service of at least 600mm and a vertical separation of at least 100mm. Water mains are also to be laid under the carriageway 1m out from the kerb and at a depth of at least 0.9m. Where water mains are closer than 5m to a dwelling, ductile iron pipes are to be used. There is to be a horizontal separation between water mains and any other service of at least 1m and a vertical separation of at least 200mm. Where cable TV or multi-carrier ducting is to be accommodated under the footpath, spacing requirements will result in gas mains also having to be under the carriageway at a depth of at least 0.8m.

(b) Footpaths

All remaining services can be accommodated under a 2m wide footpath including space for lighting columns and mini-pillars.

If lighting is accommodated on the face of buildings or outside the footpath and mini-pillars built into walls, a 1.8m wide footpath will suffice. Gas mains must be separated from electricity and telecommunications mains by 300mm and at a depth of at least 0.6m. Cable TV or multi-carrier ducting must be separated from telecommunications by 500mm and be at a depth of at least 0.45m. Electricity cable ducts are to be at least 0.5m below ground and telecommunications ducts 0.35m. Lighting columns and mini-pillars are to be at least 1m back from the kerb. Buildings near service mains should have sufficiently deep foundations not to impose any structural load on the mains. The above requirements may be subject to change, and may in future need to be checked against up to date guidance from the Council on engineering aspects.

(c) Verges

Verges alongside roads, whether private or publicly taken in charge, should be reserved for tree and other planting, and must therefore be kept clear of underground services.

(d) Public Open Space

If a sufficiently large area of space publicly taken in charge is available alongside a significant length of road, consideration could be given to locating sewers under it to avoid encumbering the carriageway. They should be located in such a way as not to prevent the proper planting of the open space and at a depth of no less than 0.9m.

(e) Shared Surface Streets

As there is no separate footpath in such streets, care needs to be taken to group services so that excavation for maintenance does not block the street. In those cases where there is a delineated pedestrian margin, this is the preferred location for at least those underground services that will fit under it. Multi-way ducts and/or jointing chambers may be required by some service suppliers. In these situations the minimum depth for electricity cable ducts increases to 0.9m, for telecommunications ducts to 0.75m and for gas mains to 0.8m.

(f) Shared Private Driveways

The developer must negotiate the system of supply with the individual service suppliers, agree rights of access and apportion any additional costs. Wayleaves with individual householders should be avoided, and any general wayleaves should be entered in the title deeds of all the properties sharing the access.



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gas and electricity equipment

Electrical substations and gas regulators should be housed in purpose-made buildings designed and located to blend in with the adjoining housing. Though they have to be accessibly located adjacent to a public road, they should not be located in prominent positions or in public open space. Electrical substations and gas regulators must be shown on planning applications and a condition will be imposed withdrawing statutory undertakers' rights to exemption under Section 4 (1) of the Planning and Development Act, 2000. It is an aim to reduce street clutter. Such items as lighting mini-pillars and post boxes can be built into walls. Street nameplates, hydrant and other statutory undertakers' marker plates should be fixed to walls where possible rather than on free-standing posts. Provision of carrier neutral ducting to facilitate provision of broadband is also desirable.

television and radio aerials and satellite dishes

In order to reduce TV and radio aerial clutter, developers should consider either a communal aerial with wired supply to each dwelling, or covenants requiring aerials to be located in lofts. A block of apartments should always have a communal aerial and satellite dish where cable TV is not available, and a condition will be attached to the planning permission to that effect.

Cable networks, in those areas where they are available, may supply all the channels currently available by conventional aerial or satellite dish, and developers should combine provision of cable TV with covenants banning both aerials and satellite dishes. In those areas where cable distribution is not available, satellite dishes should be located as inconspicuously as possible. This means that dishes should be of dark colour mesh except on white painted walls, where they should be of white mesh, and must be kept off the front of the dwelling and roofs. There will be a condition on planning permissions to this effect.



Wind turbines



Aerial disguised as a tree



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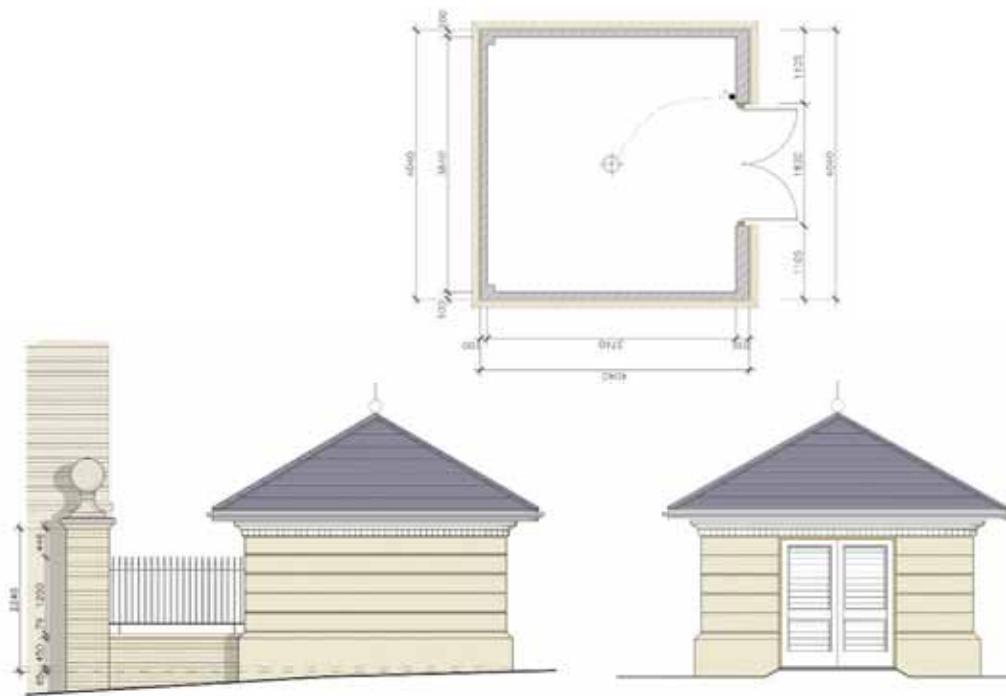
Civic Amenity Site - Bottle Bank

refuse collection

Refuse freighters will circulate on all parts of the road system taken in charge, but not on private driveways. Refuse collection will be made only from those dwellings within 25m of a public road. In other cases a shared bin collection point screened by an above-eye-level wall or else an enclosed structure designed to harmonise with the adjoining housing will be necessary, located within 25m of a public road. All refuse collection points should be accessible by a vehicle of 15m in length.

Draft Regulations have been published, requiring waste collectors to provide a food waste collection to households on a phased basis. This implies a need for each dwelling to have space to store a number of bins.

In the case of terrace houses, bin collection points or accesses should be provided to the rear of properties rather than at the front. Alternatively, bin storage can be designed to form part of waist height boundary walls in front of terraced houses.



Binstore



Refuse truck collecting bins

part four

providing for movement

- Vehicular movement
- General Design Criteria for Highways and Movement



roinn 4
soláthraíonn do gluaiseacht

This Part of the Design Guide sets out principles and standards for design of residential roads which reflect in a more detailed and specific manner the objectives of section 3 of the DoEHLG Guidelines and section 7 of the accompanying Urban Design Manual.

Initially, the Council will not insist on all housing estate developments conforming to the detailed road design requirements set out in this Part, unless this is required in a specific zoned area under the relevant Local Area Plan or Masterplan, but will require developers to indicate clearly whether they propose to follow them or not. If they do wish to follow them, they should do so consistently, at least within the areas required to have a design speed of 30kph or less, under the sub-section on 'General Principles'. Cherry-picking, or otherwise mixing different and potentially inconsistent approaches to road design and road safety in an ad hoc manner, will not normally be accepted. The appropriateness of requiring more general compliance with the approach outlined in section 4 will be considered further, 5 years after publication of this Guide

Regardless of whether developers choose to conform to this part of this Design Guide, the principles of sections 3 of the DoEHLG Guidelines and 7 of the accompanying Urban Design Manual should be followed, and layouts in which vehicle traffic and parking dominate unduly, at the expense of the needs of pedestrians, cyclists and residential amenity, will not be acceptable.

vehicular movement

general principles

Vehicular movement in new residential areas is to be provided for in such a way as to be consistent with the achievement of an attractive environment and the needs of the pedestrian or cyclist who have to share the same space.

Through traffic is to be excluded, and the layout and attractiveness of the environment should be such as to discourage the use of the car for local trips and to encourage walking and cycling. This may well mean making vehicular routes less direct and providing short cuts for pedestrians and cyclists. It will also mean that the environmental requirements of the urban space within which each road is located should determine the width and speed of alignment of the road. In other words, that the character and pleasantness of the space takes precedence over the speed and throughput of traffic to be carried by the road contained within it. Thus residential streets, whose main function is to give access to houses, provide for pedestrian activity and be a pleasant space for dwellings to face on to, should have reduced vehicle speeds, narrower carriageways and more pedestrian-compatible paved surfaces. By calming traffic in residential areas in this way, there should be a corresponding benefit in increased pedestrian safety and thus the pleasantness and usefulness of the environment to the pedestrian.



Any new residential development containing a road over 100m in length³ is to be served entirely by roads of a design speed of under 30kph. In order to restrict speed, it is preferable to use changes of alignment, i.e. bends, rather than physical obstructions, such as speed humps and chicanes, which should only be used where straighter sections of road are required for urban design reasons. The maximum size of a 30kph zone is 700 dwellings, within which it should not be necessary to travel farther than 400m to reach a feeder road offering a direct route out. This will speed access and exit for the emergency services and reduce driver frustration.

Generally, road networks should be composed of linked roads rather than culs-de-sac. Cul-de-sacs should be limited in length and number and restricted to those parts of a site which cannot be served in any other way. Whilst the road types and configurations recommended here will be taken in charge by the local authority, it is open to planning applicants to propose other solutions which achieve the same purpose, and these will be considered on their merits.



³ Equally this applies to a number of shorter roads the farthest extremity of which is more than 100m from the entrance to the development measured along the road.

| Road Type | Description | Max no of dwellings served | Min carriageway width & footpath requirement | Design Speed | Comments |
|-----------|--------------------------|---|--|--------------|--|
| 1 | Local distributor | | 7.3m or 6.75m with bus laybys 2 x 2m footpath | 50kph | Multi purpose road Min. 3m verges required. Frontage access only by parallel service roads or shared private driveways |
| 2 | Link road | | 6.75m 2 x 2m footpaths | 50kph | Links neighbourhoods and serves non-residential uses regularly accessed by vehicles over 7.5t. Min. 3m verges possible Frontage access/egress in forward gear |
| 3 | Feeder road | 700 300 link or loop 150 cul de sac | 6m {5.5m} 2 x 1.8 m footpaths | 30kph | Direct route in or out of a 30kph (20mph) area. May serve non-residential uses regularly accessed by vehicles under 7.5t Min 3m verges possible No access restrictions |
| 4 | Intermediate access road | 200 link or loop 100 cul de sac | 4.8m 2 x 1.5m, or 1 x 1.8m footpath if fewer than 25 dwellings | 30kph | Quality design and finishes required No access restrictions Special surface finish |
| 5 | Minor access road | 40 link or loop 20 cul de sac or more if parking for some dwellings is accessed from other roads | Combined pedestrian/ vehicular surface 4.8m plus 1m margin | 30kph | Quality design and finishes required. Special junction detail Special surface finish Adequate off-road parking required |
| 6 | Minor access way | 25 link or loop 12 cul de sac or more if garages located outside mews | Combined pedestrian/ vehicular surface 4.8m located outside mews | 30kph | Special junction detail Special surface finish |
| 7 | Parking square | | Combined pedestrian/ vehicular surface 4.8m vehicle way | 30kph | Tabled approaches Special surface finish Central feature |



type 1 local distributor

These are local, multi-purpose roads which give access to residential areas and other land uses, and form part of the local county road network ⁴. Built frontage is required to these roads i.e. houses should face the road rather than turn their backs. Access to frontage dwellings should be by parallel access roads or shared private driveways reached either from the rear or from the local distributor road itself at a minimum spacing of 120m. In the case of parallel access roads, these could form part of a continuous cycleway following the Type 1 road. In the absence of such a parallel cycle route, or an attractive and convenient alternative cycle route, a segregated cycle-way will usually be required.

- Pedestrian and cycle routes should cross these roads where necessary, so that the road does not act as a barrier to local cross movement. For the design of these see 'Pedestrian and Cycle Routes - Crossings'.
- A carriageway width of 7.3m, or 6.75m with bus lay-bys, is required.
A 2m wide footpath is required each side of the carriageway, separated from it by minimum 3m wide verges which are to contain tree planting.
- Any shrub growth is to be limited to 500mm in height so that pedestrians are visible from the road.
- The design speed is 50kph and this is to be ensured in the vicinity of residential areas by bends of a maximum centreline radius of 90m separated by a maximum straight length of 36m. Longer straight sections or less sharp bends usually will not be allowed in these situations. Away from residential areas the normal centreline radius will be 200m.
- The design of a junction with an existing county road will be to the requirements of the highway authority. Other junctions require a minimum kerb radius of 10.5m.
- The minimum length of minor road from the junction required to be straight is 30m from the channel of the main road. Sight lines of X distance 6m by Y distance 90m are required, but X distance may reduce to 4.5m and Y distance 70m where traffic speeds are below 30kph.

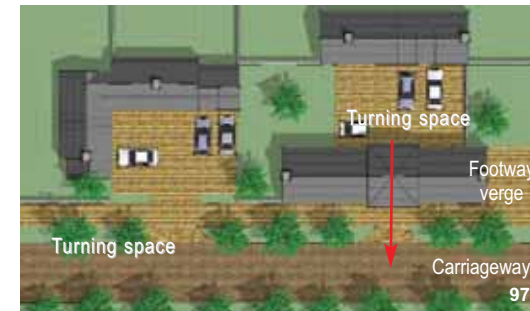
⁴ N.B. It should not be assumed that all existing county roads in urban areas that serve mixed land uses necessarily count as Type 1. Many of them have frontage access and frequent junctions and it may be appropriate for new development to conform to the existing pattern. This road type may only take access from an existing county road or another Type 1 road.



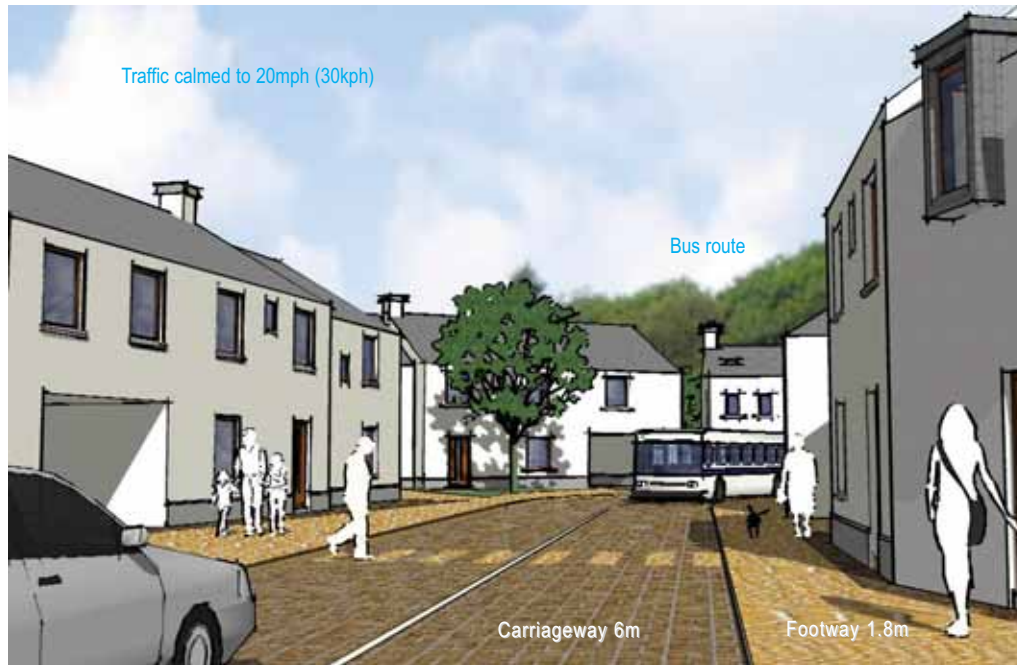
type 2 link road

These are roads which link neighbourhoods within a large residential area, or which serve the delivery side of businesses such as retail stores or supermarkets regularly serviced by vehicles larger than 7.5t.

Built frontage is required to these roads. Direct frontage access to dwellings is allowed, but egress onto the road must be in forward gear only (and hence adequate provision required for the turning of vehicles on the site). 1.5m x 1.5m pedestrian/ vehicle sight splays are required at egresses and 1.5m x 33m where the egress meets the carriageway.



- A carriageway width of 6.75m is required. A 2m wide footpath is required each side of the carriageway, which may be separated from it by minimum 3m wide verges containing tree planting.
- Any shrub growth is to be limited to 500mm in height so that pedestrians are visible from the road.
- The design speed is 50kph. The minimum centreline bend radius is 40m and the maximum 70m. This road type may take access from an existing county road, a Type 1 road or a Type 2 road.
- The design of a junction with an existing county road will be to the requirements of the local authority. Other junctions require a minimum kerb radius of 10.5m.
- The minimum length of minor road from a junction required to be straight is 22m from the channel of the main road. Sight lines of X distance 6m by Y distance 90m are required where the major road at the junction is a Type 1. Elsewhere a Y distance of 60m is required. Further reductions in Y distances are possible where traffic speeds are below 30kph.

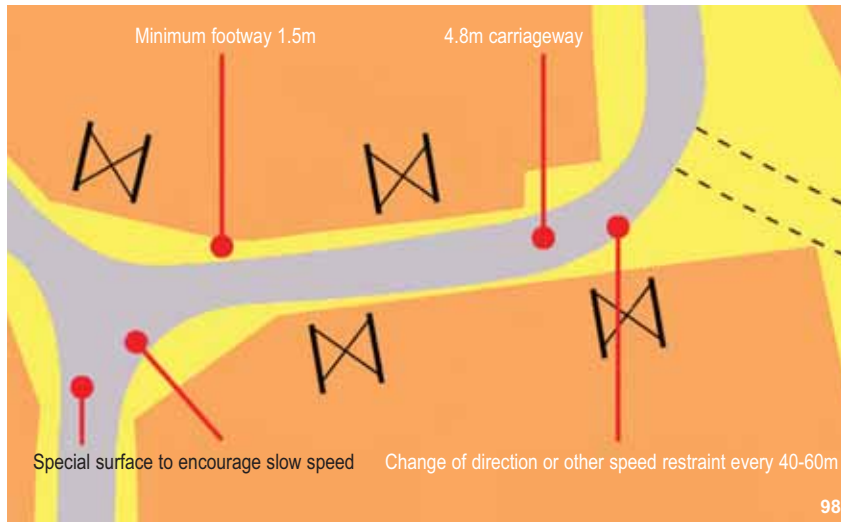


type 3 feeder road

These are feeder roads within a 30kph network serving a maximum of 700 dwellings. They may also serve schools, churches, community halls, shops and small businesses not regularly serviced by vehicles larger than 7.5t.

No part of a residential area should be farther than 0.4 km from a Type 3 or higher category road. These roads offer a direct route out of a 30kph network.

- Direct frontage access to dwellings is allowed. 1.5m x 1.5m pedestrian/vehicle sight splays are required at egresses on to this road type and 2m x 33m where the egress meets the carriageway.
- A carriageway width of 6 metres is required. Where this road type serves fewer than 300 dwellings in the case of a link or loop or 150 dwellings in the case of a cul de sac the carriageway width may reduce to 5.5m. A minimum 1.8m wide footpath is required each side of the carriageway. If a verge for tree planting is desirable, this should be at least 3m wide and located between the footpath and the carriageway.
- Any shrub growth is to be limited to 500mm in height so that pedestrians are visible from the road.
- The design speed is 30kph, and this is to be ensured by speed restraint measures. The minimum centreline bend radius is 20m unless a tighter speed restraint bend is being used. The maximum centreline bend radius is 70m. This road type may take access from an existing county road, a Type 1, Type 2 or Type 3 road.
- The design of a junction with an existing county road will be to the requirements of the local authority. Other junctions require a minimum kerb radius of 6m.
- The minimum length of minor road from the junction required to be straight is 22m from the channel of the main road. Sight lines of X distance 2.4m by Y distance 90m are required where the major road at the junction is a Type 1. Elsewhere a Y distance of 60m is required - reduced Y distances are possible where traffic speeds are below 25kph.



type 4 intermediate access road

These are intermediate roads within a 30kph network giving direct access to dwellings. Culs de sac may serve as access to not more than 100 dwellings, whilst loops or links (the more usual case) may give access to not more than 200, subject to equal traffic distribution.

Also a special surface to encourage slow speeds will be required for the whole length of the road e.g.

- coloured asphalt
- interlocking concrete or clay block paving
- granite or artificial setts
- stable blocks.

A stable block is an engineering brick pavior with an embossed non-lip pattern. Maintenance implications should be taken into account in the choice between options.

- A carriageway width of 4.8m is required. A minimum 1.5m wide footpath is required each side of the carriageway and if this is the case, underground services may have to be split both sides of the street. Alternatively a single 1.8m wide footpath may be used if fewer than a total of 25 dwellings are being served. If a verge for tree planting is desirable, this should be at least 3m wide and located between the footpath and the carriageway.
- Any shrub growth is to be limited to 500mm in height so that pedestrians are visible from the road. In the case of a single footpath, a 500mm overhang strip is required alongside the opposite side of the carriageway.
- 1.5m x 1.5m vehicle/pedestrian sight splays are required at egresses on to this road type and 2m x 33m where the egress meets the carriageway. A clear distance of 6m is required between a parking space abutting the highway and the opposite edge of the carriageway.
- The design speed is 30kph and this is to be ensured by speed restraint measures. The minimum centre line bend radius is 13.6m unless a tighter speed restraint bend is being used. The maximum centreline bend radius is 30m. This road type may take access from an existing county road, a Type 1, Type 2, Type 3 or Type 4 road.
- The design of a junction with an existing county road will be to the requirements of the local authority. Other junctions require a minimum kerb radius of 6m.
- The minimum length of minor road from the junction required to be straight is 15m from the channel of the main road. Sight lines of X distance 2.4m by Y distance 33m are required. Y distances may be reduced where traffic speeds are below 25kph, and the X distance may reduce to 2m if no more than six dwellings are served. The provision of a ramp or rumble strip at the junction may be required.



type 5 minor access road

These are minor pedestrian/vehicular shared surfaces within a 30kph network giving access to not more than 20 dwellings as a cul-de-sac, or 40 as a loop or link (the more usual case), subject to equal traffic distribution. Where garages or parking spaces are located outside the minor access road and accessed from another road, the number of dwellings served may be increased appropriately but may not exceed double the numbers shown. No vehicle/pedestrian sight splays are required at egresses on to the minor access road.

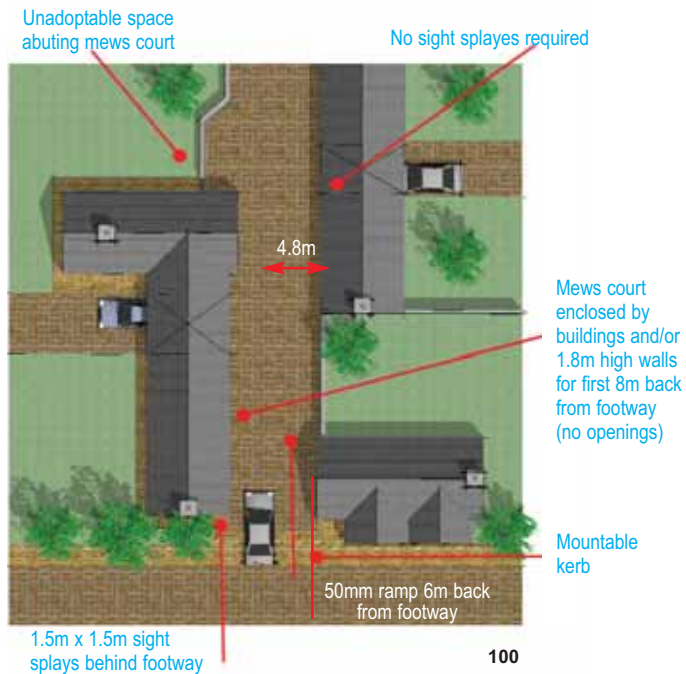
A special surface is required in order to encourage slow speeds e.g.

- tar spray and shingle dressing on a macadam base course
- interlocking concrete or clay block paving
- stable blocks.
- square paving slabs
- granite or artificial setts

A minimum 50mm upstand must be provided where planted areas abut the road surface. Adjacent paved surfaces must be strengthened to take vehicle overrunning, and would not necessarily be taken in charge by the local authority. Maintenance implications should be taken into account in the choice between options.

- The minimum width should be 5.8m of which 1m would form an adoptable pedestrian margin delineated by a row of setts, brick paviors or other suitable demarcation. Underground services would follow this strip. A clear distance of 6m is required between a parking space abutting the road and the opposite edge of the road.
- The design speed is 30kph and this is to be ensured by speed restraint measures. The minimum centreline bend radius is 13.6m unless a tighter speed restraint bend is being used. The maximum centreline bend radius is 30m. This road type may take access from an existing county road, a Type 1, Type 2, Type 3, Type 4 or another Type 5 road. The design of a junction with an existing county road will be to the requirements of the local authority. Other junctions require a constricted entrance enclosed by buildings or walls to a minimum height of 1.8m for the first 8m back from the footpath of the major road (except for the 1.5m x 1.5m sight splays). No doors, gates or other entrances may open on to the road within this first 8m.
- A mountable kerb and a further ramp of 50mm upstand 6m back from the footpath of the major road are required, and a 1.5m x 1.5m vehicle/pedestrian sight splay either side of the entrance. The minor access road is to be straight for 10.5m from the junction. At the junction, sight lines of X distance 2.5m by Y distance 33m are required. Y distances may be reduced where traffic speeds are below 25kph, and the X distance may reduce to 2m if no more than six dwellings are served.
- Buildings may directly abut the road, but no windows or doors should open outwards or overflow pipes, single storey eaves etc project over the area of the road to be taken in charge. Where buildings abut the road, street lighting should be fixed to the buildings instead of on columns.

type 6 minor access way



These are minor pedestrian/vehicular shared surfaces within a 30kph network giving access to not more than 25 dwellings as a loop or link, subject to equal traffic distribution, or 12 as a cul-de-sac. Where garages or parking spaces are located outside the minor access way and accessed from another road, the number of dwellings served may be increased appropriately, but may not exceed double the numbers shown.

A special surface is required in order to encourage slow speeds e.g.

- tar spray and shingle dressing on a macadam base course
- interlocking concrete or clay block paving
- stable blocks.
- square paving slabs
- granite or artificial setts

A minimum 50mm upstand must be provided where planted areas abut the road surface. Adjacent paved surfaces must be strengthened to take vehicle overrunning, and would not necessarily be taken in charge by the highway authority.

Maintenance implications should be taken into account in the choice between options.

- No vehicle/pedestrian sight splayes are required at egresses on to the minor access way. The minimum width should be 4.8m, and no separate footpath is required. A clear distance of 6m is required between a parking space abutting the minor access way and the opposite edge of the road.
- The design speed is 30kph and this is to be ensured by speed restraint measures. The minimum centreline bend radius is 13.6m unless a tighter speed restraint bend is being used. The maximum centreline bend radius is 30m. This road type may take access from an existing county road, a Type 1, Type 2, Type 3, Type 4 or Type 5 road.
- The design of a junction with an existing county road will be to the requirements of the highway authority. Other junctions require a constricted entrance enclosed by buildings or walls to a minimum height of 1.8m for the first 8m back from the footpath of the major road (except for the 1.5m x 1.5m sight splayes). No doors, gates or other entrances may open on to the minor access way within this first 8m.
- A mountable kerb and a further ramp of 50mm upstand 6 metres back from the footpath of the major road are required and a 1.5m x 1.5m vehicle/pedestrian sight splay either side of the entrance. The minor access way is to be straight for 10.5m from the junction. At the junction, sight lines of X distance 2.4m by Y distance 33m are required. Y distances may be reduced where traffic speeds are below 25kph (15 mph), and the X distance may reduce to 2m if no more than six dwellings are served. Buildings may directly abut the road, but no windows or doors should open outwards or overflow pipes, single storey eaves etc project over the area of the road to be taken in charge.
- Where buildings abut the road, street lighting should be fixed to the buildings instead of on columns.

parking square

These are pedestrian/vehicular shared surface spaces occurring at intervals within a 30kph network. The number of dwellings served by a parking square will depend on the size of the space which is not to exceed 50m in any dimension. No vehicle/pedestrian sight splays are required at egresses on to the parking square.

A minimum 4.8 metre wide marked vehicle way is to traverse the space. If the parking square is being used as a speed restraint measure, this vehicle way is to change direction in the square e.g. entering in one corner and leaving through the corner diagonally opposite, and may not simply cross the space in a straight line.

A junction of routes may occur within the square, in which case the junction is to be set out with 4 metre radii and 2m X distance sight lines from the minor route. The Y distance need not extend beyond the square. Some kind of central feature should be placed at the centre of the square to aid driver orientation. In the case of a square without a junction, the central feature should be located in the middle of the vehicle way, which should be widened to allow traffic to pass either side. Road markings or arrows or chevrons on the central feature should be used to indicate that traffic is to pass on the left. Arrangements for any necessary maintenance will need to be made with the developers. In the case of a parking square which is not being used as a speed restraint measure, speed restraints should be used on the approach roads as required for the particular road type.

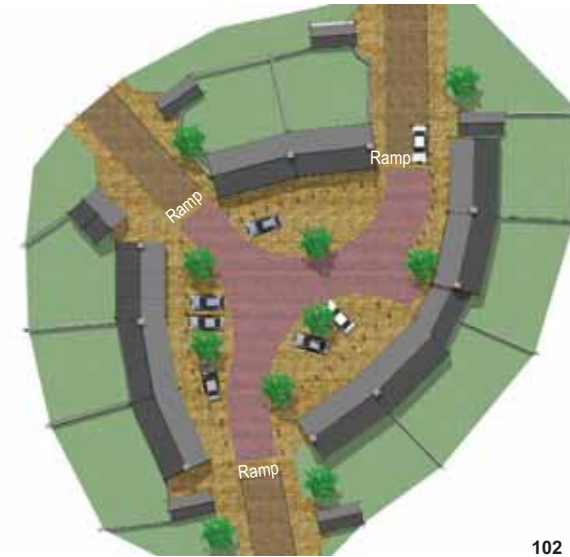


The parking square is to be directly fronted by buildings. Car parking may be accommodated in those parts of the square not occupied by the vehicle way and a 1m pedestrian margin in front of the enclosing buildings which should be protected, where appropriate, by bollards.

It is likely that half the parking requirement of the frontage dwellings will be accommodated in the square, with the other half between or behind the dwellings. Any parking space perpendicular to the vehicle way should have a 6m clear manoeuvring space in front including the width of the vehicle way.

No windows or doors should open outwards or overflow pipes, single storey eaves, etc, project over the net adoptable area of the parking square.

Street lighting should either be fixed to buildings or on columns which should be carefully positioned clear of vehicle manoeuvring areas and protected by bollards if necessary.



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A special surface is required in order to encourage slow speeds e.g.

- tar spray and shingle on a macadam base course
- square paving slabs
- interlocking concrete or clay block paving
- granite or artificial setts
- stable blocks.

The vehicle way should be demarcated by channels or rows of setts and allowance should be made for overrunning by larger vehicles where bends in the vehicle way are tighter than 13.6m centreline bend radius.

In the case of a parking square which is being used as a speed restraint measure, the vehicular approach from entering roads is to be tabled, i.e. ramped up 100mm. A parking square may be located on a Type 3, Type 4, Type 5 or Type 6 road.

one-way streets

One way streets are not a preferred option, and should generally be avoided if possible. However, if it is desirable to reduce road widths below what they would otherwise have to be, it is possible for any road type of Type 3 or below to be used as a one-way street. No more than 100 dwellings should be served by a one-way street as otherwise it can be frustrating for residents at one end of such a street to have to make a long detour for a trip that could have been more directly made against the flow.

For a one-way street, the width of the carriageway can be reduced to 3.7m. In every other respect the design requirements are as for the particular road type.

Where a one-way street leaves another road no sight lines are required, but where it joins another road sight line requirements are as they would be for the equivalent two-way road type. Side junctions on to a one-way street need a sight-line in the direction of on-coming traffic only.

One-way streets should be clearly signed as such at their entry, exit and side junctions. Where there are long intervals between side junctions there should be reminder signs for the benefit of vehicles joining the street from frontage premises placed alternately on each side of the road at a minimum spacing of 100m between signs on the same side. There should be arrows painted on the road surface at 30m intervals.



shared private driveways

Definition

Private driveways are vehicular and pedestrian access ways not suitable for taking in charge as highways maintainable at public expense. They may give access to a maximum of five dwellings.

Access Restrictions

Private driveways may take access from all road types, but in the case of a county road the junction may have to be to the requirements of the local authority. Where they take access from Type 1 and 2 roads, turning facilities are necessary in order to enable egress in forward gear. On Type 5 and 6 roads private driveways may not take access within the first 8m of the length of the road.

Width

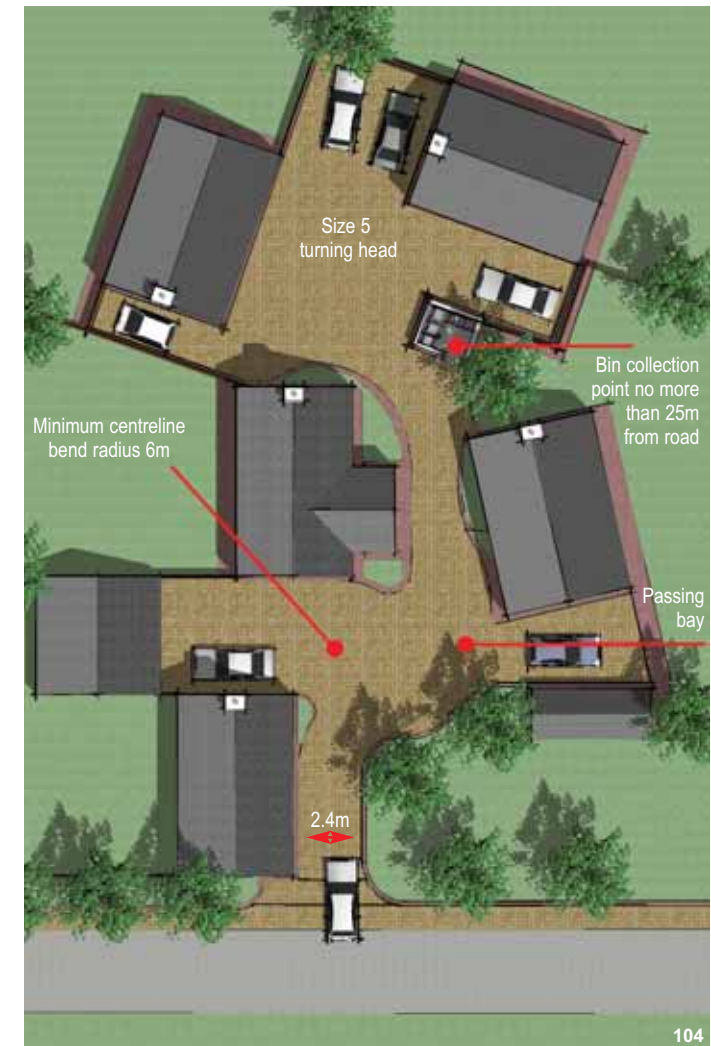
The minimum width for a driveway serving a single dwelling is 2.4m. A shared private driveway off road Types 4-6 and off a parking square may also be 2.4m wide, but off a county road and road Types 2-3 must be 4.5m wide for the first 6m from the highway, tapering over 6m down to 2.4m. Normally refuse collection vehicles will not enter private driveways, and any dwellings more than 25m from the highway will need a bin collection point within that distance. Any dwelling more than 45m from the highway will necessitate use of the driveway by fire tenders, in which case dimensions must be as indicated under 'Access for Fire Tenders', and the driveway should be capable of carrying a 12.5t vehicle.

The driveway in front of a double garage should be the width of the garage or a minimum of 4.8m for a length of at least 9m in front of the garage doors.

Junction Details

Where a private driveway joins a road of Types 1-3, a vehicle sight line of X distance 2m x Y distance 60m from the edge of the carriageway will be required. The Y distance may be reduced where traffic speeds are below 25kph (15 mph). Where a private driveway joins a road of Type 4, a vehicle sight line of X distance 2m x Y distance 20m from the edge of the carriageway will be required.

Vehicle/pedestrian sight splays of 1.5m x 1.5m from the back of the footpath should be provided on each side of a driveway joining road Types 1-4. No obstruction over 600mm will be allowed within any vehicle or pedestrian sight splays. Sight splays are not required where a driveway joins road Types 5 or 6 or a parking square.



Private drives 18-45m to farthest dwelling

Parking Facilities on Shared Private Driveways

In shared private driveways, parking facilities for each dwelling must be provided clear of the shared driveway area, turning space, passing bays etc. It is essential on both single and shared driveways that adequate manoeuvring space be provided to allow vehicles to enter and leave all garages and parking spaces with other vehicles parked on all other parking spaces.

Turning Facilities

All driveways longer than 18m should have a turning head equivalent to at least Size 5. Any driveway off a Type 1 or 2 road should have a turning head of a least Size 5. A driveway to be used by fire tenders must have a turning head of at least Size 3.

Passing Places

Passing places will be required on shared driveways longer than 18m, or on any driveway from which ends are not intervisible.

Alignment

A driveway should meet the highway at an angle such that a car can turn in either direction in one movement. Normally this would necessitate the driveway meeting the highway at an angle within 10 degrees of a right angle. Where the driveway is to be used by fire tenders, a fire tender should be able to turn in either direction in one movement. Usually the minimum centre line bend radius will be 6m, but will need to be 6.55m (or 7.75m if enclosed by walls) where the driveway is to be used by fire tenders.

Headroom

Minimum headroom is to be normally 2.5m but where the driveway is to be used by fire tenders it is to be not less than 4.0m.

Surface Finish

Materials suitable for reducing vehicle speeds and of pleasant appearance should be used e.g. loose gravel (which should be bound with an approved binder within 6m of the highway), tar spray and shingle dressing (likewise to be bound within 6m of the highway), coloured asphalt, concrete or clay block paving, granite or man-made setts, cobbles or stable blocks.



Private drives more than 45m to farthest dwelling

access to non-residential uses

Non-residential uses such as schools, churches, community halls, shops and small business may be located within a 30kph zone and must be served by the relevant road types indicated below. Schools should not be located on a road terminating in a cul-de-sac. In addition to staff car parking they should have adequate parent car parking space clear of the highway and enough overspill parking space (e.g. on playgrounds) to cater for out-of-hours community activities. Space for at least one 50-seater coach to park clear of the highway and secure cycle parking should also be provided.

Clearly, general and special industrial uses will not be appropriate in or near a residential area, but other businesses will be considered on their merits dependent on size and traffic generation and with regard to relevant County Development Plan objectives. Parking and service areas for non-residential uses will not usually be taken in charge by the County Council. However, where they are shared by a number of small retail or business users and not frequented by vehicles larger than 7.5 tonnes, developers should consider fronting some buildings on to them and encouraging through pedestrian movement so that they do not become enclosed areas liable to criminal activity.

Parking provision for non-residential uses will depend on how accessible uses are by means other than by car, and whether trips are shared between a number of adjacent uses or peak at different times. As the purpose of locating non-residential uses in or adjacent to a predominantly residential area is to encourage trips by means other than by car, car parks should not be placed in front of the main entrance but at the side or rear where they will not form an obstacle to pedestrian or cycle access. Larger car parks, e.g. for a retail store, should be fragmented into a number of smaller car parks and generously tree-planted. Secure cycle parking for a minimum of 10% of employees plus an allowance for visitors should be provided in a location more convenient than the car park to the main entrance to premises.



Neighbourhood shopping centre

general design criteria for highways

road construction

For acceptable construction for taking in charge, applicants should refer to Cork County Council's Specifications for the Provision of Services in Housing Estates 2005 or the relevant paragraphs of Recommendations for Site Development Works for Housing Areas: Department of the Environment and Local Government 1998. It should, however, be noted that concrete road and footpath surfaces are regarded as utilitarian and unsuitable for residential areas and will not be allowed.

speed restraint

All new residential developments containing a road system which measures more than 100m from the entrance to the development to the furthest extremity of the road system are to constitute, or form part of a 30kph zone. A 30 kph zone is described and defined in the introductory paragraphs of the section on Vehicular Movement. Speed restraint measures are to be used throughout 30kph zones and do not require warning signs within the zone. Unnecessary signage should be avoided. Signs and an entrance Gateway consisting of a 'pinch' point of buildings are, however, required to indicate to drivers that they are entering a zone.

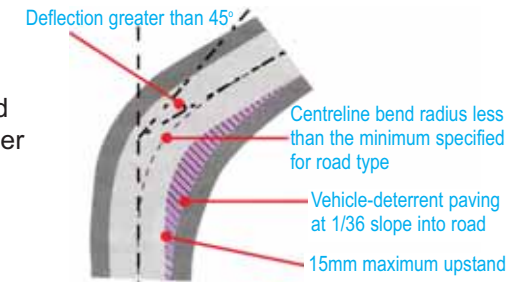


speed restraint within a 30kph zone

In order to influence driver behaviour to keep within the design speed of 30kph at each location an engineering measure under (a) or (b) below will be required plus in many circumstances a complementary measure under (c) in order to achieve an overall effective measure. Measures to reduce visibility for the driver are not acceptable by themselves. Rumble strips are not an adequate speed restraint measure. Speed restraint measures are to be located at a maximum spacing of 60m and must be in a different surface material from the rest of the carriageway and well lit. They may be classified as changes in horizontal alignment, changes in vertical alignment or complementary measures.

(a) Changes in Horizontal Alignment Bends

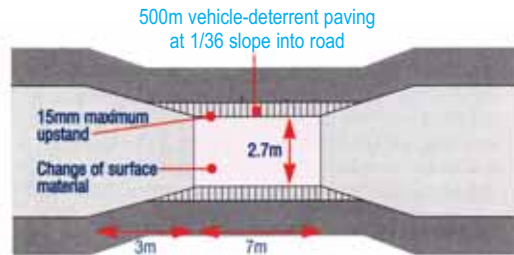
These should be tighter than the minimum specified for each road type down to a minimum centre line bend radius of 7.5m. The deflection should be greater than 45 degrees with a mountable shoulder to enable larger vehicles to overrun.



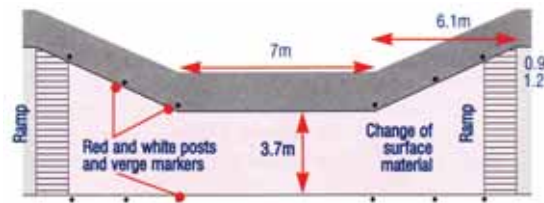
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Narrows

The narrowing of the carriageway to 2.7m for a length not exceeding 7m will make drivers wait for oncoming traffic to pass. A 500mm mountable shoulder either side will allow service vehicles to negotiate this obstruction. This measure is not appropriate for shared surfaces.



Narrows suitable for roads 4.8m or less in width

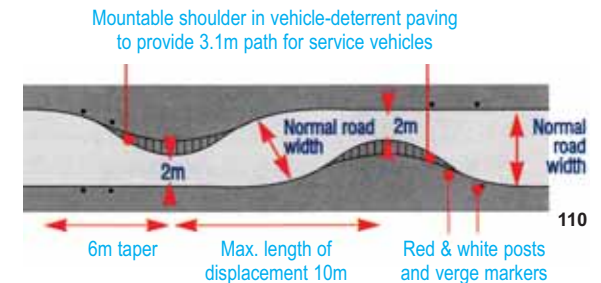


Ramped narrows suitable for 6m wide roads

109

Chicanes

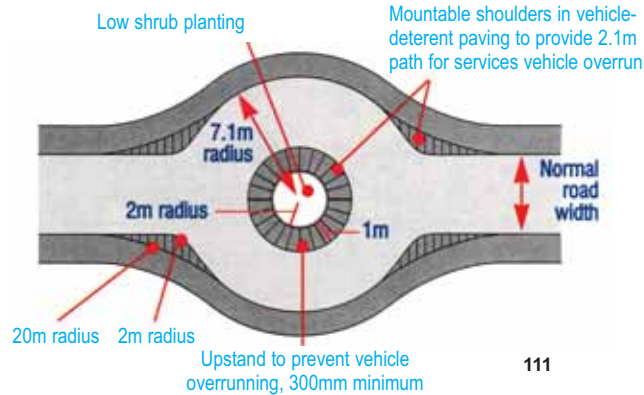
To be effective, the lateral displacement of the running lane must be at least 2m and the length of the displacement no greater than 10m. A reduction of carriageway width to 2m at the entrance and exit of the chicane is acceptable, but a mountable shoulder may be necessary to provide a 3.1m path for service vehicles. This measure is not appropriate for shared surfaces.



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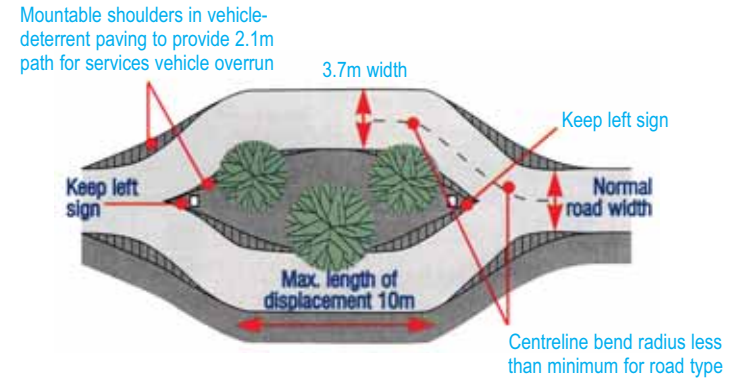
Islands

The island should result in a lateral displacement of the running lane by at least 2m. The island may be any shape, subject to the minimum dimensions given below. Mountable shoulders may be used to enable the passage of service vehicles, but the centre of the island should not be overrun by any type of vehicle. This measure is not appropriate for shared surfaces.



Island suitable for otherwise straight road

111

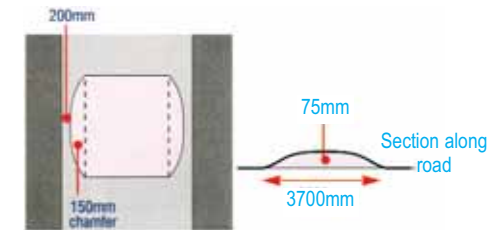


Island suitable for low density Arcadian situation

112

(b) Changes in Vertical Alignment
Humps

Round-topped humps should be 75mm high and no longer than 3700mm. They are not appropriate for shared surfaces or for road Types 1 - 3.

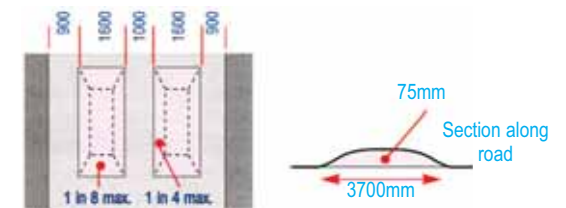


Round-topped hump

113

Cushions

On road Type 3, which is likely to be used by buses and emergency services, speed cushions should be used instead of humps. They are designed to allow the wheels of buses and wide wheelbase vehicles to pass either side of the raised area whilst cars have to negotiate the hump. They should be constructed in pairs to the dimensions shown right.



Cushions

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(c) **Complementary Measures**

Buildings

Buildings may form an end-stop to a straight stretch of road, or be angled indicating a change of direction.

They may form a gateway through which the road passes.

Used in conjunction with other speed restraints, they can induce drivers to slow up and take extra care.

Width and Alignment

Apart from the measures described under 'Changes in Horizontal Alignment' above, general variation in the width and alignment of the carriageway can make the driver feel less secure and less able to increase speed. There is no reason why a residential road should be of constant width. Provided the minimum carriageway width is accommodated, the road could widen to allow the kerb to follow a building frontage that is not running parallel, for example.



Trees and Bollards

These can be used to hem in chicanes, narrows, changes of direction etc., and make drivers take extra care.

Surface Materials

A change in materials or, for example, higher kerbs can serve to emphasis other speed restraint measures and reduce the apparent width of the carriageway. Higher kerbs or retaining walls should be protected by thick planting or railings to keep pedestrians off.



Width and Alignment



Trees and Bollards



Surface Materials

Ramps

Single ramps 100mm high or successive ramps 50mm high are appropriate within or at the entrances to shared surfaces.



Single 100mm ramp for shared surfaces



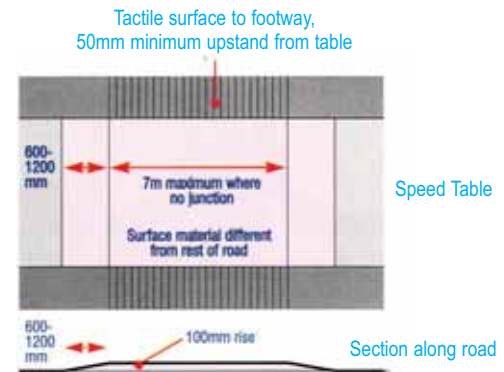
Successive 50mm ramp for shared surfaces

115

Speed Tables

A plateau may be created approached by ramps rising 100mm over a minimum length of 1500mm. If the road is a bus route the ramps should rise 75mm at 1 in 15. Unless there is a junction, such a plateau should be no longer than 7m. Tactile surfaces should demarcate carriageway and footpath for the benefit of the visually impaired.

This may be a good way of slowing up traffic for a footpath crossing.



Speed Table

Section along road

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Table Junction

A traffic junction may be treated as a plateau approached by ramps as described under 'Speed Tables' above. Where circumstances are suitable for table junctions, they are usually a better way of controlling speeds than speed tables. Again, tactile surfaces should demarcate carriageway and footpath.

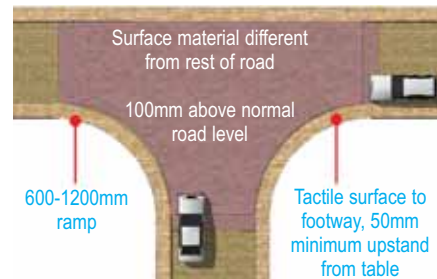


Table Junction

117

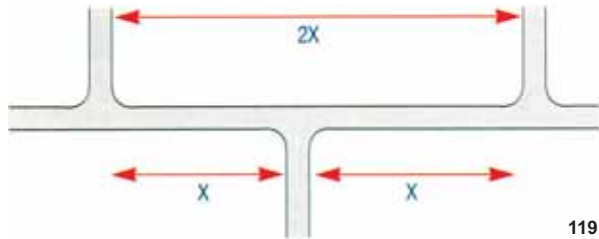
Shared Surfaces

Where a shared surface, e.g. a Parking Square, forms an incident along a conventional road, its approaches should be ramped as described under 'Speed Tables' above so that the whole shared surface is treated as a plateau. Channels or rows of setts demarcating the vehicle way will be sufficient indication for the visually impaired.



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junctions



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Junction Spacing

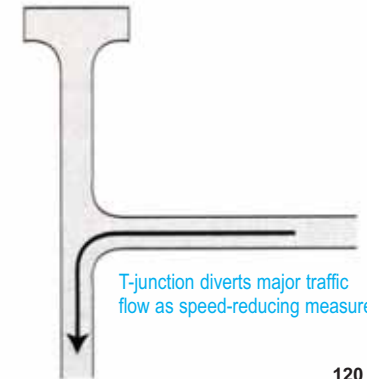
For junctions on to county, regional and national roads, the County Council's Road Design Office should be consulted. In the case of residential roads, minimum stagger between junctions on opposite sides of a road is X. Minimum stagger between junctions on the same side is 2X. X is to be determined from the following table:

| Side Road | Main Road at Junction | | | | |
|-----------|-----------------------|-----|-----------|-----|-----------|
| | 1 | 2 | 3 | 4 | 5 |
| 1 | 60m | - | - | - | - |
| 2 | 60m | 30m | - | - | - |
| 3 | 60m | 30m | 20m | - | No restr. |
| 4 | 60m | 30m | 20m | 15m | |
| 5 | 30m | 20m | | | |
| 6 | 30m | 20m | No restr. | | |

Side roads joining Type 1 or 2 roads should have no side junctions to other roads within 20m of the junction with the major road.

T-Junctions

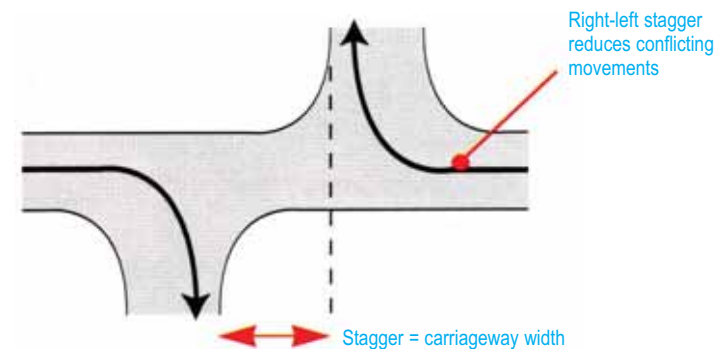
Normally the side turning is off the major traffic flow, but a T-junction which diverts the major traffic flow can be a useful means of reducing speeds.



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Staggered Junctions

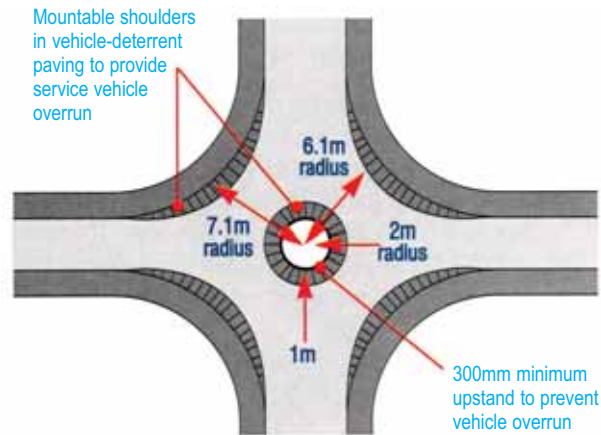
These are possible on Type 3 and lower category roads within a 30kph zone. The side roads should be staggered by one carriageway width, and right/left staggers are preferable to left/right as conflicting movements are reduced. Such a junction is possible notwithstanding the junction spacing requirements above. Distorted grid layouts can make use of staggered junctions, as 'crossroads' are not generally favoured.



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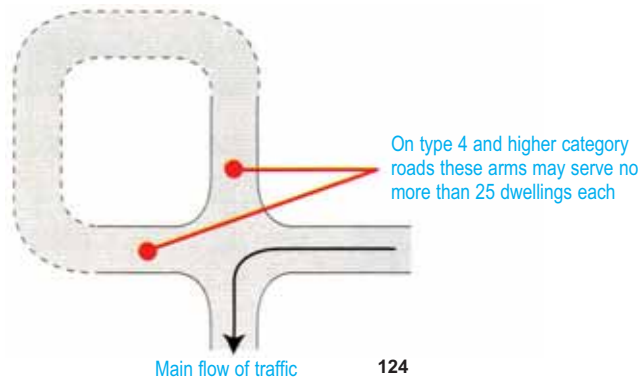
Islands and Mini-roundabouts

These will be appropriate for Type 4 and higher category roads. The island may be any shape, subject to the minimum dimensions given below. Mini-roundabouts for Type 1 and 2 roads should comply with County Council standards on size and signing.



Cross-roads

These should only be used where two adjacent arms each serve fewer than 25 dwellings, and traffic calming measures are provided on the approach from the minor routes.



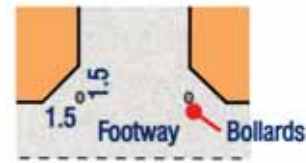
Non-right angle Junctions

On Type 3 and lower category roads these are allowed down to a limit of 45 degrees, and will accommodate all car turning movements within the carriageway. Below 70 degrees proposals will be considered on their individual merits, and supplementary measures may be required.

visibility

Vehicle/Pedestrian Sight Splays

These are required where cycleways, road Types 5 and 6, house driveways, shared private driveways, access ways to parking or garage courts, and individual parking spaces and garages are accessed across the footpath of a road. Sight splays are to give 1.5m x 1.5m clear visibility above a height of 600mm and may be achieved by splaying back the building or wall abutting the entrance, by setting the building or wall back 1.5m behind the back edge of the footpath, or by widening the entrance by 1.5m each side. Alternatively various combinations of these measures may be used to achieve the same result.



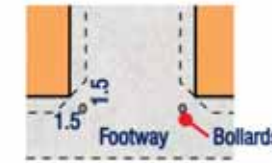
Splays cut out of buildings or walls



Entrance widened by 1.5m each side



Buildings or walls set back 1.5m behind back edge of footway



Buildings set back and entrance widened by less than 1.5m each

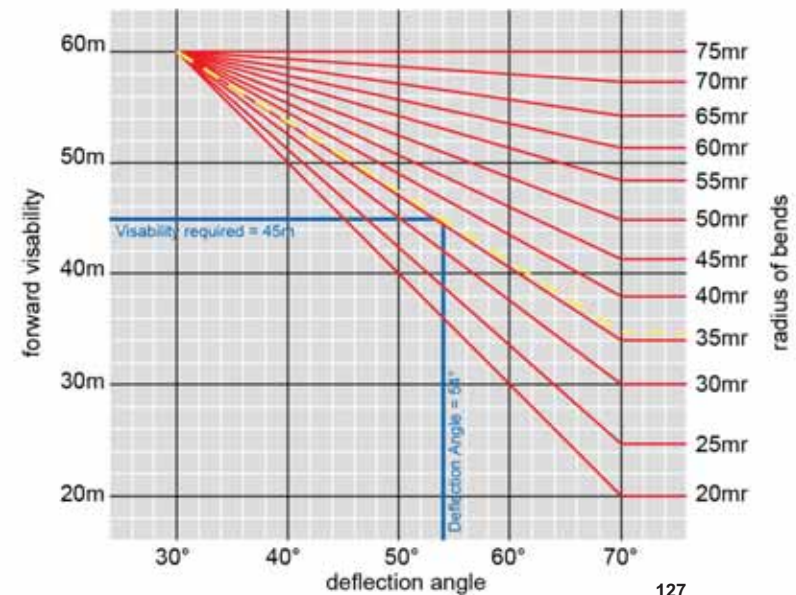
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Forward Visibility

At all points on the estate road system, except on road Types 5 and 6, sufficient forward visibility must be provided to allow the driver of a vehicle to stop safely. The forward visibility required is related to vehicle speed which is in turn dependent on road alignment. To limit vehicle speeds it is necessary to use bends of small centre line radius and large deflection angle. In a 30kph zone, the bends will normally be sufficiently tight that the forward visibility line falls within the footpath.

Where vehicle speeds are not restricted by road alignment or other speed restraints then minimum forward visibility of 60m should be provided on the centre of the nearside lane (vehicle speed 50kph). This would apply to bends with deflection angles less than 30 degrees with a centre line radius of 75m or more.

For bends with deflection angles over 30 degrees and centre line radii of less than 75m, outside 30kph zones the graph below should be used to determine forward visibility. The figure obtained from the graph should be rounded to the nearest multiple of 3m.



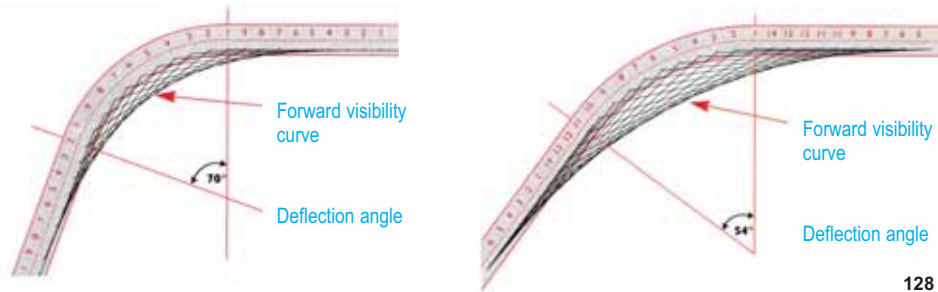
127

Junction Visibility

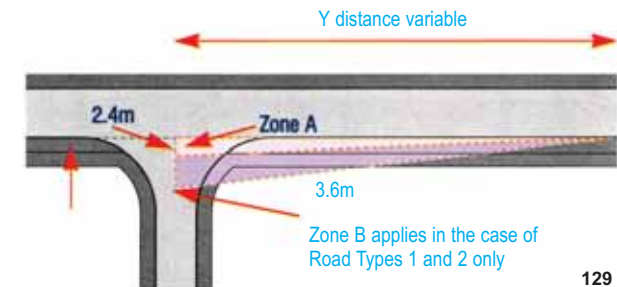
The normal 'Y' distances for sight lines at junctions are those given in the description of each road type, and these 'Y' distances are to be used in all cases where the speed of vehicles on the through road at the T-junction is not restricted by road alignment within this 'Y' distance.

Where the main road at the T-junction contains, within the 'Y' distance, a bend with a deflection angle of over 30 degrees and a centre line radius of less than 75m, it may be possible for the 'Y' distance to be reduced.

The construction of the forward visibility curve is shown below.



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Planting in Sight Splays

At junctions the sight splay can be divided into two visibility zones.

The type of planting considered suitable within sight splays if hard landscaping is not being used is set out in the following table: -

| Planting | Zone A | Zone B |
|----------------|---|---|
| Existing Trees | Normally no trees permitted. However in exceptional cases trees may be retained. Final decision to be made on site in consultation with the local planning authority. | Trees may be retained. Final decision to be made on site in consultation with the local planning authority. |
| New Trees | No trees permitted | Trees may be permitted. The precise location will be agreed with the local authority. |
| Ground Cover | Ground cover permitted providing the plants do not generally exceed 600mm in height when mature. | As for Zone A. |

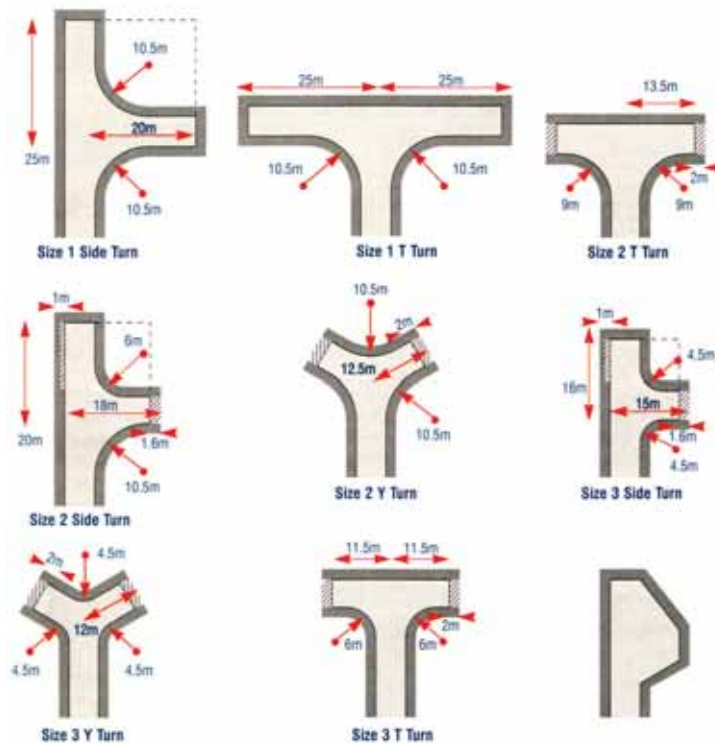
All new trees should be of slender girth when mature and have a trunk clear of side growth to a height of 1.8m.

Grass is not precluded from the areas of sight splays, but these areas tend to be small and awkwardly shaped, and consequently expensive to maintain. Within forward visibility curves, ground cover to a height of 600mm as an alternative to grass is acceptable. Trees may be allowed, but the locations shall be agreed on site, with the local authority.

turning bays

Any cul-de-sac system directly off a Type 1 or higher category road is to include a turning area of not less than size 2 turning bay dimensions. This turning area may be formed by the first road junction within the cul-de-sac system. Where very large vehicles are likely to frequent the system, then it may be necessary to incorporate a size 1 turning bay.

It is desirable to locate entrances to premises or to private driveways off the ends of turning bays, in order to discourage parking within the parking bay itself. On road Types 3 and 4, the turning bay size is determined by the expected type and frequency of vehicles manoeuvring.



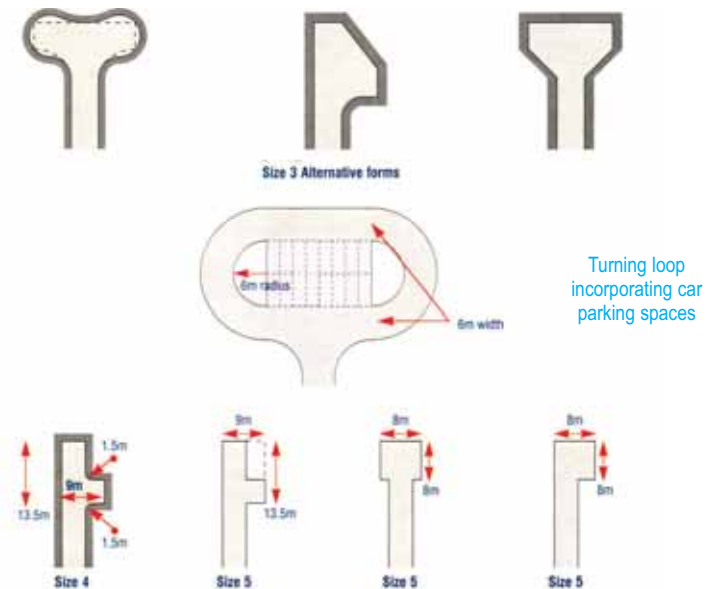
On Types 4 and 5 which are side turnings from Types 3-5 and which are less than 20m in length, a size 4 turning bay may be used.

On Type 6 where less than 20m in length a size 5 turning bay will be required but where longer, a size 3 turning bay is necessary. For all other road types a size 3 turning bay will be sufficient. This is adequate for turning fire and rescue tenders and pantechnicons. The hatched areas in the diagrams are required for vehicle overhang and must be included as part of the highway.

They can either be: -

- (i) in road Type 5 combined vehicle/pedestrian area, or
- (ii) footpath.

In situations where size 3-5 turning bays would normally be permitted, a turning loop incorporating car parking spaces may instead be used.





house driveways

House driveways serving individual dwellings are to meet the back of the footpath at right angles, and may not deviate therefrom by more than 20 degrees. If the angle is greater than 10 degrees, the drive must be widened by 1 m. Except in the case of road Types 5, 6 and parking squares a 1.5m x 1.5m sight splay is required behind the footpath to give clear visibility above a height of 600mm to at least 1.800m. Vehicular access is not permitted across radius kerbs at junctions.

vertical clearance

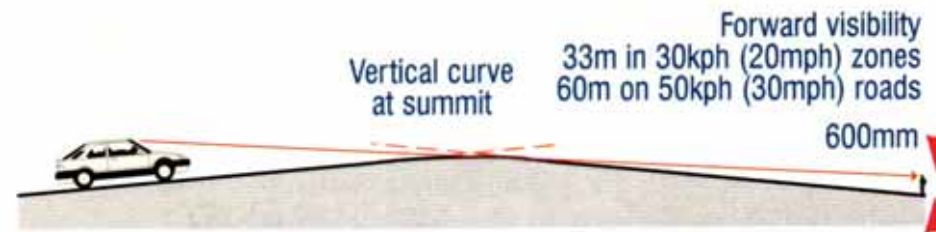
Vertical clearance of 5.000m is required over the full width of carriageway plus 500mm at either side. In the event of a crossfall on the carriageway being greater than 2.5% (1 in 40) the 500mm dimension will need to be increased to 610mm on the low side of the carriageway.

The vertical clearance required at the entrance to a Type 6 mews is 4.1m. If clearance is less than 5.000m, it must be signed. However, if a separate service vehicle access is provided then the clearance at the secondary entrance could be reduced to 2.250m.

gradients

Road gradients up to a maximum of 1 in 10 are acceptable for limited sections, on sites where this is necessary to achieve a satisfactory overall layout, and cannot be readily avoided by the road climbing at an angle to the slope. Steeper gradients should be avoided where possible, but will be considered on their merits in relation to any particular site circumstances; any provision of alternative, less steep, routes for pedestrians, prams and wheelchairs; and design (in terms of handling the cross-fall) of any accesses taken from such roads.

Gradients steeper than 1 in 12 should normally be provided with a handrail for pedestrians. Also, where possible, less steep alternative access routes should be provided for pedestrians, where vehicle access is via a road steeper than 1 in 15.



culs-de-sac

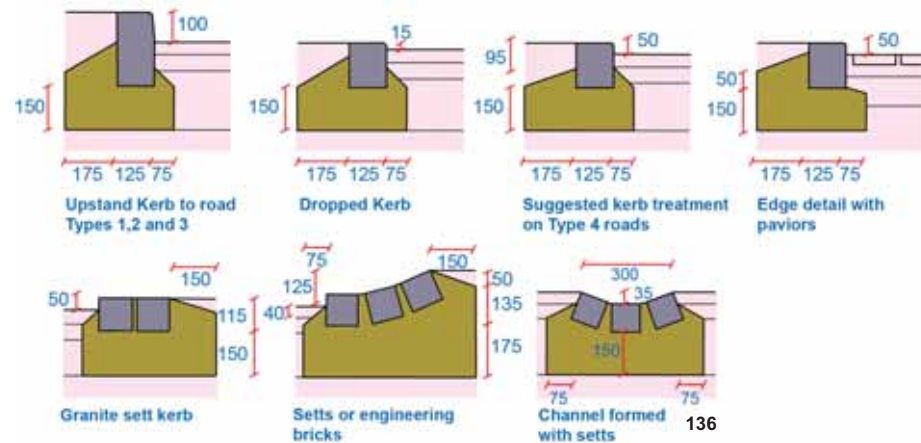
Where the end of a cul-de-sac abuts a site for possible future development, the cul-de-sac should be of road type capable of serving the likely future number of dwellings.

bollards

Bollards used to protect buildings and demarcate footpaths etc. in parking squares should be approximately 1.200m high and made of cast iron or hardwood.

kerbs

The design of kerbs should complement the design speed and character of the road. Construction specifications appear in Guidelines for Housing Estates : Cork County Council 1986 and Recommendations for Site Development Works for Housing Areas: Department of Environment and Local Government 1998.



lighting

Street lighting should be designed to achieve sufficient illumination to enable safe movement by pedestrians and cyclists, reduce opportunities for crime, and enable drivers to see hazards on the road whilst minimising upward light pollution. Care should be taken to avoid excessive light shining through windows into dwellings. Designers should also aim to illuminate the built environment in an attractive way, and to select and position lamp standards so that they enhance rather than detract from the daytime scene. The electricity provider will take in charge all lighting to public areas adopted as highways, footpaths or cycleways, but not to private driveways, provided the fittings conform to the specification in Recommendations for Site Development Works for Housing Areas : Department of the Environment and Local Government 1998 and the whole installation complies with BS5489 pt. 3 or current road lighting standards.

Mounting Heights and Spacing

Generally, road Types 1-3 require a mounting height of 6m and all other roads 5m. In the case of lamps fixed to buildings, the mounting height may reduce to 4.7m. Spacing is generally 34m plus or minus 3m.

Means of Support

Lamps may be mounted on columns, or where buildings abut the back edge of the footpaths or a shared surface road, may be bracketed off buildings providing they are accessible for maintenance and not private property. In such cases care should be taken that light is not thrown into adjacent bedroom windows. Galvanised finishes to columns and mini-pillars are not acceptable in a residential area, and instead they should be polymer-coated in a dark colour. The addition of decorative rings to a lighting column will create the effect of the old cast-iron type of column. Columns should normally be located at the back edge of the footpath, or, in the case of a shared surface, at the back of an adopted recess 1m x 1m. Where there is a 1m pedestrian margin, this recess may reduce to 0.5m deep. It is preferable to build a mini-pillar into a nearby wall.

Type of Lantern

Rather than low pressure sodium (SOX) lamps, the more controllable high pressure sodium (SON) lamp should be used, which produces a whiter, more pleasant light, and limits upward light pollution. The electricity provider is prepared to take in charge a wide range of lantern fittings.

Particular Locations

Lamp standards should be positioned to illuminate speed restraint features clearly. Post-top amenity lanterns should be considered for squares, footpath/cycle links, etc. where they should be accessible by maintenance vehicles. Lamp standards should not be located within 1 metre of a private driveway access.

parking, garage courts and servicing

Car parking should be provided for both residents and visitors at an adequate level and in such locations as to be reasonably convenient, visually inconspicuous, and limit opportunities for car-related crime. It is important that the design of the layout of an estate addresses from the outset the need for appropriate locations and quantities of car parking.

standard of provision of parking spaces

In areas where there are road capacity problems, in town centres, Architectural Conservation Areas, and where a site is convenient to and well served by public transport, it is appropriate to relax parking standards, but in other cases minimum provision is to be as follows: -

- (i) Where the parking space is designated for the sole use of the occupier, the standard for each new dwelling of four or more bedrooms shall be two spaces per dwelling, one or two of which may be in the form of a garage. For one-to-three bedroom dwellings, the standard shall be two spaces per dwelling, one of which may be in the form of a garage.
- (ii) In the case of shared parking areas of eight or more spaces serving 1 or 2 bedroom dwellings, the standard in the preceding paragraph may be reduced to 1.5 spaces per dwelling. Each shared parking area should contain one parking space capable of use by disabled people.
- (iii) In the case of sheltered housing for elderly persons, the standard shall be two spaces for the warden's dwelling and one space for every two residents' dwellings. At least one of these spaces is to be capable of use by disabled people. In the case of nursing homes and other homes with communal facilities, the standard shall be two spaces for every resident staff flat and one space for every four residents' bedspaces.

For non-residential uses refer to the Planning Department.

It may be appropriate to relax standards or provide for collective parking finances by contributions in preference to site specific parking where: -

- the clustering of facilities results in multi-purpose trips;
- the use of different facilities peak at different times;
- facilities are within walking distance of the majority of users;
- the site is convenient to and well served by public transport;
- there are road capacity problems and there are on-street parking restrictions in place or proposed or
- the site is located in a town centre or Architectural Conservation Area.

In public car parks 6% of spaces down to a minimum of 3 spaces should be capable of use by disabled people.

These spaces should be located no further than 50m from major destinations such as a post office or supermarket.

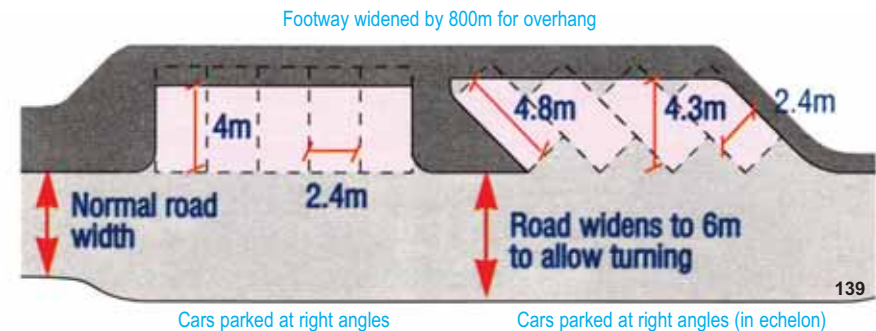
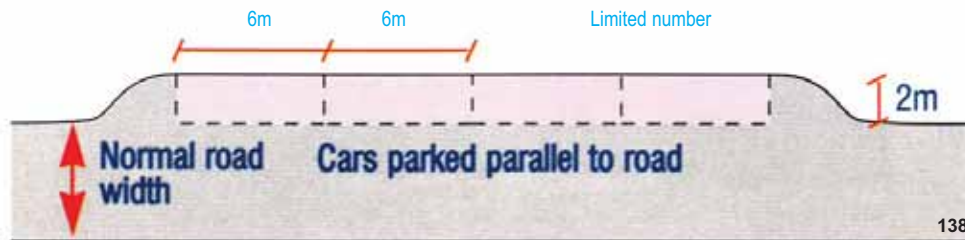
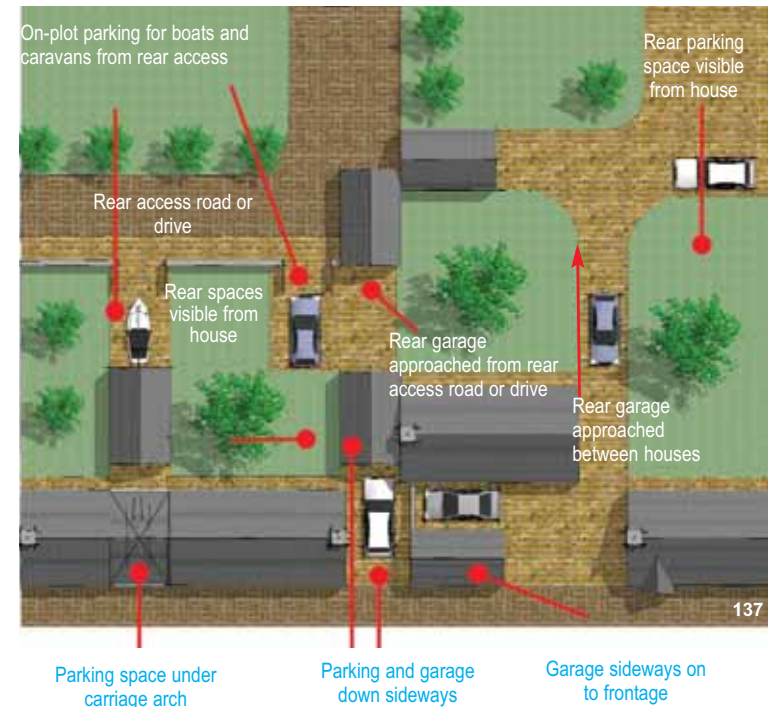


location of parking spaces

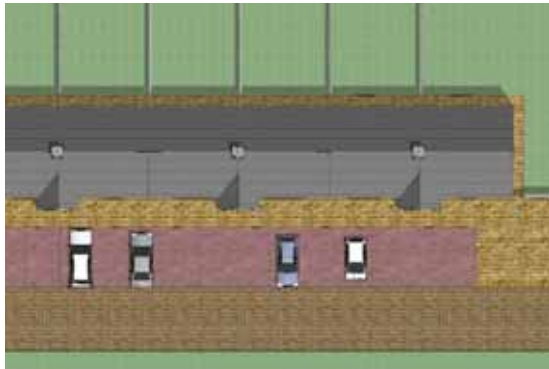
Visitor spaces should be located on or near the road frontage, whilst more flexibility is possible in the location of the residents' space(s). Visitors' spaces for communal use may (in the case of road types other than Types 1 or 2) be provided by widening the road to accommodate a row of cars parallel to, at right-angles to, or at an angle to, the kerb. In the latter two cases the footpath must be widened by 800mm to accommodate vehicle overhang. Such groups of spaces will be taken in charge but should be limited in size and number so as not to dominate visually.

A parking square may also accommodate a group of visitor parking spaces within the highway domain, as may a turning loop. Other solutions will be considered on their merits. The residents' space(s) or garage(s) may be located on or near the frontage, but in such a way as not to dominate the street scene, eg. through a carriage arch under the building, placed sideways-on to the frontage, or down a side-way between houses. Residents' spaces may also be located at the rear of houses, either approached between the houses or from a separate road or driveway at the back. In the latter case, care should be taken that the parking space is overlooked from the dwelling served or else within a secure garage so as not to provide an opportunity for theft. Where rear access to individual plots is provided this has the advantage that on-plot parking is then possible for caravans and boat trailers. In the case of communal parking, it is recognised that the distinction between residents' and visitor spaces is to some extent an unreal one, in that if there are vacant visitor spaces, residents will be liable to use them. Nevertheless, the principle provides enough flexibility that at least some visitors' cars or extra residents' cars can be accommodated.

On street parking can be parallel, diagonal or right angle (see below). 90 degree parking may be unsuitable where there are houses behind the opposite kerb, as these may generate unplanned parallel parking, obstructing turning movements into/out of the 90 degree parking. Creating a limited number of parallel parking spaces in a short section of road which has been specially widened in a lay-by type manner (also shown below) can be used to discourage parking along adjoining sections of kerb, where there is no lay-by.



Communal parking areas should be located so as not to be unduly conspicuous. In other words, a continuous row of parked cars in front of a terrace of houses is unacceptable. In higher density schemes, underground parking may be needed to reduce dominance of parked cars. Preferably surface communal parking areas will be broken up and distributed around the layout with some spaces convenient for visitors on or near the frontage, and others at the side or rear of dwellings. Care should be taken that communal parking areas are overlooked by some kitchen or living room windows, or footpaths in regular use, to discourage car-related crime.



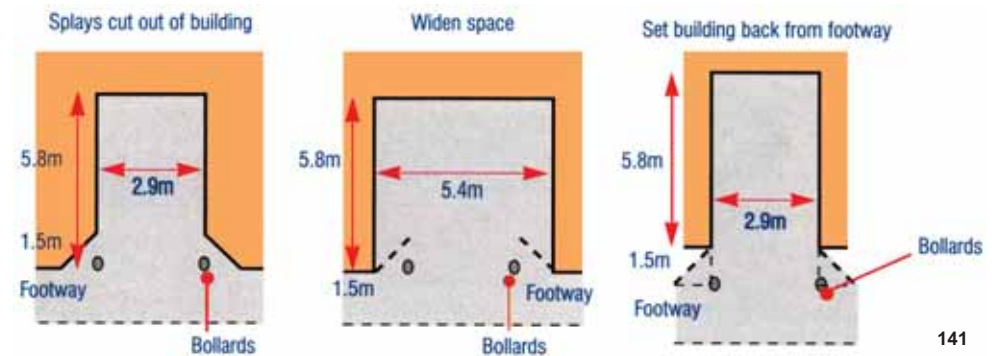
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parking space

The minimum size of a parking space is 4.8m x 2.4m. When the parking space is sited in front of a garage, the long dimension should be 6m so as to allow space to open the garage door. A vehicle/pedestrian sight splay of 1.5m x 1.5m will normally be required giving clear visibility above a height of 600mm where the parking space abuts the back edge of footpath or highway boundary. Exceptions to this requirement will be garages and parking spaces off road Types 5, 6, parking squares and private driveways. Parking spaces between or adjacent to structures may require an increased area for pedestrian movement around the vehicle. The length should be increased by 1m and width by 500mm in such cases regardless of whether structures abut one or both sides.

In the case of lay-by parking on the highway, spaces should be 6m x 2m where adjoining a footpath or 2.4m where not.

A parking space capable of use by disabled people is one that is either widened to 3.6m or is adjacent to an area on the same level, eg a lowered footpath containing at least 1.2m width for getting in and out of vehicles. Any parking space perpendicular to the highway should have 6m clear manoeuvring space in front including the width of the highway. This may reduce by 600mm if the opposite kerb allows overhang.



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garages

The minimum internal garage size is 4.8m x 2.9m. Where a garage door abuts the back edge of a footpath or shared surface road, the garage is to be set back sufficiently for the swept path of the door not to obstruct circulation. However, it is not to be set back more than 3m unless a full 6m parking space is provided in front. The use of through garages, with doors front and back, is useful in giving access to the rear curtilage for additional parking and storage.

communal parking courts

Parking spaces should be at least 2.4m x 4.8m, and rows should be separated by at least 6m to allow manoeuvring in and out. It may be desirable for some spaces to be designed to accommodate caravans or boats. One parking space in each parking court should be capable of use by disabled people.

Entrance ways to parking courts will be as follows: -

- (i) 9 parking spaces and over, access way to be 4.5m wide, centreline bend radius 6m minimum, sight lines as for private driveways, headroom 2.5m.

If access for fire tenders is required, see relevant paragraph. Apart from small groups of visitor parking spaces on or near the frontage, parking courts should be well enclosed by buildings or walls to reduce their intrusiveness, but at the same time overlooked by at least some dwellings or footpaths in regular use, in order to discourage car-related crime. The incorporation of tree and shrub planting will soften the effect and reduce the apparent size of parking courts, as will the use of more attractive surface materials, such as tar spray and pea shingle dressing on a base course of macadam, concrete or clay block paving, granite or concrete setts, stable blocks and cobbled edges.

Fences enclosing parking courts are vulnerable to vehicle impact and should not be used. Walls are to be used, and where used at the ends of parking spaces should be protected by a kerb set 600mm into the parking space.

garage courts

A minimum width of 7.3m is required between the fronts of garages. The end wall or kerb of garage courts will need to be recessed for most types of car to be able to manoeuvre properly. Sufficient space and gullies should be provided for car washing. Entranceways are to be as for parking courts, but headroom may reduce to 2.1m provided fire tender access is not required.

- (ii) Up to 8 parking spaces, as for shared private driveways.



Communal parking court

servicing

The road standards for taking in charge are designed to allow service vehicles up to pantechnicon size to reach all parts of the residential road system. Refuse collection vehicles must be able to reach within 25m of all bin collection points

access for fire tenders

Under Building Regulation B5, access for fire tenders is required to a point not further than 45m from all parts of the ground floor of any residential building. Any road or private driveway forming part of such a fire access way must be no less than 3.7m wide between kerbs (though this may reduce to 3.1m for a gateway or similar short narrowing), and should have a minimum centreline bend radius of 6.55m⁵ (or 7.75m if enclosed by walls) and headroom of 4.0m. The access way including manholes etc. should be capable of carrying a 12.5 tonne vehicle though structures such as bridges should have a minimum carrying capacity of 17 tonnes. A cul-de-sac which is more than 20 m long must have a turning head of at least Size 3. Where there are apartments of more than four storeys there are additional access requirements, for which see the Building Regulations and/or the local Building Control authority. Fire access will normally be to the front of dwellings, but rear access is acceptable provided it is clearly signed and the dwellings are also numbered from that side.



⁵ This is expressed in the Building Regulations as a turning circle of 16.8m and 19.2m respectively

pedestrian and cycle movement

Within new residential areas, pedestrian and cycle movement should be convenient, safe and pleasant. Direct routes should be provided to local facilities and adjacent neighbourhoods in such a way that it is more convenient and attractive to walk or cycle than to drive to such destinations. The aim should be to discourage the use of the car for local trips and to encourage walking and cycling between homes and the local facilities residents need to visit regularly.

The policy of subordinating the speed and throughput of traffic to the environmental requirements of the space within which the road is located, together with the use of 30kph zones, will result in narrower, slower roads and thus a more pedestrian and cyclist-friendly environment. There should therefore be no need for segregated spine footpaths, and indeed these can present opportunities for crime, either against pedestrians or against properties backing onto the footpath. Instead pedestrian routes should be mainly along residential roads, with occasional short links to give pedestrians and cyclists a preferential direct route. Wherever possible pedestrian and cycle routes should be overlooked by the fronts of dwellings.



Footpaths to Roads

The width of these will vary according to the type of road (see relevant section), but normally is sufficient to allow two people to pass. It is also possible, for a length of 8m or less, to narrow the footpath to a single pedestrian width of 1m (minimum headroom 2.25m), provided such a 'courtesy section' is positioned so that pedestrians are not induced to step into the carriageway.

Road Type 5, which carries less traffic, has a pedestrian margin rather than a delineated separate footpath.

Pedestrian and Cycle Links

Pedestrian and cycle links should be used (i) to create preferential routes through a residential network to link to adjacent existing residential and other areas in such a way as to improve accessibility without introducing extra vehicular traffic and (ii) to provide multiple accesses to a residential area from a major road rather than funnel pedestrians and cycles into the site at one point shared with a vehicular access.

Pedestrian and cycle links should be a minimum of 2.5m wide if the surface is shared between pedestrians and cycles, or 3m if pedestrians and cyclists are separated. Separation should be by a 25mm kerb or by a tactile white line. Where the link is bounded by a building, wall or fence it should be widened on that side by 0.5m. There should be 'parallel' tactile ribbing at the ends of the cycle portion and 'right-angled' ribbing at the ends of the pedestrian portion. Other design solutions may be acceptable, subject to approval by the local authority.

A pedestrian and cycle link should be as short as possible, with intervisible ends, and fronted by dwellings for a good part of its length. Pedestrian and cycle links should be regarded as part of the street system and could be run parallel to private driveways in cases where vehicular access to frontage dwellings is required.

Segregated Cycleways

For strategic links between various parts of a town, or where a cycle route runs alongside road Types 1 and 2, which are outside 30kph zones and are likely to be more heavily trafficked, a segregated parallel cycleway may be desirable. This should be 2m wide and separated from the carriageway by a 3m wide tree planted verge. If combined with a footpath the design standard should be as for a pedestrian/cycle link with pedestrians and cyclists separated.

Crossings

Where a cycle route crosses a road Type 1 or 2, a dropped kerb is necessary at the road crossing, together with a staggered arrangement of barriers to persuade cyclists to slow up. A space of 1.5m is required between the barriers to allow the passage of wheelchairs. Where peak hour two-way traffic flows exceed 500 vehicles per hour a signal controlled crossing will be necessary. In such cases staggered barriers are not required.

Where a cycle route crosses a road of Type 3 or below the crossing should be designed as a speed restraint measure to road traffic. This is to be achieved by the surface material of the cycle route continuing across the carriageway and the road approach to the crossing being ramped up 75mm over a length of 1100mm, similar to a speed table. Signing will be necessary on the approaches to the crossing, even within a 30kph zone.

In all cases where a pedestrian/cycle route meets a highway, footpath or another pedestrian/cycle route, 1.5m x 1.5m sight splays are required.



buses

In the interest of providing access for those without the availability of a car and of reducing the need to use motor cars, it is important that the accessibility of residential areas by public transport be improved. This can be achieved by the careful siting of residential development through the County Development Plan, but in the case of larger developments it will be necessary for bus routes to enter and serve new residential areas. This must be taken into account in the planning of such developments.

Types of Bus and Bus Stops

Where appropriate the layout of a large residential area should be planned with the ease of operating a bus service in mind. It is a reasonable assumption that larger, conventional buses will operate on existing roads and on Type 1 and 2 roads with bus stops at approximately 2 to 3 per kilometre. Smaller buses will operate within 20mph (30kph) zones on Type 3 roads probably on a 'hail and ride' basis, i.e. without fixed stops. Where fixed bus stops are provided, stops on opposite sides of the road should be staggered so that buses travelling in opposite directions stop 'tail to tail' and move off away from each other. The road system likely to be used by buses should be laid out in such a way that no dwelling is further than 400 metres from either a bus stop or a 'hail and ride' route.

Routes and Termini

Type 3 roads which are most likely to be used by buses, should be laid out to provide a reasonably direct route in and out of the area, passing higher density residential development, schools and neighbourhood facilities. In places where it is desirable to offer cars a less direct route, a bus-only link is a possible solution. It is preferable for a bus route to be arranged as a loop so that buses do not have to turn. However, if a terminus is unavoidable, a full-size bus requires a roundabout of 26m outside diameter and 14m inside diameter, whilst a small bus can negotiate a normal mini-roundabout. Whether the route is looped or has an end terminus, a layover point is necessary at the end of a journey. This should be in the form of a lay-by of length appropriate to the type of bus, located preferably at a neighbourhood centre or community facilities. Care should be taken to avoid nuisance or loss of privacy to residents at such locations.

Bus shelters of a design acceptable to the local authority should be provided at all those bus stops.





part five

case studies



- Informal Urban Street
- Parking Square
- Higher Density Block
- Lower Density Area
- Formal Square

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use of case studies

A number of case studies are included here, some of which have been located within the context of a large site layout. These case studies may be viewed in isolation as potential small infill developments or they may be viewed as the jigsaw pieces of a much larger development.

It is the purpose of the case studies to show how the principles of this Guide can be put into practice in the design of the layout of a number of sites with differing requirements and characteristics some of which fit within a larger site which has already been the subject of a development proposal on conventional lines. Not only do the case studies illustrate how the recommendations in this Guide can be applied in various situations, but they also provide a direct comparison between conventional practice and the change of approach implicit in the Government's Residential Density Guidelines. The case studies should not be regarded as stereotype solutions to be copied, but as demonstrations of the application of the approach advocated by this Guide.

The large case study site is in an urban edge location which slopes fairly steeply down from its perimeter into the centre. The steeper slope outside the perimeter is designated as an 'urban forest' to provide amenity and screening to the development. There is one road access from the existing built-up area into the lowest part of the site.

The existing scheme, at 396 dwellings, has four small shops and a sports field as its only non-residential elements. The case study scheme, at 651 dwellings, has a 300m² neighbourhood centre with a convenience store, four other shops, doctor's and dentist's surgeries, pharmacy, library, pub and restaurant, primary school, crèche, nursing home, six 80m² business units and provision for bus access. The extra density and dwellings of the case study scheme thus provide sufficient resident population to support a wide range of facilities within close reach. With the whole development lying within 400m of these facilities, this should make a substantial contribution to reducing car use for local trips. The main vehicular access to the scheme is diverted away from the neighbourhood centre to allow a direct pedestrian route fronted by shops and houses, which again will encourage walking to local facilities. Parking for the neighbourhood centre is located discreetly to the side and rear, in contrast to that of the existing scheme, which envelopes the shops.



Scheme prepared on conventional lines:
The Existing Scheme

The case study scheme locates a greater proportion of the resident population closer to the neighbourhood centre by raising the net residential density to 55 dwellings per hectare (22 per acre) within 100m of the neighbourhood centre and by locating apartments above the neighbourhood centre. Over the whole site the net density averages 35 dwellings per hectare (14 per acre) excluding school site and major open space but including informal play areas, compared with 20 (8 per acre) in the existing scheme and thus falls within the Government's recommended density range for outer suburban and greenfield sites. However, this still permits lower densities of 20-25 dwellings per hectare (8-10 per acre) around the perimeter where dwellings are farther away from facilities and therefore not so numerous. Any of the dwellings could be social or affordable since all have the same design criteria.

The means by which the case study scheme achieves these densities is firstly by terracing a large proportion of the houses which, in the existing scheme, are mainly semi-detached, and secondly by keeping garden sizes within the range recommended by the Residential Density Guidelines of 60-75m² for 3-bedroom houses and above and 48m² for 1 and 2-bedroom houses. The garden sizes in the existing scheme, by contrast, are all in excess of 100m² and some considerably larger though not all of this space is very usable. The proportion of apartments is similar in both schemes.

The case study scheme creates an attractive and varied pedestrian-scale streetscape with each space having a different character, whereas the existing scheme exhibits a repetition of similar houses all set back the same distance from identical estate roads. The existing scheme backs houses on to the perimeter countryside and urban forest and has a number of long flank garden boundaries facing roads and open space. The case study scheme, by contrast, maximises frontage and informal supervision of space by facing houses on to the perimeter open space, and turning corners with houses as much as possible so that roads are largely fronted by buildings.

The existing scheme relies on a cul-de-sac system of roads, 20% of which are 7.3m wide and the remaining 80% is 5.5m wide. Such systems are disorientating and involve convoluted journeys for service vehicles. The case study scheme on the other hand consists of a permeable, linked network that is easy to find one's way around. It also has pedestrian links into the adjoining neighbourhood. By providing adequate off-street parking, a more modest access road network is possible. Fourteen per cent of the roads in the Case Study scheme are 6.7m wide, 6% are 5.5m, and the remaining 80% are 4.8m wide. Where on-street parking is provided for, the road is widened accordingly. At the same time, more dwellings are served by shared driveways and parking courts, resulting in only 5.36m of road taken in charge per dwelling compared with 9.09m per dwelling in the existing scheme. Including roads, shared driveways and parking accesses, the case study scheme has 40m² of access way per dwelling compared with 50m² for the existing scheme.

The site slopes steeply up towards the perimeter and thus poses problems for the relationship of street, house and back garden levels. Many schemes on sloping sites pay little attention to levels in their layout and thus the relationship of street, house and back garden levels may be haphazard, resulting in steep banks and retaining walls, with associated problems of unsightliness, overlooking and high cost. The case study scheme, by contrast, runs roads straight uphill where gradients are below the maximum of 1 in 10, and along the contours where they are steeper. On uphill roads, houses step up the hill and therefore street, house and garden are on the same level with consequent advantages of ease of access and compact layout. On roads running along the contours, houses are set back to provide sufficient space to ramp up or down to provide access from the street.

The case study scheme also has a coherent landscape structure which locates open spaces at nodal points in the layout, fronted by buildings, and provides a wildlife corridor linking the perimeter urban forest, via the sports field, to the play area at the entrance to the scheme, which, being at the lowest point, accommodates balancing ponds to control surface water run-off.



1: Informal Urban Street



2: Parking Squares



3: Higher Density Blocks



Scheme prepared using design guide principles



4: Lower Density Area



5: Formal Square

case study 1 : informal urban street

The density in this part of the site is 35 dwellings per hectare (14 per acre). This is a typical street running uphill towards the perimeter of the layout. In this case it is a shared surface Minor Access Road Type 5 as it only serves a total of 14 dwellings. With this road type there is 5.8m of width, including a 1m pedestrian margin, to be taken in charge. Buildings can be placed directly against it provided there are no outward-opening doors or windows, overflow pipes etc.

In this case some of the houses on both sides of the street have projecting bay windows so the house fronts are set back by the depth of the bay windows which also have sliding sashes so as not to impinge on the road. The space between the bay windows is hard paved to blend with the rest of the street, but not taken in charge.

Some of the houses are designed with underpasses to allow two cars to be parked on plot, others are placed to allow parking between the houses. The road is aligned to encourage slow vehicular speeds and is paved with a pedestrian-friendly surface such as Tegula blocks.

The linked houses on one side of the road have cranked party walls so that the houses follow the curve of the street. The detached and semi-detached houses on the other side are placed so that one of the buildings faces the entrance to the street from the open space and deflects the road around it.

The houses step up the hill so that their front doors are at street level and no set back to cope with level changes is required.





CASE STUDY 1: Informal Urban Street

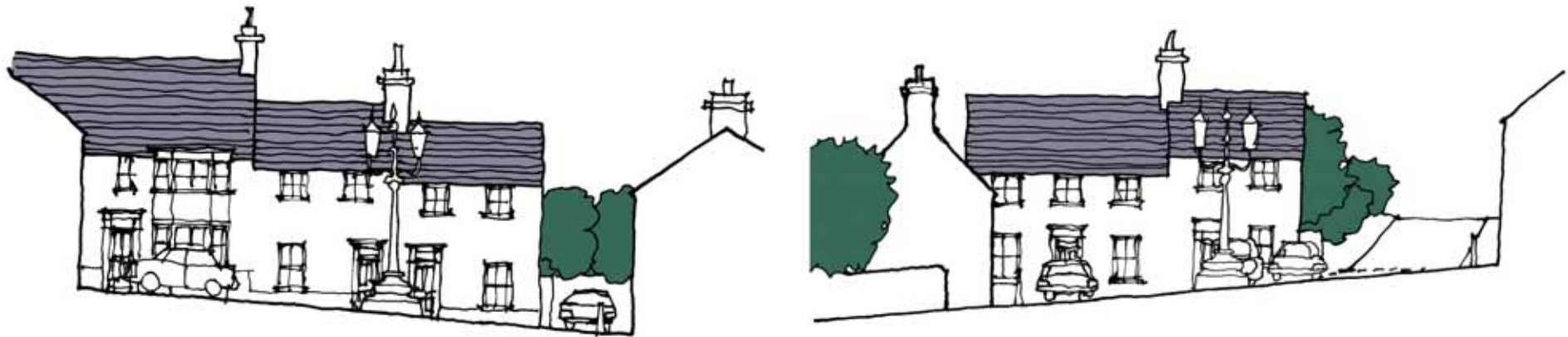
case study 2 : parking square

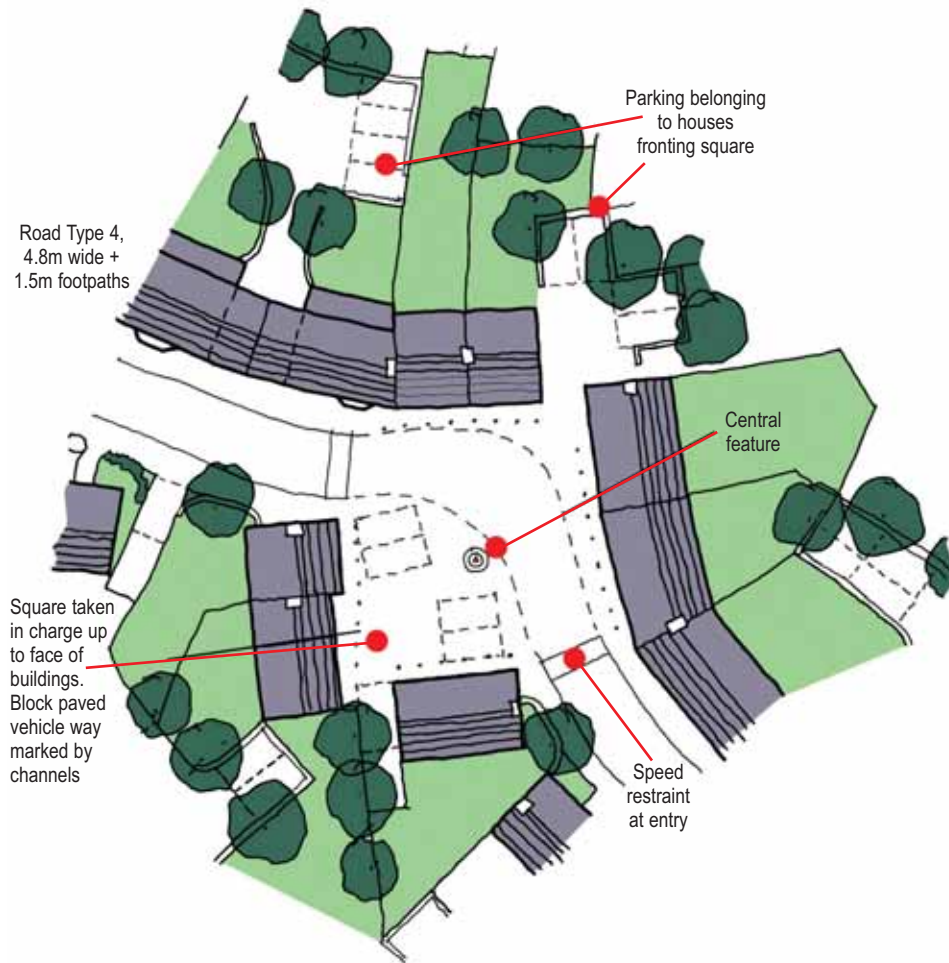
Parking squares are devices which slow traffic up and provide a focus for houses within the residential road network. This particular square is fronted by eight houses and accommodates four parking spaces within the square, with the remaining allocation for the frontage dwellings located outside, reached through the corners. The density in this part of the site is 35 dwellings per hectare (14 per acre).

The square is on a slope and is paved in Tegula blocks between the faces of the frontage buildings. The vehicle way traversing the square executes a right-angled bend and is marked by channels. The entrances to the square ramp up, and the frontage houses are protected by bollards one metre in front.

A central feature, in this case a decorative lamp standard, is the focal point of the square.

Each view into the square is stopped by buildings, so that the way through is not immediately apparent. The enclosing buildings are terraces, a pair of houses and a single house, and the urban, enclosed character of the square contrasts with the openness of the nearby urban forest.





CASE STUDY 2: Parking Square

case study 3 : higher density block

This is an example of one of the higher density street blocks at 55 dwellings per hectare (22 per acre) located adjacent to the neighbourhood centre. One side forms a pedestrian street facing the shops of the neighbourhood centre, the other three sides are demarcated by the 5.5 m Feeder Road, Type 3, which diverts residential access traffic away from the neighbourhood centre. Provision is made for on-street parking in lay-bys along most of the length of this road.

The density of the block is raised by means of (a) having as continuous a built frontage as possible with minimal breaks for access and the car parking arranged communally in the middle of the block, and (b) having 44% of the dwellings as apartments. The apartments are located as corner turners and also directly overlooking the communal parking area to provide informal supervision. The informal supervision is further enhanced by individual single aspect studio apartments sitting above some of the parking spaces and overlooking the parking area. The vehicular access to every communal parking area in the scheme is placed on the side farthest away from the site access to encourage walking rather than driving for local trips. The shortest route to the neighbourhood centre from every dwelling is by foot. This is further promoted by having a number of pedestrian short cuts through the central parking area of each block which further enhances informal supervision from passers-by.

The apartments and the houses facing the neighbourhood centre are three-storey to raise the urban scale in the centre of the scheme. The corner-turning houses are also three-storey, but the rest are two-storey. Despite the high density, all private gardens comply with the minimum garden area standard. Counting the on-street parking spaces, there are two spaces per 3-bedroom dwelling and one per 1 or 2-bedroom dwelling due to the proximity to facilities. Three of the spaces within the central parking area are designed for disabled users.

The central parking area is enhanced, and the privacy of back gardens protected, by 1.8m screen walls with back gates, by the single-aspect apartments above some of the parking spaces, and by generous tree planting both within the parking area and behind the screen walls. Generally buildings directly front the street, in keeping with the urban character, but at the uphill end, where the street follows the contours, houses are set back to allow steps down to front doors. Rear access to every dwelling through the back garden enables level entry for the disabled.



CASE STUDY 3: Higher Density Block

case study 4 : lower density area

Around the perimeter of the scheme there are opportunities to lower the density to 20-25 dwellings per hectare (8-10 per acre) without affecting the overall density, because such areas are in the minority. Also lower densities lend themselves to the more steeply sloping sites to be found on the perimeter of this site because the houses are detached and the plots are large enough to accommodate the changes in level and ramped accesses.

Because of the small number of dwellings served, it is possible to use shared driveways which are small-scale (2.4m wide), informally laid out and not taken in charge, the frontagers being responsible for upkeep.

Houses are set back behind hedged plot boundaries, which are reinforced by generous tree planting. Car parking spaces and garages are located inconspicuously within plots and between houses. Larger, 4-bedroom house types are used, but of compact rather than sprawling plan form, as the latter would fill up even these larger plots, which contain back gardens of 170m² or more. The houses are arranged to face outward on to open countryside and the urban forest.





CASE STUDY 4: Lower Density Area

case study 5 : formal square

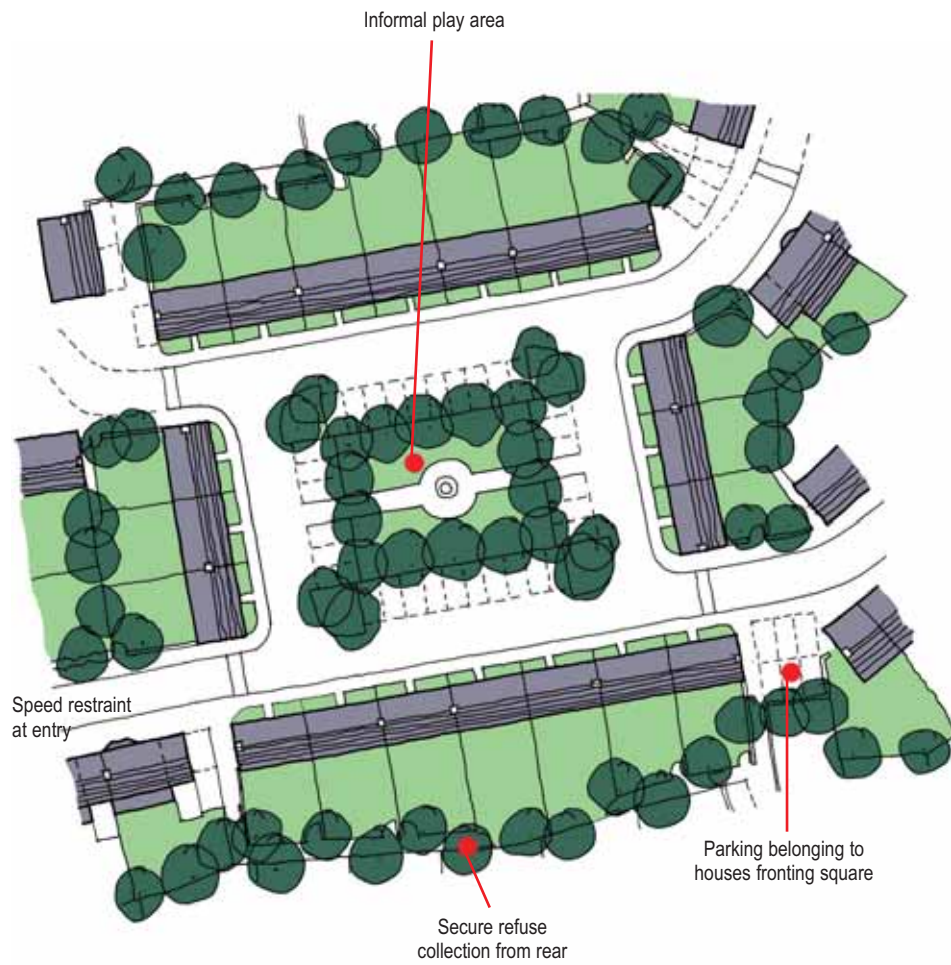
Formal squares provide a contrast with the organic layout of the rest of the scheme. In this case there is a view through the square from each entrance, whereas normally views are truncated by a bend or endstop building. By its symmetry the formal square provides a feeling of repose, which is enhanced by a tree-planted play area located in the middle of the space.

The character is very much that of the traditional Georgian square. The square is fronted by twenty identical three-storey houses set back behind small front gardens with railings.

Most of their parking allocation is provided for around the central play area, with the rest being located at the ends of terraces just outside the square. The density in this part of the site is 35 dwellings per hectare (14 per acre). The entry roads are 4.8m wide and ramp up on entering the square to slow traffic. Within the square the roads widen to 6m to allow vehicles to turn in and out of the parking spaces. Because the houses are in terraces, there is secure refuse collection access to back gardens.



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CASE STUDY 5: Formal Square

part six

worked example

an interpretation of the design guide
by Ailbhe Cullen, Architect, M.R.I.A.I.

roinn 6
sampla a d'éirigh leis

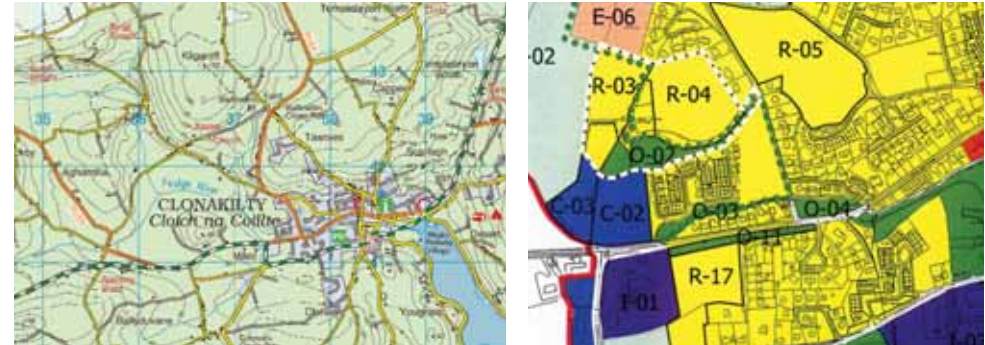


introduction

Cork County Council commissioned a worked example for incorporation within the design guide to demonstrate the application of the principles contained within the guide. Ailbhe Cullen M.R.I.A.I., a Dublin based architect in private practice was appointed to evaluate and present a sketch scheme for a selected site on the outskirts of Clonakilty, Co. Cork. While there are a number of ways in which the site could be developed, the purpose of the example is to illustrate the process of evaluation and design in a step-by-step manner.

site location

The site, known locally as Beechgrove and comprising a total of 5.598 ha. is located in the area Tawnies Lower, to the West of Clonakilty Town, Co. Cork. The entrance is off Fernhill Road, the R588, which links Clonakilty with Enniskean and Slieveowen. The current owner of the site is Cork County Council and a portion of the lands, to the south east of the site are currently used by the Council Engineering Department as a storage facility. There is an existing Georgian house located centrally within the site which is listed as an Architectural Conservation zoning Map 3A of Clonakilty Development Plan. There is also an objective to provide an Amenity Walk through the site, linking the cemetery to the north with the existing river walk to the south of the site on the opposite side of the main road.



planning policy context

Review the relevant Planning documents, namely; the current Cork County Development Plan, the Clonakilty Town Council Development Plan, the Cork County Council Recreation and Amenity Policy, and the Residential Density Guidelines. These reference documents inform zoning, density, the potential numbers and mix of dwelling units appropriate to the site, quantify the Part V provision and define the open space requirements.

Proposals for the use of the existing dwelling and outhouses should be considered at this stage to establish possible links within the development.

The site carries 3 zoning objectives in the Clonakilty Development Plan, Map 3.

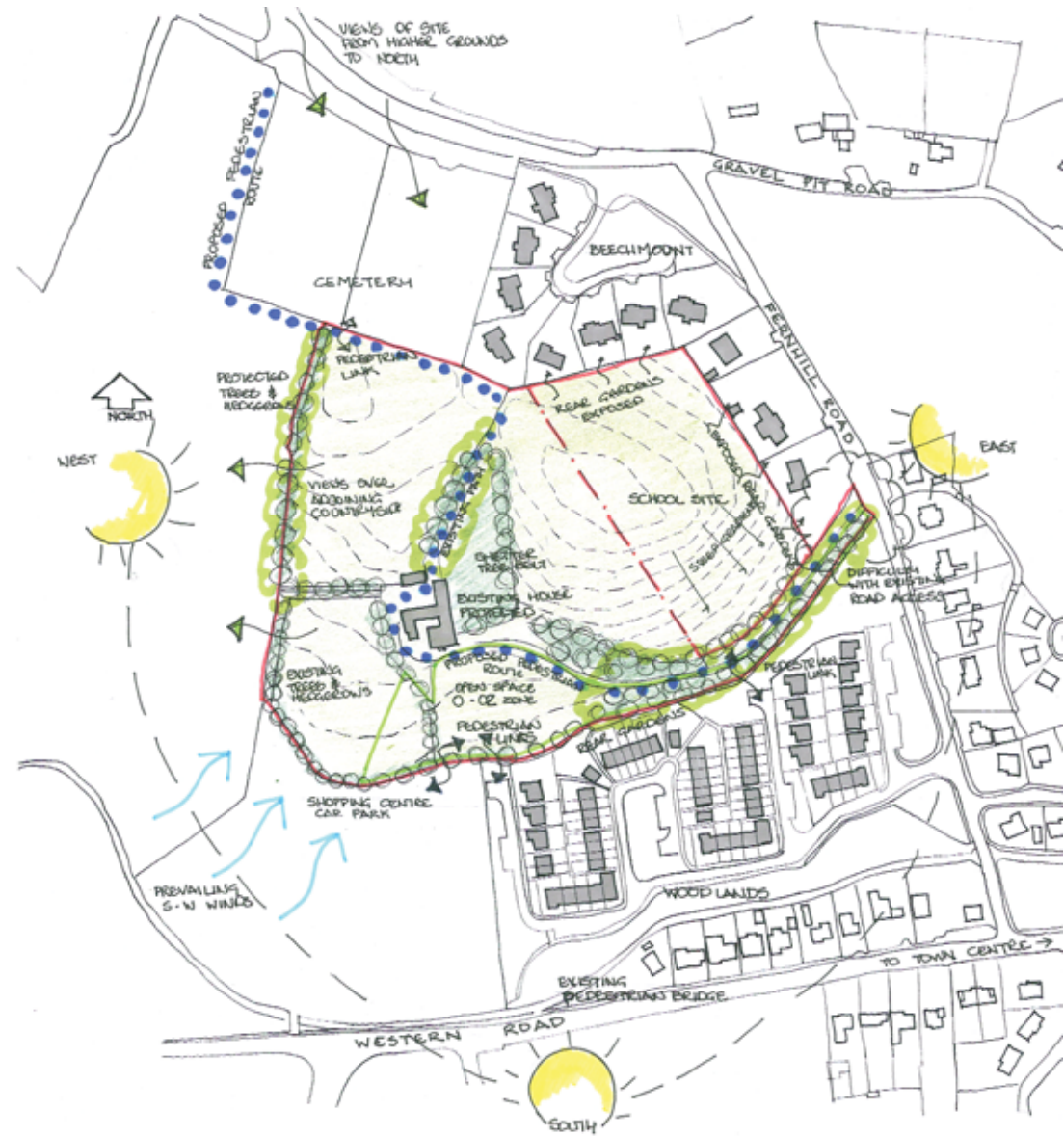
- The area to the east carries an R-04 zoning, described as "Low density residential zone with open space in the centre of the site and development concentrated in the periphery of the site." This area is bisected by the ceded school site, is steeply sloping, rising to a plateau in the centre. It may be possible to develop the school site and the interface with the housing to provide an open space centrally in the area providing access to the school. This would be a suitable area to locate the crèche facility.
- The area to the west of the site carries a zoning objective R-03, described as "Medium density residential zone with public sewerage facilities respecting existing densities." This area of the site is also sloping towards the south east.
- The area to the south of the site carries a zoning objective O-02, described as "Amenity Public Open Space and to provide context for the adjoining Georgian structure." This comprises approximately 25% of the overall site and provides a green belt between the site and the existing recent housing development to the south.
- In addition to these areas, there is a substantial green belt to the north of the existing Georgian house which should be retained, providing a green route through the site.

site analysis

prepare site analysis

A full site analysis should be undertaken, incorporating topographical and environmental considerations, views, orientation, landscape features, site context, extending to linkages with the town and the wider environment.

- A topographical survey is essential to establish gradients, naturally occurring land features etc.
- A tree and hedgerow survey should be undertaken at this stage to assess the exact location, current condition, height and spread of all trees and hedgerows throughout the site. This will inform the development pattern and any remedial works should be undertaken as indicated to remove dangerous or decaying trees and to ensure that construction work will not adversely affect the retention of existing vegetation where considered appropriate.
- A planting schedule should be considered at this point to supplement and improve the existing boundaries, for example the boundaries between the proposed school site and the existing houses to the north and east. In addition a planting schedule should be considered for the boundary alignment between the proposed school site and the development land. This will ensure that established planting can be in place prior to construction and thereby minimise disruption.
- The preferred open space areas will be identified at this point and the layout principles informed by the site analysis.



Site Analysis

concept plan

analyse and establish density

The densities of adjoining developments were considered in terms of a comparison:

- Woodlands, to the south of the site
60 houses on 3.4166 ha. = 17.56 units per ha.
Excl open space = 23 units per ha.
- Beechmount, to the north-east of the site
8 houses on 1.222 ha. = 6.5 units per ha.

In accordance with the Cork County Development Plan and the Residential Density Guidelines, the net development density is in the range of 35 to 50 units per hectare, however the appropriate net density was considered to be in the region of 35 units per hectare due to the location of the site at the outer edges of the town.

| | AREA | % Site |
|--|-----------------|--------|
| OVERALL SITE AREA | 5.598 ha | |
| Site Ceded For School | 1.312 ha | 23.0% |
| Existing House With Conservation Zoning | 0.247 ha | 4.4% |
| Zoned Open Space | 1.399 ha | 25.0% |
| Shelter Tree Belt To Be Retained | 0.364 ha | 6.5% |
| NET SITE AREA | 2.276 ha | |
| RESULTING DENSITY 2.27 ha @ 35 units / ha. = 79 dwelling units. | | |

Crèche A residential development of this size requires a crèche unit providing a ratio of 20 child places per 75 dwelling units, say 22 places, with a gross floor area of approximately 8m² per child, or 176 m². The ideal location for a crèche facility is close to the school in the CORE AREA in order to enable and facilitate 'dropping-off' children of varied age groups at key times and reducing vehicular movement. A larger crèche facility, providing 50 to 60 child care spaces, would be required to provide the optimum space standards and the optimum quality of care to be viable. It may be possible to provide a larger facility catering for children from adjacent developments, Beechmount and Woodlands. It would be necessary to carry out a review of existing facilities in the area to determine the viability of any facility.

consider existing house

The existing house and outbuildings carry a conservation zoning. They are located centrally in the site adjacent to the shelter tree bank and overlooking the zoned Open Space to the south of the site. The house is currently unoccupied and falling into disrepair, and requires careful consideration for restoration and future use and maintenance. Overall area of buildings is approximately 780 m² comprising the house and return at approximately 430 m² and outbuildings of approximately 345 m². The proposed use for the house, return and outbuildings is a residential unit for respite care.



Woodlands

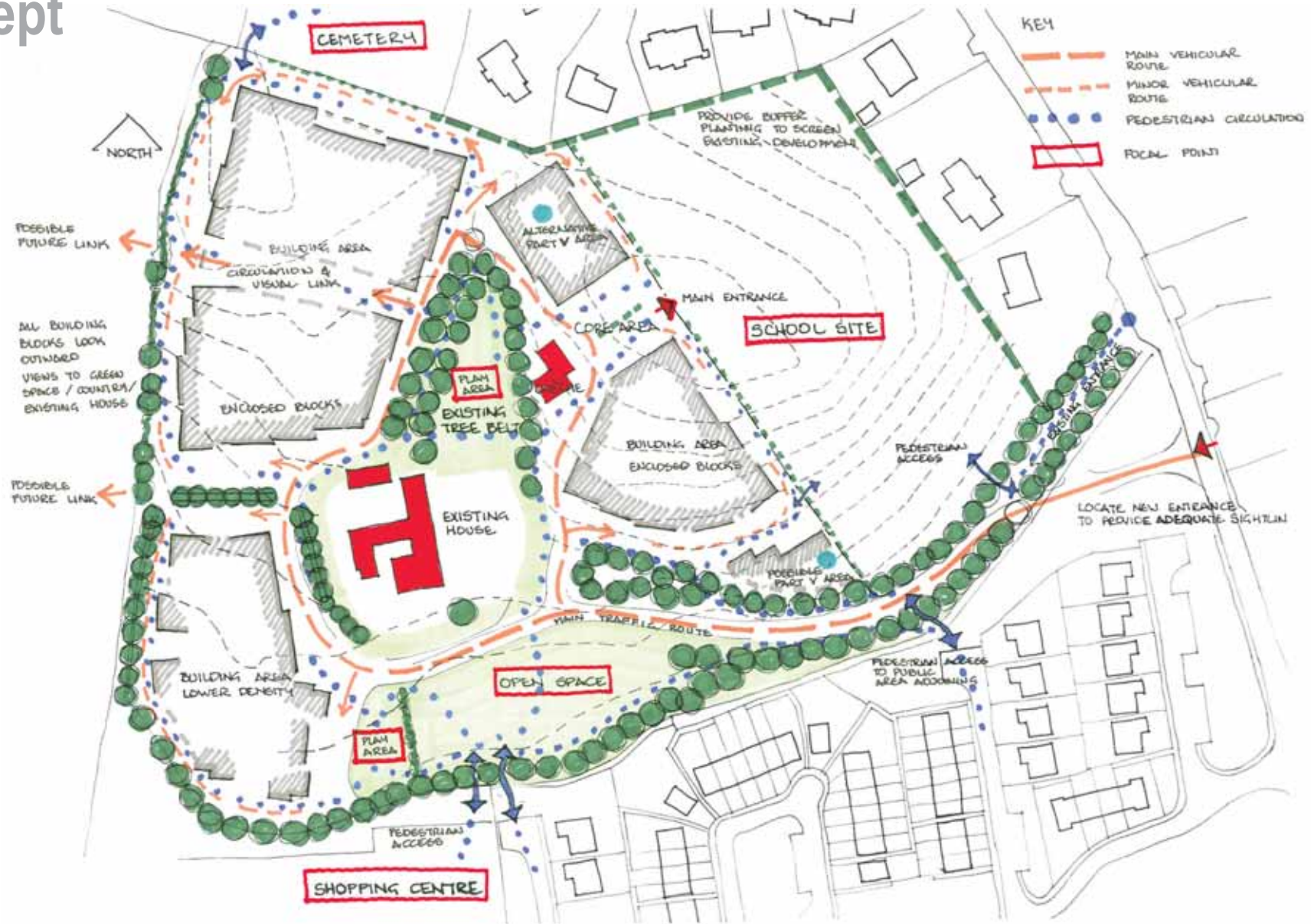


Beechmount



Existing house on site

concept plan



layout plan

establish layout principles

- Determine focal points.
- Central Open Space and green lung through site.
- Protect existing environmental features - tree belts and groups, existing boundaries.
- Focus development on existing house, school, cemetery.
- Circulation routes through tree belt and open space for passive surveillance.
- Locate CORE AREA to the west of the school site where pedestrian movements likely to be concentrated. Logical location for crèche.
- Opening pedestrian routes through site to/from graveyard, school site, crèche, main road for transport facilities and through existing developments to/from shopping centre to south.
- All housing blocks to be facing outwards to eliminate views into rear gardens where possible.
- Terraced units to provide continuous frontage and with a view to sustainability.
- Access to rear gardens of terraced houses.
- On-curtilage parking where possible.
- Resolve site access.

Road circulation is permeable. The layout is based on a 'deformed grid' pattern based on the use of small residential blocks (p30). A single internal access road circulates through the site in a continuous loop, through 2 parking courts and linking roads are also looped to provide maximum circulation. Only very short lengths of cul-de-sac are incorporated where unavoidable. This will enable a series of outward looking blocks with minimal exposure of rear gardens and private spaces while providing passive surveillance of pedestrian routes, open spaces and the school site to the east of the proposed development.

Adjoining landmarks are respected; the existing house which carries a conservation objective is retained as a backdrop to the Public Open Space and is used as a focal point in the development. Other landmark features are the adjoining cemetery and the proposed school with a proposed crèche in the adjoining parking square. These landmarks all form focal points in the development.

Continuity of the street frontage (p34) is provided by the inclusion, where possible, of infill garages between houses and of the use of a specific L-shaped corner unit. Insofar as possible parking is provided on curtilage, either as integrated garages or adjacent garages or dedicated parking spaces. Common parking areas are overlooked by the fronts of houses and also by the rear of the houses that they are serving. The parking court to the east of the site is located at a CORE AREA (p31) considered to be an area of pedestrian concentration, the location of the crèche and access points for the adjacent school site.

N.B: Please note that all references to Design Guide are in brackets.

layout plan



housing mix and parking requirement

Following discussions with the Local Authority the 1-bed and 5-bed unit types were deemed unsuitable in this context and the schedule of accommodation rebalanced to reflect this. The parking levels requirement was also adjusted to 2 spaces per dwelling unit. The parking spaces are provided in a number of ways as described in the Guide p88 - 90

schedule of accommodation

| Size | Development Plan Table 6.4 | Negotiated Requirement | Provided | No. of Units |
|-------|----------------------------|------------------------|----------|--------------|
| 1-bed | 5% | 0% | | 0 |
| 2-bed | 20% | 23% | 17% | 13 |
| 3-bed | 40% | 47% | 52% | 41 |
| 4-bed | 25% | 30% | 33% | 25 |
| 5-bed | 10% | 0% | | 0 |
| TOTAL | 100% | 100% | 100% | 79 |

The house plate sizes are based on the sizes given in the table published by the DoEHLG for minimum social housing standards, plus approx 10-15%. The additional space is provided to ensure that standard market size units are possible. The market norm would require any house, even a 2-bed unit, to incorporate an en-suite bathroom, and a preference for larger houses to incorporate a utility room where possible. These requirements are not possible in the already stretched minimum standard social unit. It does state in the guide, p49 'Internal Space Standards', that social and affordable housing should be of a standard comparable with that of housing for sale on the open market and 'developers may wish to have regard to social housing space standards in the design of private housing as well.' The increase in space standards would appear to be an appropriate response to this requirement.

The deeper floor plan is primarily used for houses in the middle of a row of houses, with shallower house types used to turn corners, therefore the gable ends in exposed instances are not so apparent. In the case of the potential for development options, the schedule of accommodation can be provided at 2 storey height. A three storey unit on the same plot could give a larger house or alternatively a larger garden. In the case of a 3-storey unit there is always an imbalance between what is perceived as living space and bedroom space, requiring a different approach to use of the space rather than striving to have all living space at the lower level.

social and affordable housing

Part V of the Planning and Development Act 2000 requires up to 20% of units to be reserved for Social and Affordable housing, and the Cork County Development Plan seeks this percentage under policy objective HOU 6-1. The Cork County Development Plan Section 8.6 'Meeting Housing Needs' outlines the Housing Strategy. Negotiation with the County Council is required to reach agreement on the specific proposal to be agreed. Of the 79 total units in this scheme, 20% would represent 15 units. Section 8.6.6 indicates 50% of these units - 7-8 units maximum - may be reserved for social housing. Negotiation with the County Council is required to reach agreement on the specific proposal to be agreed. The proposal presented in this instance could group social units as close as possible to the school and crèche, to the site access for public transport and proximity to the town and other amenities. In addition, some of the requirement for social housing would be for family sized units, for which 3 or 4 bed units would be preferable. The houses to the south east of the development, adjacent to the school and crèche and the site access would be suitable for this. They are 3-bed, C-type units with possibility for extension into the attic space, providing flexibility for future expansion.

An alternative location which could be considered for some of the Part V houses is to the north east of the development, also adjacent to the school site and crèche and with pedestrian links through the site to the public road. The balance of units proposed for Affordable Housing would be sprinkled throughout the site.

house types



| Type | No | Description | Area m ² | Beds | Extendibility | Area m ² |
|------|----|---|---------------------|----------|---|---------------------|
| A | 19 | L-shaped unit type with a single storey return 12 with adjoining garages | 128 | 4 | With a 2 storey return & 12m ² | 140 |
| | | | | | With extension over garage & 14m ² | 142 |
| B | 3 | Wide frontage 1 with adjoining garages | 116 | 4 | With extension over garage & 14m ² | 130 |
| C | 17 | 3 bed unit with integrated garage | 112 | 3 | With attic conversion* & 35m ² | 147 |
| D | 18 | 3 bed unit 3 with adjoining garage 2 with adjoining double garage | 105 | 3 | With attic conversion* & 30m ² | 135 |
| | | | | | With extension over garage & 14m ² | 119 |
| E | 12 | 2 bed unit 2 with adjoining garage | 88 | 2 | With attic conversion* & 24m ² | 112 |
| | | | | | With extension over garage & 14m ² | 102 |
| F | 2 | 3 bed unit with adjoining garage | | 3 | With extension over garage & 14m ² | |
| G | 4 | Large 3 bed unit | 120 | 3 | With attic conversion* & 30m ² | 150 |
| H | 3 | Large 4 bed unit | 167 | 4 | | |
| I | 1 | Creche unit 2 bed apartment above | 125 75 | n/a 2 | n/a | |
| | | | | | | |

* area for attic conversion based on 35° pitch without dormer windows larger floor areas are possible with a 40° pitch

In addition to the potential for attic conversion or extensions over adjoining garages, many of the house units have larger than the minimum garden sizes and would be capable of extending to the rear at ground level in accordance with p.50 of the Design Guide.

landscape

open space, recreation & amenity

The Cork County Council Recreation and Amenity Policy recommends that usable open space should be in the order of 12% to 18% of the site area.

The zoned Open Space @ 1.399ha. and the shelter tree belt @ 0.364ha. combined provide a total of 1.763 ha, 31.5% gross site area, 41% of the site excluding the ceded site for the school. This is substantially in excess of the requirement.

In addition the Policy requires Recreation Facilities to be provided in compliance with a points table at the rate of 1 point per 6 dwelling units with a minimum of 30 % of the required points provided as on-site local facilities

- 80 units @ 1 point per 6 units = 13.3 points required.
- 30% on-site = 4 points on site provision

This would equate to the provision of a local play area (1 point) and a neighbourhood play area (3 points) from the Points Value Table, as shown on p19, Cork County Council Recreation and Amenity Policy.

It is possible to provide both if so required. The local play area can be used by the residents in adjoining developments by virtue of the new pedestrian connections. This can be located in the zoned open space to the south west of the existing house, separated from the attenuation ponds by the existing hedgerow/tree belt which provides a natural barrier. The required neighbourhood play area could be located within the tree shelter belt to the west of the crèche, providing a location close to the school and crèche and central to the site.

Permeability is enhanced through a pedestrian link (in part a nature trail, close to the school) through the site, to connect the lands to the north of the graveyard and provide a link to the south, through the adjacent 'Woodside' development, to the river walk, which in turn connects through into the town.

It should be noted that the provision of attenuation as an amenity in the form of swales or ponds are subject to a risk assessment on Health and Safety grounds. The visual impact of such a provision is highly attractive and, used safely can contribute to the overall amenity of the site. However great care should be taken at the outset to ensure that all possible safety features are incorporated in the design of such a feature.

landscape strategy



traffic/pedestrian circulation

The development is relatively small, comprising only 79 units and variation in character is based on the layout and topography as well as the provision of a number of unit types, 8 standard house types. As can be seen from the table of Unit Types & Extendibility, there is a substantial variation in the combinations available and great potential for modification of the basic schedule of accommodation. This can be carried out during the construction process by the Developer, or by the Occupant, all subject to Planning Permission.

The adjoining school site has not been developed, nor is there an available schematic layout to determine the pattern of the proposed development, however the proposed layout permits the greatest flexibility for the school, providing possible pedestrian routes from the development, the inclusion of a parking area at the site entrance from Fernhill Road to allow school drop off movements without disrupting traffic flow to and from the development during peak hours (p.74). Parking for the school itself would be provided on the school grounds. In addition, the existing site entrance should be developed as a bus lay-by for the school bus to allow safe transfer of students. The existing access drive provides the opportunity for a safe walking route to the school which may also be accessed along the southernmost boundary.

Pedestrian links are proposed through to adjoining developments to the south of the site (p.30), to the shopping centre to the south-east and the 'Woodlands' development to the south-west. This allows safe pedestrian circulation between the existing developments and the school and play area and open space facilities and also access to the adjoining shopping centre. These pedestrian links would be designed in detail to ensure safety for users.



Road Pattern & Pedestrian Links

topography, infrastructure and road access

topography

While the site is sloping with some steep gradients, these are primarily located to the south east of the site around the area designated for a school site. While it is possible to design all houses with a stepped floor plate to deal with a sloping site, in this layout the gradients in the development area are generally accommodated by developing with the gradient and stepping between houses at the party wall. There are a couple of isolated instances where this is not possible given the layout, particularly at the south east of the site where the gradient is steep. The 4 unit types shown to the extreme south east of the layout would require a stepped floor plate. This is also the only instance where rear gardens are not enclosed by development, however, due to the gradient and the steep natural embankment with existing mature vegetation providing screening, the rear gardens are protected from view and retain a good level of privacy with good views to the south.

In addition a further wide frontage house type facing the school site would require a stepped floor plate. This requirement for a stepped floor plate could be exploited to provide a further storey of accommodation to provide a split two / three storey unit with additional accommodation provided in excess of the standard two storey unit with a floor plate at one level only. This is illustrated on the site sections for the North Western and South Eastern are of the layout as shown on the next page.

infrastructure & services

The location of the site on the outer fringes of the town indicates that there are existing public services available in close proximity. Negotiation with the Town Council is required to assess the capacity for the proposed development. Since the town is designated in the Cork County Development Plan as a county town, and the lands in question are zoned for residential development. Foul and Surface sewers are available in close proximity to the site and negotiation with the Engineering Section in the Town Council is required to ensure that this is executed in a suitable manner.

road access

Road access to the site presents a difficulty with sight lines, therefore following negotiation with the Road Engineer in the Town Council it is necessary to incorporate adjoining lands to the south of the access point to provide safe access and egress to the site. This has been indicated on the site layout. In order to access the site it is necessary to remove a number of the trees in the tree belt to the south of the site to provide the road, however this should be carried out in a careful manner to ensure that the minimum number of trees is removed and the remaining trees are not damaged in the process.

north west site section



south east site section



layout design process

pre-application consultation

Prior to lodgment of a planning application a pre-application consultation should be arranged to discuss the site development and review the material prepared prior to finalising details of the development.

The contextual information should be presented:

- Site location and Planning Policy context
- Site analysis
- Layout principles and design development
- House unit types
- Traffic and pedestrian circulation
- Landscape strategy

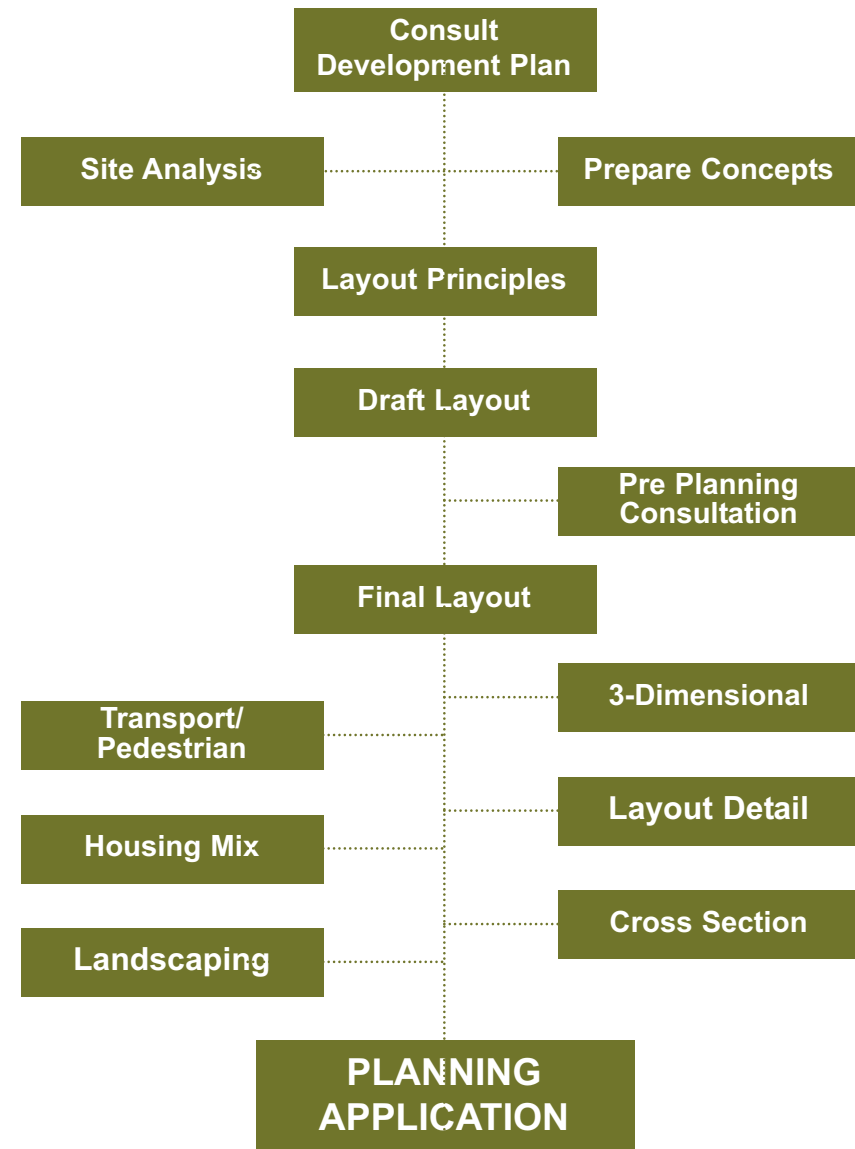
The Planners views should be considered regarding the site analysis and design development and modifications incorporated where relevant. Further development of unit types and external finishes are required to proceed to a full application with a detailed design of each unit type.

Consideration should be given to:

- Materials and detail
- Internal space standards
- Extendibility
- Designing for orientation
- Privacy
- Passive surveillance
- Accessibility

Prior to application, the required documentation should be assembled, fully and clearly illustrating the scheme and presenting the background information. This will facilitate the processing of the application and should help to prevent unnecessary confusion for any third parties, such as adjoining owners, when reviewing the files.

step by step process of layout design





3-dimensional sketch

appendices

aguisíní

appendix a - recommended plant species

The selection of the right tree and shrub species, appropriate in scale and colour to the place, can be as important to the success of development as the detailing of the buildings and the floorspace between them. Trees and shrubs suitable for 'private space' often appear mean and inappropriate when planted in public spaces.

A Guide to Tree Planting Species

The plants listed below are given for illustrative purposes and as a guide to good practice. The list is not intended to preclude the use of different species or to provide a ready made planting scheme but to provide an example of what species may be appropriate for different situations. In the preparation of planting schemes, advice from appropriately qualified and experienced people is essential.

Planting in verge (ground cover)

| | |
|----------------|---|
| Quince | - <i>Ceanothus thyrsiflorus repens Chaenolmeles</i> |
| Cotoneaster | - <i>Cotoneaster dammeri (and cultivars)</i> |
| Gorse | <i>(Ulex europeaus)</i> |
| Guelder Rose | <i>(Viburnum opulus)</i> |
| Ivy | - <i>Hedera helix 'hibernica'</i> |
| St John's Wort | - <i>Hypericum Calycinum</i> |
| Honeysuckle | - <i>Lonicera pileata</i> |
| London Price | - <i>Pachysandra terminalis</i> |
| Firethorn | - <i>Pyracantha (spreading cultivars)</i> |
| Periwinkle | - <i>Vinca minor</i> |

Avenue and Street Tree Planting

| | | |
|------------------|--|--------|
| Silver Maple | - <i>Acer saccharinum</i> | large |
| London Plane | - <i>Platanus x acerifolia</i> | large |
| Turkey Oak | - <i>Quercus cerris</i> | large |
| Silver Lime | - <i>Tilia petiolaris</i> | large |
| Large-leaf Lime | - <i>Tilia platyphyllos</i> | large |
| Wild Cherry | - <i>Prunus avium</i> | medium |
| Bird Cherry | - <i>Prunus padus</i> | medium |
| False Acacia | - <i>Robinia pseudoacacia</i> | medium |
| Turkish Hazel | - <i>Corylus colurna</i> | small |
| Cockspur Thorn | - <i>Crataegus prunifolia</i> | small |
| Native Ash | - <i>Fraxinus exelsior</i> | small |
| Mountain Ash | - <i>Sorbus aucuparia</i> | small |
| Ornamental Apple | - <i>Malus tschonoskii</i> (and other varieties) | small |
| Ornamental Pear | - <i>yrus chanticleer</i> | small |
| Whitebeam | - <i>Sorbus asplenifolia</i> | small |

Hedges to front Boundary

| | |
|---------------|-------------------------------|
| Native Broom | - <i>Cystisus scoparius</i> |
| Hornbeam | - <i>Carpinus betulus</i> |
| Hazel | - <i>Corylus avellana</i> |
| Hawthorn | - <i>Crataegus monogyna</i> |
| Beech | - <i>Fagus sylvatica</i> |
| Fuschia | - <i>Fuschia magellianica</i> |
| Holly | - <i>Ilex aquifolium</i> |
| Native Privet | - <i>Ligustrum vulgare</i> |
| Yew | - <i>Taxus baccata</i> |

Trees for Structural planting and Wildlife Corridors

Where there is more room such as on rear boundaries and within open spaces or close to pedestrian routes larger species can be used to form a permanent landscape structure within development.

| | | |
|-------------------|-----------------------------|--------|
| Common Ash | - <i>Fraxinus excelsior</i> | large |
| Field Maple | - <i>Acer campestre</i> | medium |
| English Oak | - <i>Quercus robur</i> | large |
| Sessile Oak | - <i>Quercus petraea</i> | large |
| Large-leaved Lime | - <i>Tilia platyphyllos</i> | large |
| Crab Apple | - <i>Malus species</i> | |

Summer Shading

Taller deciduous trees are the most suitable ones for summer shading, as they provide more shade in summer, when they are in leaf and their shade may be needed, than in winter, when it is not. They will however affect winter sun as well. The case for positioning them to the south of buildings may be strengthened by the need for shelter in exposed areas, or to provide a necessary link in a wildlife corridor.

Root Barriers

Avenue tree planting or trees in urban spaces may cause problems to foundations of nearby buildings from root spread. It is therefore recommended that a root barrier be installed between trees and nearby buildings in those cases where the face of the building would lie within the root spread at the eventual maturity of the tree.

Whether a root barrier is necessary in order to protect underground services will depend on their depth as well as their proximity to trees.

appendix b - recommended space provision and room sizes for social housing

| Dwelling Type | Target Gross Floor Area | Minimum-Main Living Room | Aggregate Living Area | Aggregate Bedroom Area | Storage |
|---|-------------------------|--------------------------|-----------------------|------------------------|-------------------|
| | (m ²) | (m ²) | (m ²) | (m ²) | (m ²) |
| Family Dwellings - 3 or more persons | | | | | |
| 4-bed/7P House (3 storey) | 120 | 15 | 40 | 43 | 6 |
| 4-bed/7P House (2 storey) | 110 | 15 | 40 | 43 | 6 |
| 4-bed/7P House (1 storey) | 100 | 15 | 40 | 43 | 6 |
| 4-bed/7P Apartment | 105 | 15 | 40 | 43 | 11 |
| 3-bed/6P House (3 storey) | 110 | 15 | 37 | 36 | 6 |
| 3-bed/6P House (2 storey) | 100 | 15 | 37 | 36 | 6 |
| 3-bed/6P House (1 storey) | 90 | 15 | 37 | 36 | 6 |
| 3-bed/6P Apartment | 94 | 15 | 37 | 36 | 10 |
| 3-bed/5P House (3 storey) | 102 | 13 | 34 | 32 | 5 |
| 3-bed/5P House (2 storey) | 92 | 13 | 34 | 32 | 5 |
| 3-bed/5P House (1 storey) | 82 | 13 | 34 | 32 | 5 |
| 3-bed/5P Apartment | 86 | 13 | 34 | 32 | 9 |
| 3-bed/4P House (2 storey) | 83 | 13 | 30 | 28 | 4 |
| 3-bed/4P House (1 storey) | 73 | 13 | 30 | 28 | 4 |
| 3-bed/4P Apartment | 76 | 13 | 30 | 28 | 7 |
| 2-bed/4P House (2 storey) | 80 | 13 | 30 | 25 | 4 |
| 2-bed/4P House (1 storey) | 70 | 13 | 30 | 25 | 4 |
| 2-bed/4P Apartment | 73 | 13 | 30 | 25 | 7 |
| 2-bed/3P House (2 storey) | 70 | 13 | 28 | 20 | 3 |
| 2-bed/3P House (1 storey) | 60 | 13 | 28 | 20 | 3 |
| 2-bed/3P Apartment | 63 | 13 | 28 | 20 | 5 |
| 1-bed/2P House (1 storey) | 44 | 11 | 23 | 11 | 2 |
| 1-bed/2P Apartment | 45 | 11 | 23 | 11 | 3 |

references

title

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Developer's Guide on the Joint Housing Strategy
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Cork County Council
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Cork County Council
The Heritage Council/Local Authority Heritage Officers
Department of the Environment and Local Government
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Department of Transport / Dublin Transportation Office
National Economic and Social Council
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UCD Urban Institute Ireland / Dún Laoghaire-Rathdown Co. Council / Fingal County Council
Department of the Environment / Heritage and Local Government

image references

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