



Part 3

Siting the development

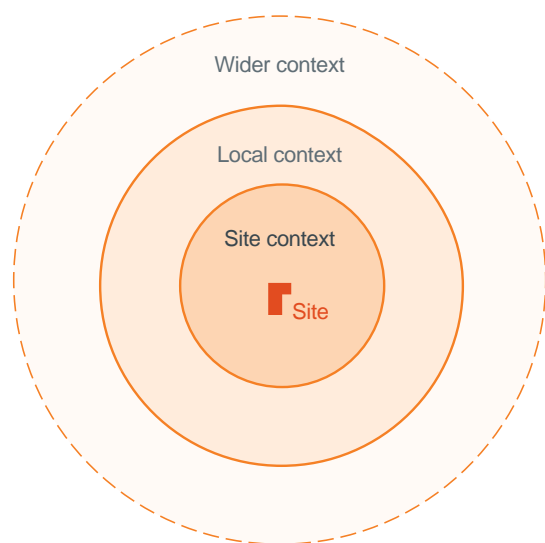
- 3A Site analysis
- 3B Orientation
- 3C Public domain interface
- 3D Communal and public open space
- 3E Deep soil zones
- 3F Visual privacy
- 3G Pedestrian access and entries
- 3H Vehicle access
- 3J Bicycle and car parking

This part provides guidance on the design and configuration of apartment development at a site scale. Objectives, design criteria and design guidance outline how to relate to the immediate context, consider the interface to neighbours and the public domain, achieve quality open spaces and maximise residential amenity. It is to be used during the design process and in the preparation and assessment of development applications

3A Site analysis

Site analysis is an important part of the design process and should be undertaken at the outset of a project to inform the design principles. Development proposals need to illustrate that design decisions are based on careful analysis of the site conditions and relationship to the surrounding context.

By describing the physical elements of the locality and the conditions impacting on the site, opportunities and constraints for future apartment development can be identified and addressed in the design. It may be beneficial to undertake a site analysis in collaboration with technical consultants, depending on the nature of the site and scale of development.



The key elements of a site analysis include:

1. Site location plan

A plan showing the wider context that identifies the site in relation to retail and commercial areas, community facilities and transport.

2. Aerial photograph

A colour aerial photograph of the development site and surrounding context.

3. Local context plan

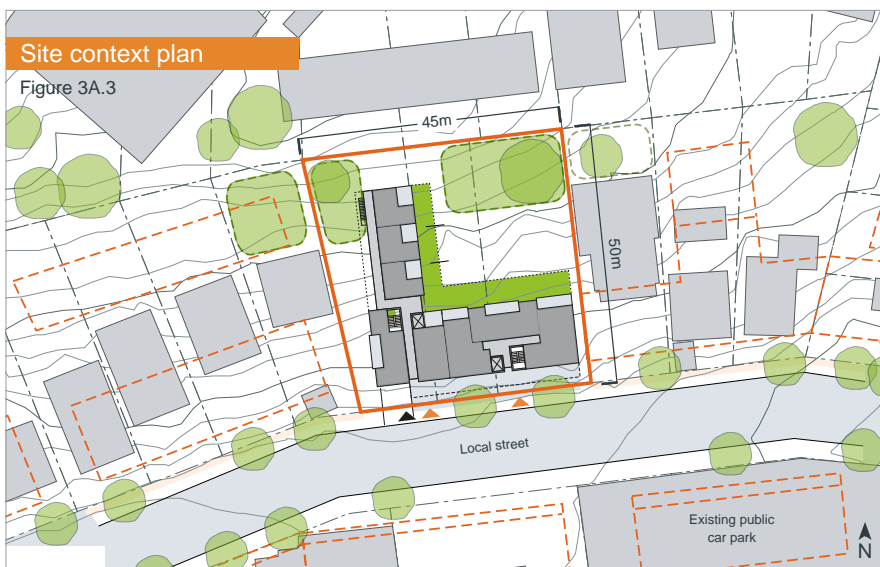
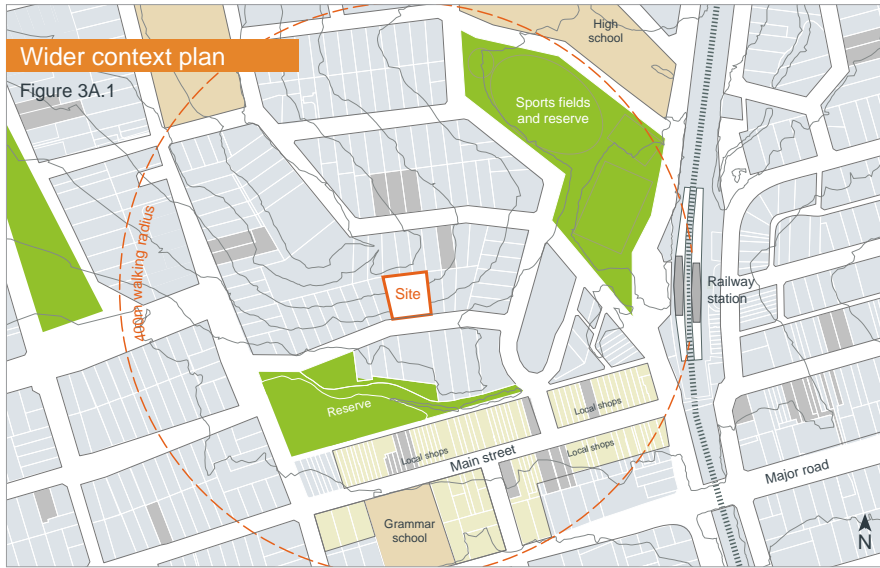
Plan drawing(s) of the existing features of the local context including relevant sections and elevations should also be provided, especially for sloping sites. Information may include but is not limited to:

- land use, height and typology of adjacent and opposite buildings in the street
- views to and from the site
- circulation patterns and access for pedestrians, vehicles and servicing
- location of heritage items and areas of environmental significance
- patterns of buildings, open spaces and vegetation
- significant noise sources on and near the site, particularly roads, rail, aircraft and industrial noise
- building envelopes and setbacks for future development
- a written statement of key issues.

4. Site context and survey plan

Plan and section drawings of existing site features including properties that are adjoining and on the other side of the street, together with appropriate written material. Information may include but is not limited to:

- site dimensions, site areas and north point
- topography showing spot levels and contours at 0.5m intervals, any unique natural features such as rock outcrops or watercourses and clearly identify adjoining streets and land adjoining the site
- location of major trees on site and adjacent properties including identification of canopy size and species
- location and use of any existing buildings or built features on the site
- location and important characteristics of adjacent public, communal and private open spaces
- location and height of existing windows, balconies, walls and fences on adjacent properties, as well as parapet and ridge lines
- pedestrian and vehicular access points
- location of utility services including electricity poles, substation kiosks, stormwater drainage, natural drainage, kerb crossings and easements.



3A Site analysis



Figure 3A.4 Analysis of solar and wind access

5. Streetscape elevations and sections

Photographs and drawings of nearby existing buildings help explain the existing scale of the area, the spacing of development and the local architectural character. Information may include but is not limited to:

- streetscape showing both sides of any street that the development fronts including the patterns of building frontages, street and side setbacks
- adjacent buildings showing overall height (in metres and storeys) and important parapet and datum lines, awnings, colonnades and other building elements
- planned heights or building envelopes
- a written statement of key issues.

6. Analysis

These plans and sections synthesise and interpret the context, streetscape and site documentation into opportunities and constraints that generate design parameters. Analysis information may include:

- overshadowing of the site and adjoining properties by neighbouring structures. The winter sun path should be shown from 9 am to 3 pm on 21 June
- direction of prevailing wind
- geotechnical characteristics of the site including topography, and how this relates to the proposed development
- public domain interface and street setback
- relationship to and interface with adjacent properties, including side and rear setbacks
- orientation including solar access and ventilation
- building footprint location
- retained trees and tree protection zones
- proposed trees and deep soil zones
- communal open space location
- building entries
- car park footprint and depth.

A written statement explaining how the design of the proposed development has responded to the site analysis must accompany the development application. Where relevant, this should include technical advice from landscape architects, contamination specialists, geotechnical engineers and arborists.

See Appendix 1 Site Analysis Checklist, Appendix 2 Pre-development application design proposal check sheet and Appendix 3 Development Application Recommended Documentation Checklist.

Objective 3A-1

Site analysis illustrates that design decisions have been based on opportunities and constraints of the site conditions and their relationship to the surrounding context

Design guidance

Each element in the Site Analysis Checklist should be addressed (see Appendix 1)

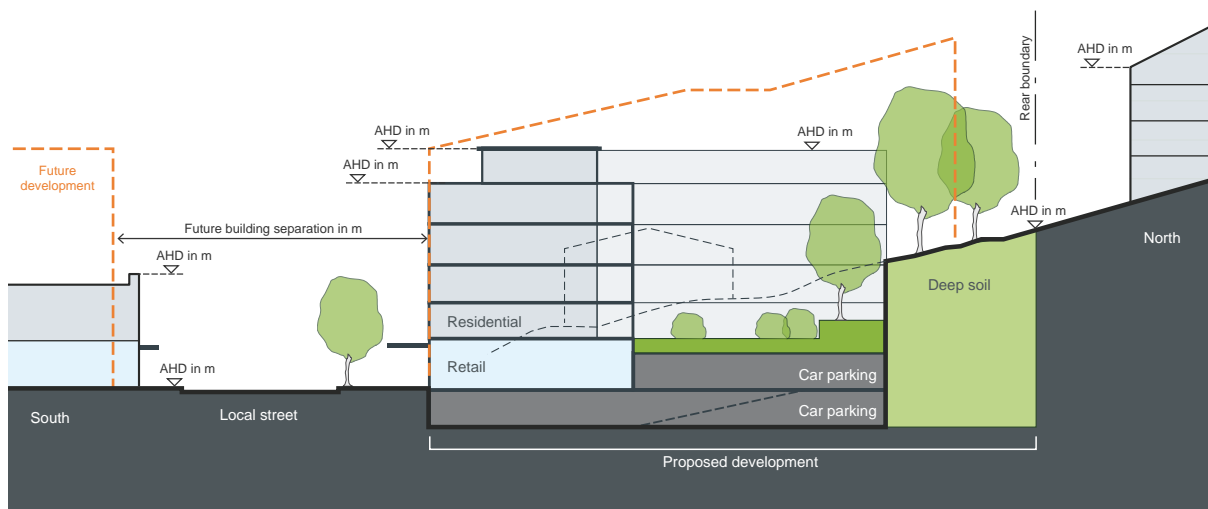


Figure 3A.5 Cross section

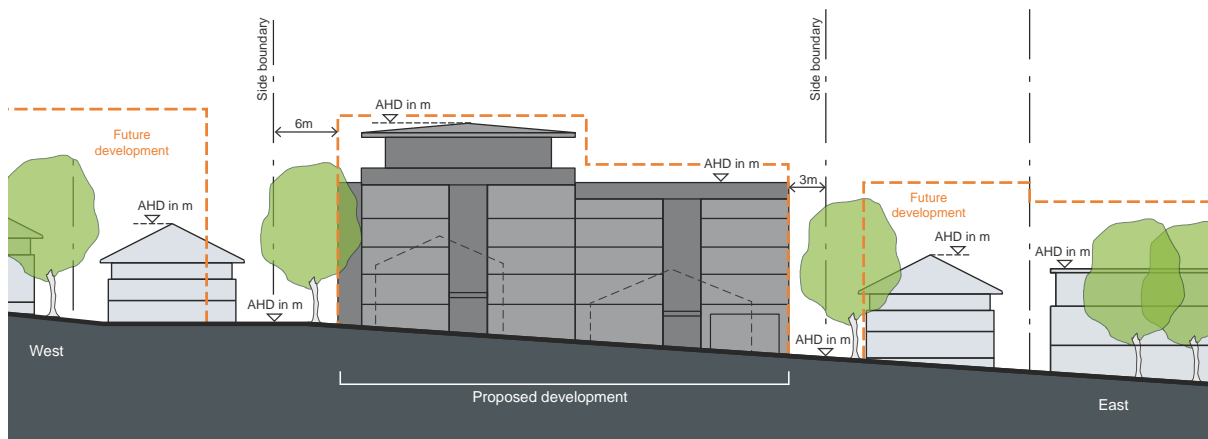


Figure 3A.6 Streetscape elevation

3B Orientation

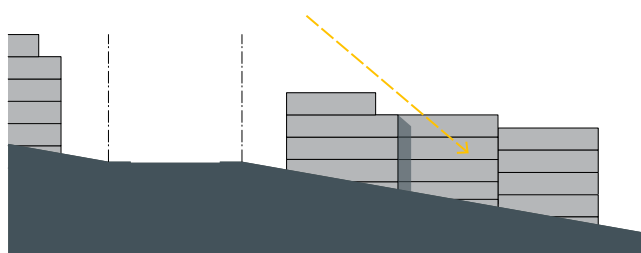
Orientation is the position of a building and its internal spaces in relation to its site, the street, the subdivision and neighbouring buildings. Building orientation influences the urban form of the street and building address. Building orientation directly affects residential amenity including solar access and influences other matters including visual and acoustic privacy to both the development and neighbouring sites.

Designing the site layout to maximise northern orientation is an important consideration, but it must be balanced with:

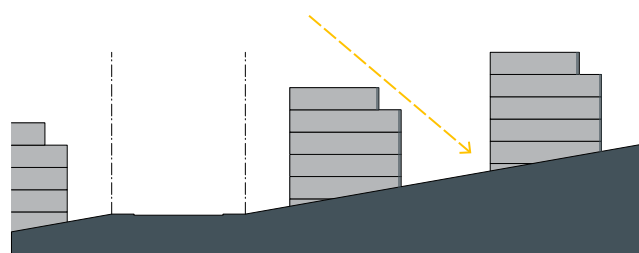
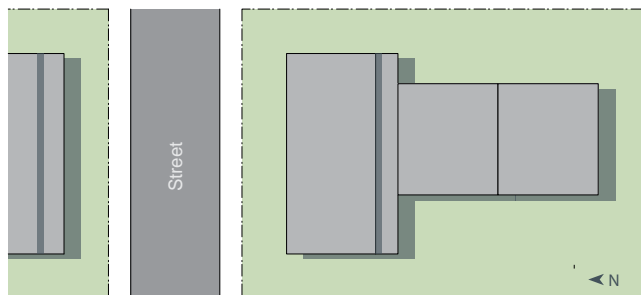
- responding to desired streetscape character
- promoting amenity for both the proposed development and neighbouring properties
- providing for the enjoyment of significant views
- retaining trees and locating open spaces
- responding to the topography and contextual constraints such as overshadowing and noise.



Figure 3B.1 Proposed buildings are sited to clearly address the street while maximising solar access to apartments



South facing slope



North facing slope

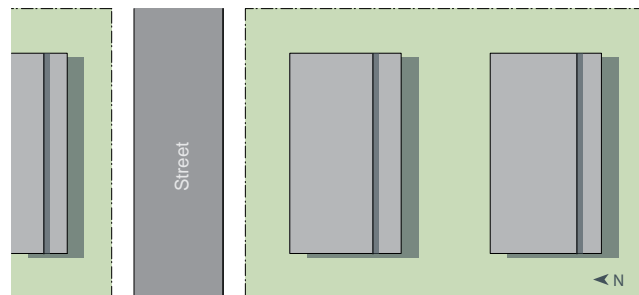


Figure 3B.2 Building orientation and height influences solar access to apartments and common open spaces. On south facing slopes, orient the rear wing of the building(s) east to west to maximise solar access, on north facing slopes, step building(s) with the slope

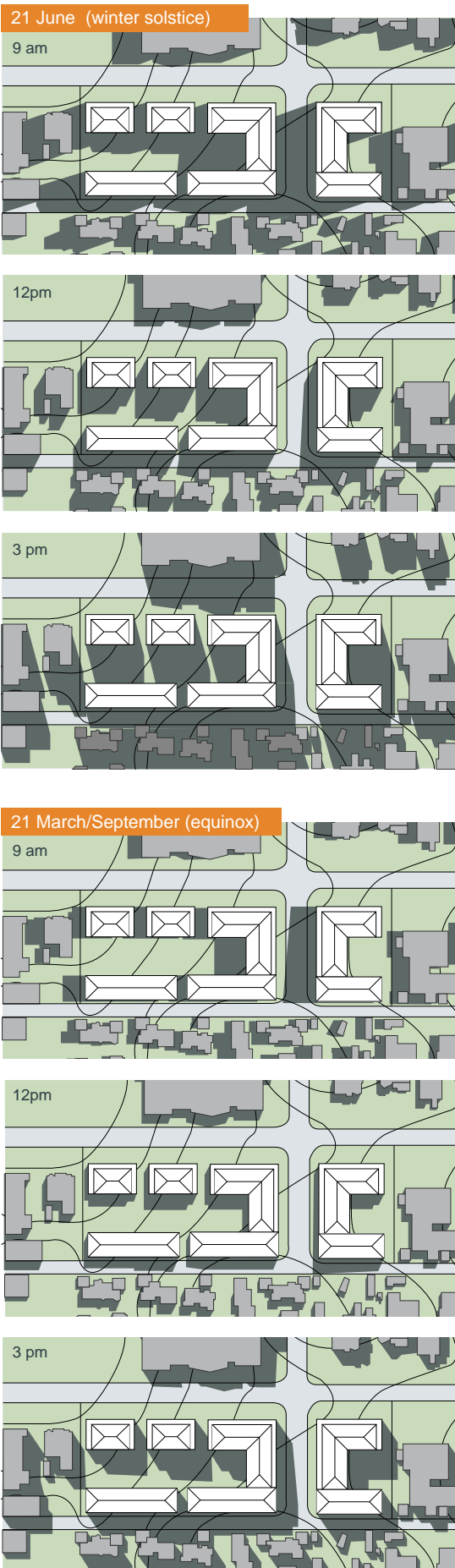


Figure 3B.3 Shadow diagrams demonstrate the impact of overshadowing within and beyond the site

Objective 3B-1

Building types and layouts respond to the streetscape and site while optimising solar access within the development

Design guidance

Buildings along the street frontage define the street, by facing it and incorporating direct access from the street (see figure 3B.1)

Where the street frontage is to the east or west, rear buildings should be orientated to the north

Where the street frontage is to the north or south, overshadowing to the south should be minimised and buildings behind the street frontage should be orientated to the east and west (see figure 3B.2)

Objective 3B-2

Overshadowing of neighbouring properties is minimised during mid winter

Design guidance

Living areas, private open space and communal open space should receive solar access in accordance with sections 3D Communal and public open space and 4A Solar and daylight access

Solar access to living rooms, balconies and private open spaces of neighbours should be considered

Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%

If the proposal will significantly reduce the solar access of neighbours, building separation should be increased beyond minimums contained in section 3F Visual privacy

Overshadowing should be minimised to the south or down hill by increased upper level setbacks

It is optimal to orientate buildings at 90 degrees to the boundary with neighbouring properties to minimise overshadowing and privacy impacts, particularly where minimum setbacks are used and where buildings are higher than the adjoining development

A minimum of 4 hours of solar access should be retained to solar collectors on neighbouring buildings

3C Public domain interface

The public domain interface is the transition area between the apartment building, its private or communal space at the street edge and the public domain.

The interface of the development contributes to the quality and character of the street. Subtle variations through planting and fencing can create an attractive and active public domain with a pedestrian scale. Long, high blank walls or fences can detract from the appearance of the public domain and impact on the safety of pedestrians and residents. Direct access from the street to ground floor apartments and windows overlooking the street can improve safety and social interaction.

Key components to consider when designing the interface include entries, private terraces or balconies, fences and walls, changes in level, services locations and planting. The design of these elements can influence the real or perceived safety and security of residents, opportunities for social interaction and the identity of the development when viewed from the public domain.

See also sections 3G Pedestrian access and entries, 3H Vehicle access and 4S Mixed use.

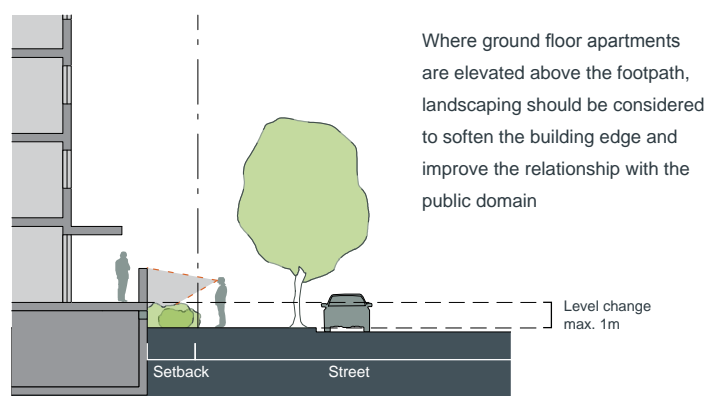
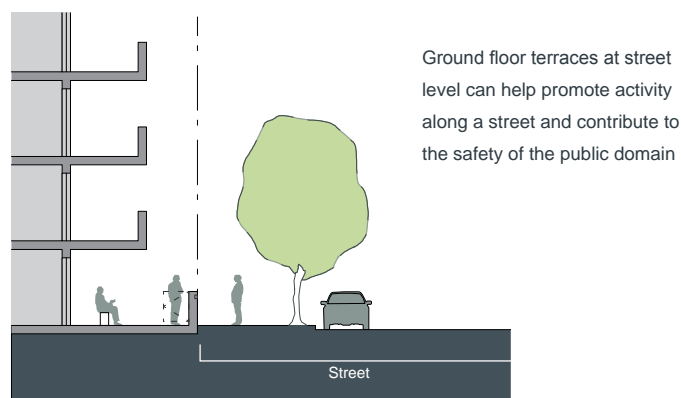
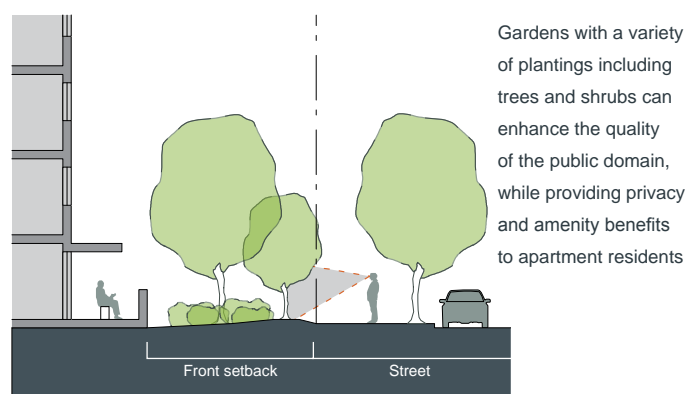
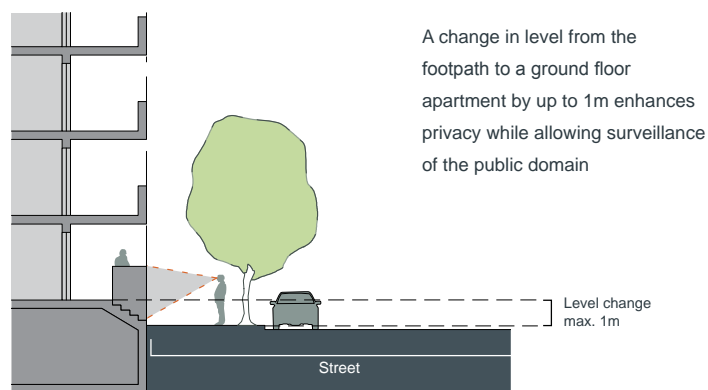


Figure 3C.1 Diagrams illustrating various public domain interface scenarios



Objective 3C-1

Transition between private and public domain is achieved without compromising safety and security

Design guidance

Terraces, balconies and courtyard apartments should have direct street entry, where appropriate

Changes in level between private terraces, front gardens and dwelling entries above the street level provide surveillance and improve visual privacy for ground level dwellings (see figure 3C.1)

Upper level balconies and windows should overlook the public domain

Front fences and walls along street frontages should use visually permeable materials and treatments. The height of solid fences or walls should be limited to 1m

Length of solid walls should be limited along street frontages

Opportunities should be provided for casual interaction between residents and the public domain. Design solutions may include seating at building entries, near letter boxes and in private courtyards adjacent to streets

In developments with multiple buildings and/or entries, pedestrian entries and spaces associated with individual buildings/entries should be differentiated to improve legibility for residents, using a number of the following design solutions:

- architectural detailing
- changes in materials
- plant species
- colours

Opportunities for people to be concealed should be minimised

3C Public domain interface

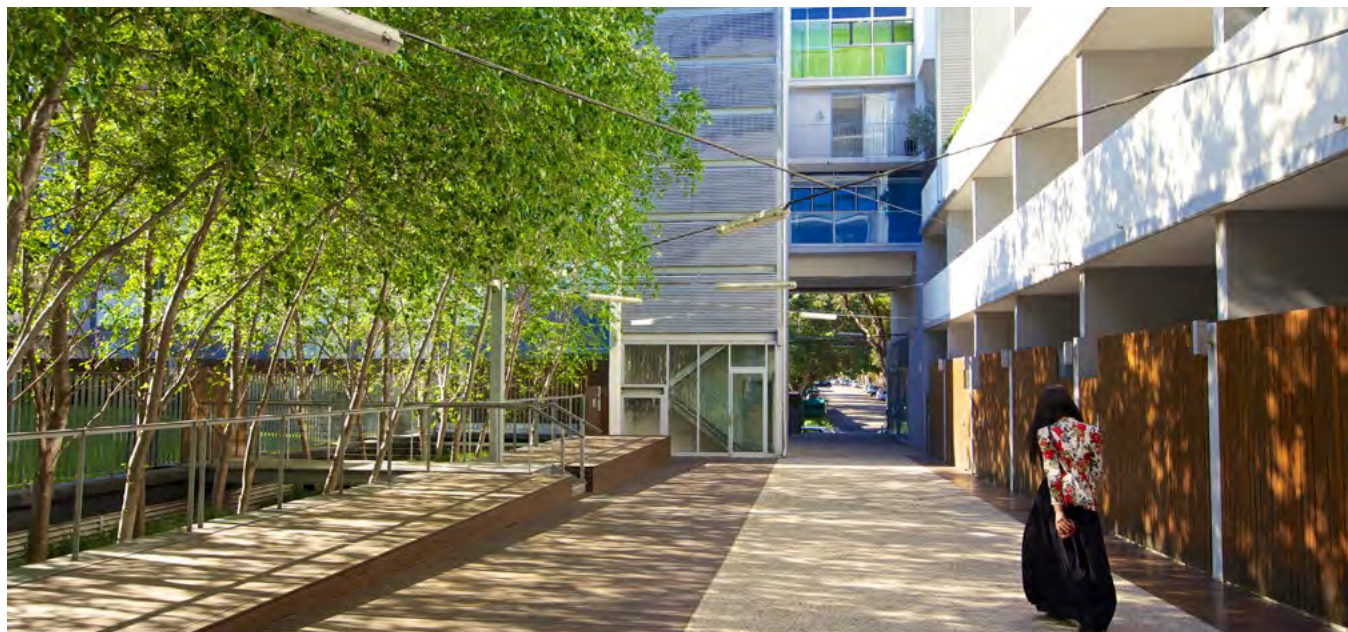


Figure 3C.2 This courtyard design locates tree planting along the pedestrian pathway, allowing for natural ventilation and daylight access to the adjacent underground car parking below, and visual screening of the car park



Figure 3C.3 Planting can be used to soften the edges of raised terraces to the street



Figure 3C.4 Front fences along public street frontages should use visually permeable materials and treatments such as timber slats



Figure 3C.5 Setbacks can be used to retain existing trees which increases the quality of the development and the public domain



Figure 3C.6 This development makes use of landscaping, pathways and building entries to clearly identify the transition between public and private space

Objective 3C-2

Amenity of the public domain is retained and enhanced

Design guidance

Planting softens the edges of any raised terraces to the street, for example above sub-basement car parking

Mail boxes should be located in lobbies, perpendicular to the street alignment or integrated into front fences where individual street entries are provided

The visual prominence of underground car park vents should be minimised and located at a low level where possible

Substations, pump rooms, garbage storage areas and other service requirements should be located in basement car parks or out of view

Ramping for accessibility should be minimised by building entry location and setting ground floor levels in relation to footpath levels

Durable, graffiti resistant and easily cleanable materials should be used

Where development adjoins public parks, open space or bushland, the design positively addresses this interface and uses a number of the following design solutions:

- street access, pedestrian paths and building entries which are clearly defined
- paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space
- minimal use of blank walls, fences and ground level parking

On sloping sites protrusion of car parking above ground level should be minimised by using split levels to step underground car parking

3D Communal and public open space

Communal open space is an important environmental resource that provides outdoor recreation opportunities for residents, connection to the natural environment and valuable 'breathing space' between apartment buildings. It also contributes to the appeal of a development and the wellbeing of residents. Some communal open space is accessible and usable by the general public.

The size, location and design of communal or public open space will vary depending on the site context and the scale of development. The function of open space is to provide amenity in the form of:

- landscape character and design
- opportunities for group and individual recreation and activities
- opportunities for social interaction
- environmental and water cycle management
- opportunities to modify microclimate
- amenity and outlook for residents.

The useable part of the communal open space area may be supplemented by:

- additional landscape area, circulation space and areas for passive use and outlook
- public land used for open space and vested in or under the control of a public authority.

High quality open space is particularly important and beneficial in higher density developments (for private open space requirements see section 4E Private open space and balconies).

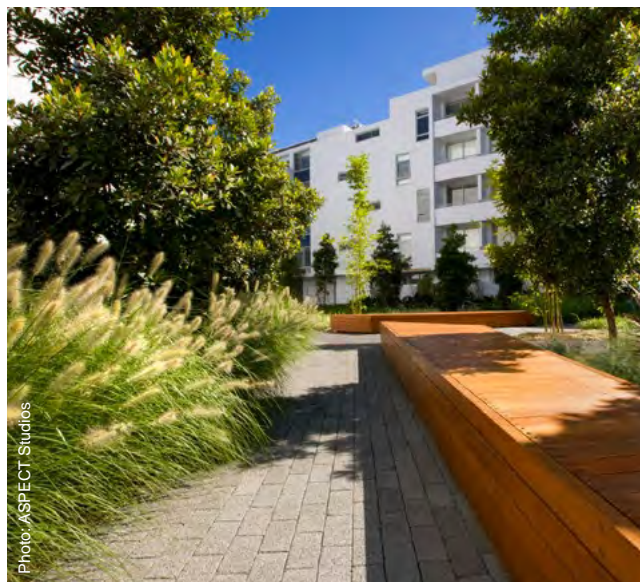


Figure 3D.1 Quality landscape design of communal spaces and pathways is particularly important for high density developments



Figure 3D.2 Communal open spaces can be located on the podium or roofs and should offer gathering areas to provide opportunity for social interaction amongst residents

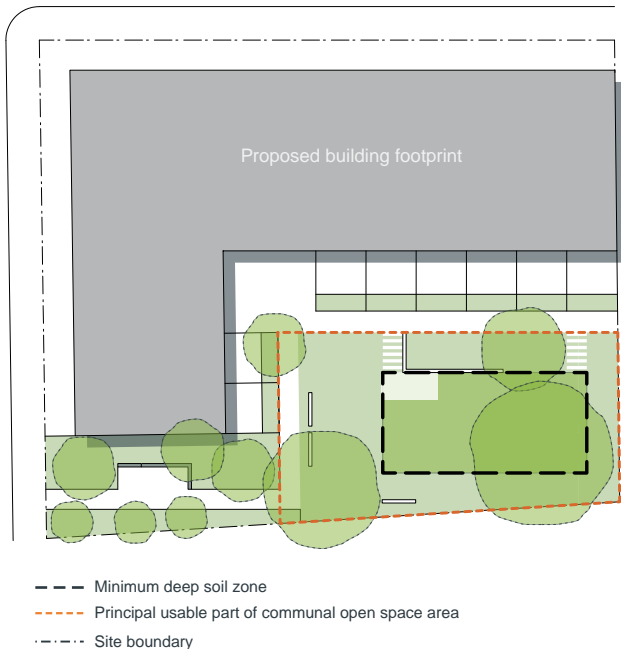


Figure 3D.3 The principal usable part of communal open spaces should be consolidated



Figure 3D.4 Recreation areas such as the communal garden setting above allow residents to relax and connect to the natural environment

Objective 3D-1

An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping

Design criteria

1. Communal open space has a minimum area equal to 25% of the site (see figure 3D.3)
2. Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter)

Design guidance

Communal open space should be consolidated into a well designed, easily identified and usable area

Communal open space should have a minimum dimension of 3m, and larger developments should consider greater dimensions

Communal open space should be co-located with deep soil areas

Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies

Where communal open space cannot be provided at ground level, it should be provided on a podium or roof

Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they should:

- provide communal spaces elsewhere such as a landscaped roof top terrace or a common room
- provide larger balconies or increased private open space for apartments
- demonstrate good proximity to public open space and facilities and/or provide contributions to public open space

3D Communal and public open space



Figure 3D.5 Well designed public and communal open spaces invite informal recreation and outdoor activities



Figure 3D.6 Play facilities and spaces should be safe, overlooked by development and provide shade areas for children to play



Figure 3D.7 The location and design of open space responds to microclimate and site conditions

Photo: McGregor Coxall



Figure 3D.8 The public open space should be well connected with public streets along at least one edge



Figure 3D.9 Communal open space and public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy



Figure 3D.10 Community gardens incorporated into residential developments foster interaction amongst residents of all ages

Objective 3D-2

Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting

Design guidance

Facilities are provided within communal open spaces and common spaces for a range of age groups (see also 4F Common circulation and spaces), incorporating some of the following elements:

- seating for individuals or groups
- barbecue areas
- play equipment or play areas
- swimming pools, gyms, tennis courts or common rooms

The location of facilities responds to microclimate and site conditions with access to sun in winter, shade in summer and shelter from strong winds and down drafts

Visual impacts of services should be minimised, including location of ventilation duct outlets from basement car parks, electrical substations and detention tanks

Objective 3D-3

Communal open space is designed to maximise safety

Design guidance

Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. Design solutions may include:

- bay windows
- corner windows
- balconies

Communal open space should be well lit

Where communal open space/facilities are provided for children and young people they are safe and contained

3D Communal and public open space



Photo: Michael Zanicco

Figure 3D.11 Attractive and inviting communal open spaces with good solar access should be provided



Figure 3D.12 This communal courtyard provides gathering spaces, seating facilities, pergolas and barbecue facilities for residents



Figure 3D.13 This semi-public courtyard connects to the surrounding inner-city neighbourhood and offers a central water feature, seating and convenient pedestrian through-site links

Objective 3D-4

Public open space, where provided, is responsive to the existing pattern and uses of the neighbourhood

Design guidance

The public open space should be well connected with public streets along at least one edge

The public open space should be connected with nearby parks and other landscape elements

Public open space should be linked through view lines, pedestrian desire paths, termination points and the wider street grid

Solar access should be provided year round along with protection from strong winds

Opportunities for a range of recreational activities should be provided for people of all ages

A positive address and active frontages should be provided adjacent to public open space

Boundaries should be clearly defined between public open space and private areas

3E Deep soil zones

Deep soil zones are areas of soil not covered by buildings or structures within a development. They exclude basement car parks, services, swimming pools, tennis courts and impervious surfaces including car parks, driveways and roof areas.

Deep soil zones have important environmental benefits, such as allowing infiltration of rain water to the water table and reducing stormwater runoff, promoting healthy growth of large trees with large canopies and protecting existing mature trees which assist with temperature reduction in urban environments. Deep soil zones may be constrained by the size of the lot or the location of a proposed development. To provide shade and amenity for residents they can be co-located with communal open space.

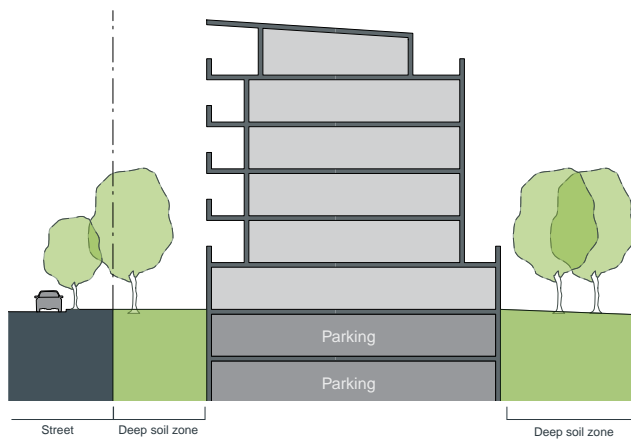


Figure 3E.1 Opportunities for deep soil zones are increased when parking levels are contained within the building footprint

Table 2 Suggested soil volumes on sites with sand, clay, alluvial, transition and disturbed soils

Tree size	Height	Spread	Soil volume
Large trees	13-18m	16m	80m ³
Medium tree	9-12m	8m	35m ³
Small tree	6-8m	4m	15m ³

Note: On sandy sites with reduced soil volumes, the number of trees planted is proportional to the available soil volume

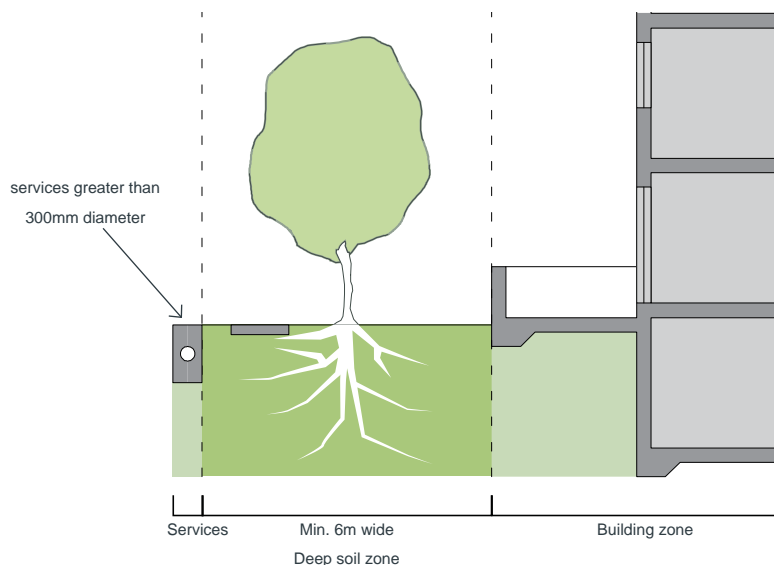


Figure 3E.2 Diagram showing the minimum dimension of deep soil zones for sites greater than 1,500m²



Figure 3E.3 Deep soil zones promote the growth of larger trees which improve amenity and local microclimate

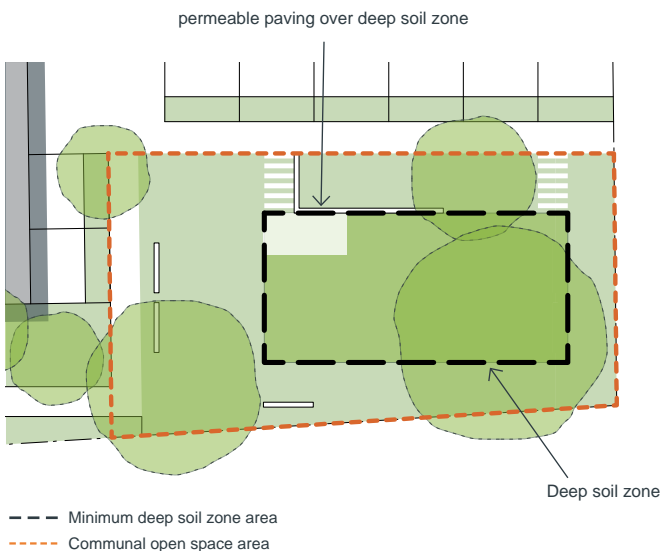


Figure 3E.4 Pedestrian pathways and paving which is specifically designed for tree root growth can occupy up to 10% of the deep soil zone

Objective 3E-1

Deep soil zones provide areas on the site that allow for and support healthy plant and tree growth. They improve residential amenity and promote management of water and air quality

Design criteria

1. Deep soil zones are to meet the following minimum requirements:

Site area	Minimum dimensions	Deep soil zone (% of site area)
less than 650m ²	-	7%
650m ² - 1,500m ²	3m	
greater than 1,500m ²	6m	
greater than 1,500m ² with significant existing tree cover	6m	

Design guidance

On some sites it may be possible to provide larger deep soil zones, depending on the site area and context:

- 10% of the site as deep soil on sites with an area of 650m² - 1,500m²
- 15% of the site as deep soil on sites greater than 1,500m²

Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees. Design solutions may include:

- basement and sub basement car park design that is consolidated beneath building footprints
- use of increased front and side setbacks
- adequate clearance around trees to ensure long term health
- co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil

Achieving the design criteria may not be possible on some sites including where:

- the location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres)
- there is 100% site coverage or non-residential uses at ground floor level

Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure

3F Visual privacy

Visual privacy allows residents within an apartment development and on adjacent properties to use their private spaces without being overlooked. It balances the need for views and outlook with the need for privacy. In higher density developments it also assists to increase overall amenity.

Visual privacy balances site and context specific design solutions with views, outlook, ventilation and solar access. The adjacent context, site configuration, topography, the scale of the development and the apartment layout all need to be considered.

Degrees of privacy are also influenced by a number of factors including the activities of each of the spaces where overlooking may occur, the times and frequency these spaces are being used, the expectations of occupants for privacy and their ability to control overlooking with screening devices.



Figure 3F.1 Visual privacy is an important factor for residential amenity. The siting of buildings needs to ensure adequate separation between apartments

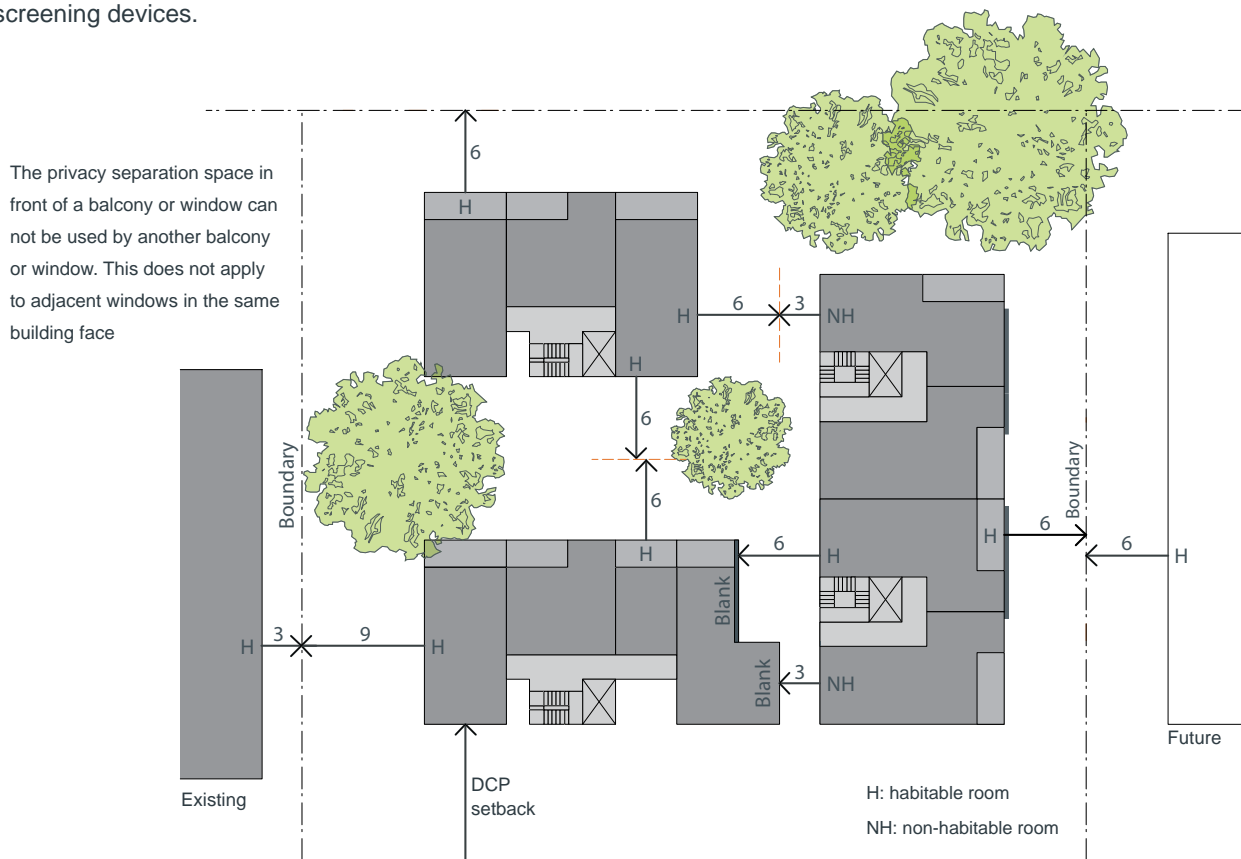


Figure 3F.2 Any one development will have a variety of visual privacy conditions to be accommodated. Section A (Figure 3F.4) shows separation distances between apartments within the same site

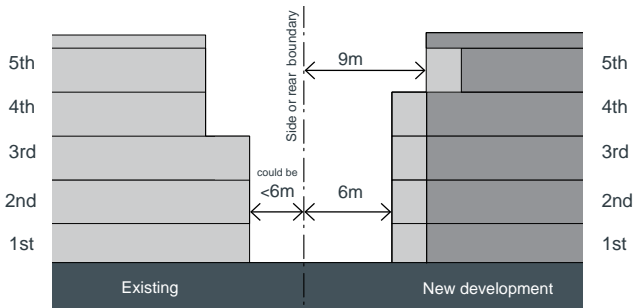


Figure 3F.3 New development adjacent to existing buildings should provide adequate separation distances to the boundary in accordance with the design criteria

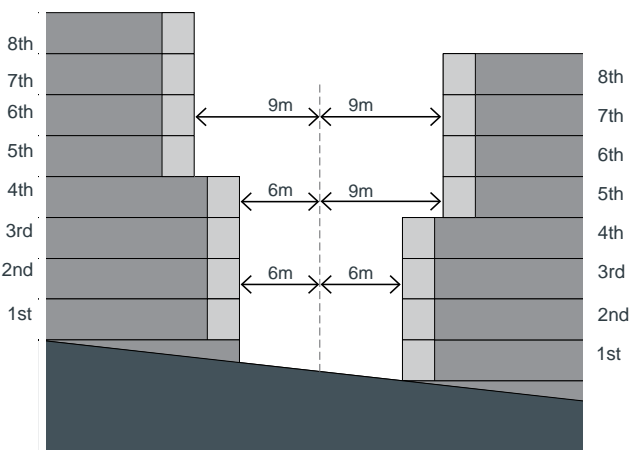


Figure 3F.4 Within the same site, minimum separation should be shared equitably between buildings. On sloping sites, appropriate separation distances ensure visual privacy for apartments on different levels

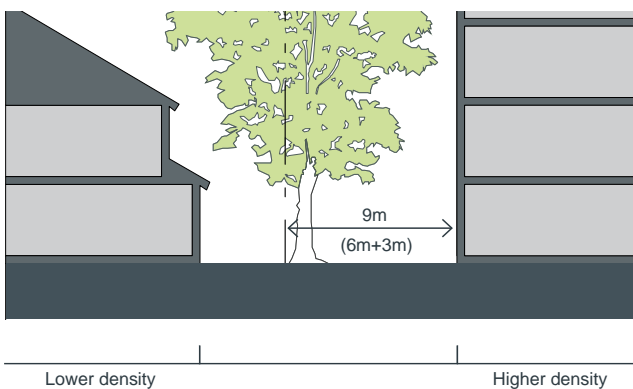


Figure 3F.5 To resolve amenity impacts, apartment buildings should increase the building separation distance (+3m) when adjacent to a different zone that permits lower density residential development

Objective 3F-1

Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy

Design criteria

1. Separation between windows and balconies is provided to ensure visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows:

Building height	Habitable rooms and balconies	Non-habitable rooms
up to 12m (4 storeys)	6m	3m
up to 25m (5-8 storeys)	9m	4.5m
over 25m (9+ storeys)	12m	6m

Note: Separation distances between buildings on the same site should combine required building separations depending on the type of room (see figure 3F.2)

Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties

Design guidance

Generally one step in the built form as the height increases due to building separations is desirable. Additional steps should be careful not to cause a 'ziggurat' appearance

For residential buildings next to commercial buildings, separation distances should be measured as follows:

- for retail, office spaces and commercial balconies use the habitable room distances
- for service and plant areas use the non-habitable room distances

New development should be located and oriented to maximise visual privacy between buildings on site and for neighbouring buildings. Design solutions include:

- site layout and building orientation to minimise privacy impacts (see also section 3B Orientation)
- on sloping sites, apartments on different levels have appropriate visual separation distances (see figure 3F.4)

Apartment buildings should have an increased separation distance of 3m (in addition to the requirements set out in design criteria 1) when adjacent to a different zone that permits lower density residential development to provide for a transition in scale and increased landscaping (figure 3F.5)

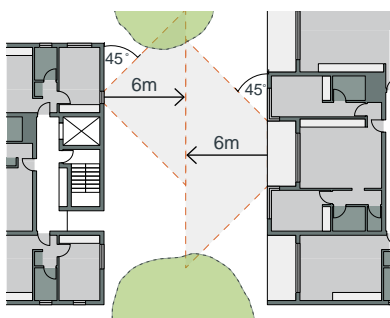
Direct lines of sight should be avoided for windows and balconies across corners

No separation is required between blank walls

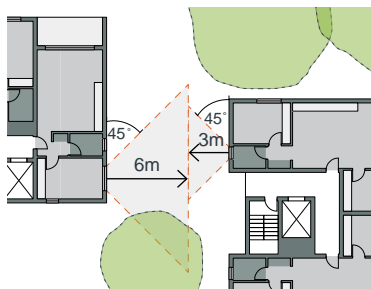
3F Visual privacy

Conditions within a development

Habitable to habitable rooms

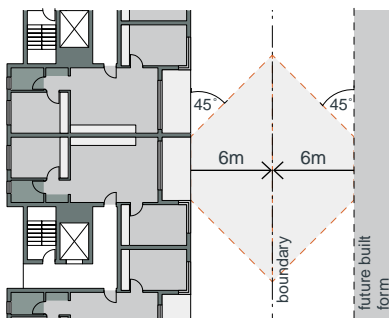


Habitable to non-habitable rooms

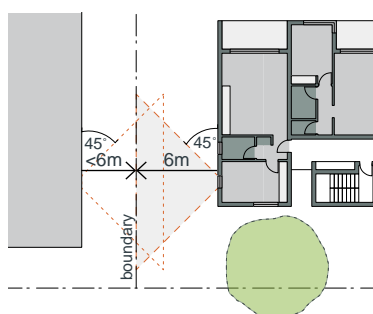


Boundary conditions

Habitable to habitable rooms

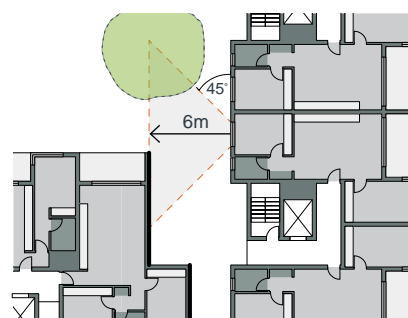


Habitable to non-compliant existing



Blank wall conditions

To habitable rooms



To non-habitable rooms

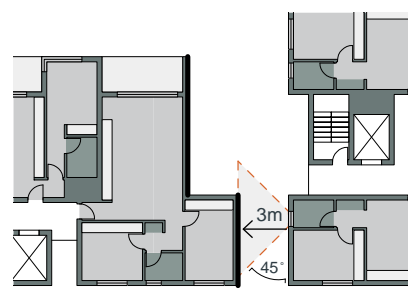


Figure 3F.6 Diagrams showing different privacy interface conditions



Figure 3F.7 Solid walls with non-habitable room windows are used for end elevations to manage privacy impacts between buildings. Solid balconies at lower levels provide better privacy from the street

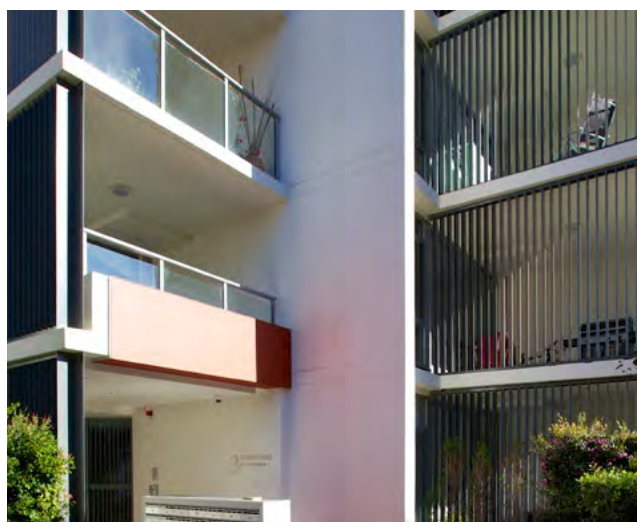


Figure 3F.8 Well designed fences and balconies provide privacy to apartments when viewed from the public domain or adjacent apartment buildings



Figure 3F.9 Fencing of ground floor apartments should not be solid to allow for surveillance of common open space and the public domain

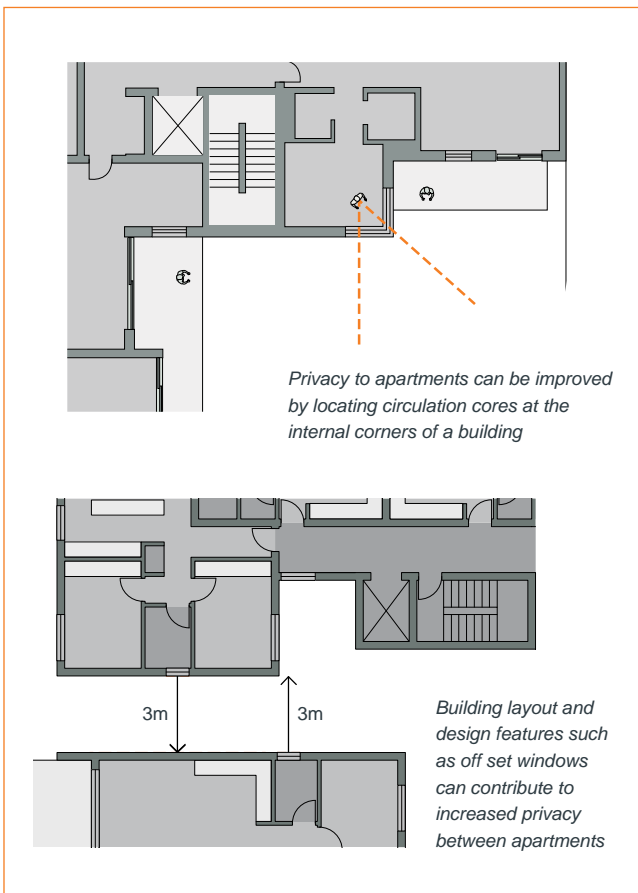


Figure 3F.10 Examples of solutions to increase privacy
Note: building separations are shown for up to 12m (4 storeys)

Objective 3F-2

Site and building design elements increase privacy without compromising access to light and air and balance outlook and views from habitable rooms and private open space

Design guidance

Communal open space, common areas and access paths should be separated from private open space and windows to apartments, particularly habitable room windows. Design solutions may include:

- setbacks
- solid or partially solid balustrades to balconies at lower levels
- fencing and/or trees and vegetation to separate spaces
- screening devices
- bay windows or pop out windows to provide privacy in one direction and outlook in another
- raising apartments/private open space above the public domain or communal open space
- planter boxes incorporated into walls and balustrades to increase visual separation
- pergolas or shading devices to limit overlooking of lower apartments or private open space
- on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels to windows and/or balconies

Bedrooms, living spaces and other habitable rooms should be separated from gallery access and other open circulation space by the apartment's service areas

Balconies and private terraces should be located in front of living rooms to increase internal privacy

Windows should be offset from the windows of adjacent buildings

Recessed balconies and/or vertical fins should be used between adjacent balconies

3G Pedestrian access and entries

Good pedestrian access delivers high quality, equitable, safe and pleasant walking environments along the street, into the development and to individual apartments. Pedestrian access and entries must be priorities over vehicle access.

Building entries provide a connection with the public space and an address for a building or group of buildings. The design of building entries and their integration with the building and landscape design contributes to the identity of the building and the character of the streetscape. Building entries may lead into a common entry or directly into the private space of an apartment.



Figure 3G.2 Breaks between buildings, colour and landscaping can be combined to help identify building entries

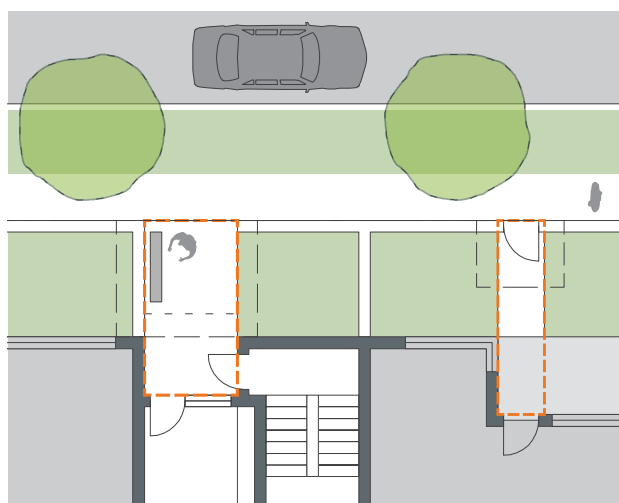


Figure 3G.1 Successful building entries define public and private space, are clearly identifiable and activate the street



Figure 3G.3 The use of colour of this building entry contrasts with the facade and surrounding landscape setting



Figure 3G.4 Features such as awnings, blade walls and signage contribute to building entries that are clearly identifiable from the street



Figure 3G.5 Pedestrian through-site links need to be direct with clear sight lines to each end



Figure 3G.6 Windows and balconies should overlook through-site connections to provide passive surveillance

Objective 3G-1

Building entries and pedestrian access connects to and addresses the public domain

Design guidance

Multiple entries (including communal building entries and individual ground floor entries) should be provided to activate the street edge

Entry locations relate to the street and subdivision pattern and the existing pedestrian network

Building entries should be clearly identifiable and communal entries should be clearly distinguishable from private entries

Where street frontage is limited and multiple buildings are located on the site, a primary street address should be provided with clear sight lines and pathways to secondary building entries

Objective 3G-2

Access, entries and pathways are accessible and easy to identify

Design guidance

Building access areas including lift lobbies, stairwells and hallways should be clearly visible from the public domain and communal spaces

The design of ground floors and underground car parks minimise level changes along pathways and entries

Steps and ramps should be integrated into the overall building and landscape design

For large developments 'way finding' maps should be provided to assist visitors and residents (see figure 4T.3)

For large developments electronic access and audio/video intercom should be provided to manage access

Objective 3G-3

Large sites provide pedestrian links for access to streets and connection to destinations

Design guidance

Pedestrian links through sites facilitate direct connections to open space, main streets, centres and public transport

Pedestrian links should be direct, have clear sight lines, be overlooked by habitable rooms or private open spaces of dwellings, be well lit and contain active uses, where appropriate

3H Vehicle access

The location, type and design of vehicle access points have significant impacts on the streetscape, the site layout and the building facade design. It is important that vehicle access is integrated with site planning from an early stage to balance any potential conflicts with traffic patterns, streetscape elements and safe pedestrian access.



Figure 3H.1 The impact of vehicle access points on the street can be minimised by locating them on secondary frontages

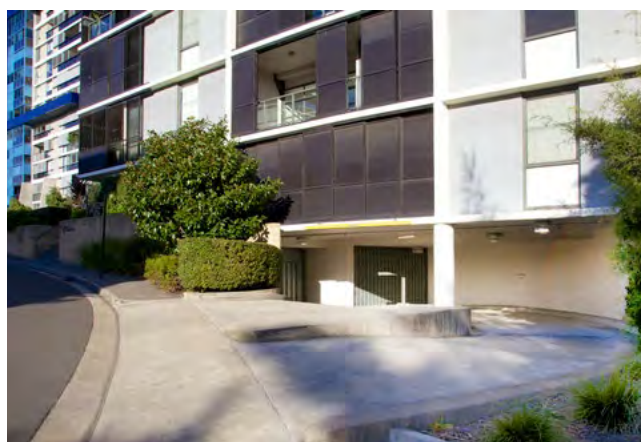


Figure 3H.2 Clear sightlines help to keep pedestrians safe. Locating entries to car parks at the lowest level of the site reduces ramp length



Figure 3H.3 Vehicle and pedestrian access should be clearly separated to improve pedestrian safety and comfort



Figure 3H.4 The visual impact of vehicle entries can be minimised by an offset alignment of the driveway and screen planting



Figure 3H.5 Where possible vehicle access points should not dominate the streetscape and be limited to the minimum width possible

Objective 3H-1

Vehicle access points are designed and located to achieve safety, minimise conflicts between pedestrians and vehicles and create high quality streetscapes

Design guidance

Car park access should be integrated with the building's overall facade. Design solutions may include:

- the materials and colour palette to minimise visibility from the street
- security doors or gates at entries that minimise voids in the facade
- where doors are not provided, the visible interior reflects the facade design and the building services, pipes and ducts are concealed

Car park entries should be located behind the building line

Vehicle entries should be located at the lowest point of the site minimising ramp lengths, excavation and impacts on the building form and layout

Car park entry and access should be located on secondary streets or lanes where available

Vehicle standing areas that increase driveway width and encroach into setbacks should be avoided

Access point locations should avoid headlight glare to habitable rooms

Adequate separation distances should be provided between vehicle entries and street intersections

The width and number of vehicle access points should be limited to the minimum

Visual impact of long driveways should be minimised through changing alignments and screen planting

The need for large vehicles to enter or turn around within the site should be avoided

Garbage collection, loading and servicing areas are screened

Clear sight lines should be provided at pedestrian and vehicle crossings

Traffic calming devices such as changes in paving material or textures should be used where appropriate

Pedestrian and vehicle access should be separated and distinguishable. Design solutions may include:

- changes in surface materials
- level changes
- the use of landscaping for separation

3J Bicycle and car parking

Integrating car parking within apartment buildings has a significant impact on site planning, landscape and building design. On site parking can be located underground, above ground within a structure or at grade.

The location, form and organisation of parking is usually a balance of development feasibility, site constraints, local context, apartment types and regulatory car parking requirements. Deep soil zones, stormwater management and the retention of trees can also affect the size and shape of a car park footprint.

Parking requirements should be determined in relation to the availability, frequency and convenience of public transport or proximity to a centre in regional areas. Reduced requirements promote a reduction in car dependency and encourage walking, cycling and use of public transport. Provision of parking for alternative forms of transport such as car share vehicles, motorcycles and bicycles should also be considered. Where less car parking is provided, councils should not provide on street resident parking permits.

Table 3 Nominated regional centres for design criteria 1

Nominated regional centres

Albury, Ballina, Batemans Bay, Bathurst, Bega, Bowral, Cessnock, Charlestown, Coffs Harbour, Dapto, Dubbo, Glendale–Cardiff, Gosford, Goulburn, Grafton, Lismore, Maitland, Morisset, Newcastle, Nowra, Orange, Port Macquarie, Queanbeyan, Raymond Terrace, Shellharbour, Tamworth, Taree, Tuggerah–Wyong, Tweed Heads, Wagga Wagga, Warrawong and Wollongong



Figure 3J.1 This development provides green open space on top of the car park structure (top photo). The ground level facing the street is 'wrapped' with retail and commercial uses (bottom photo)



Figure 3J.2 Car share parking spaces that are conveniently located as part of apartment developments encourage reduced car ownership

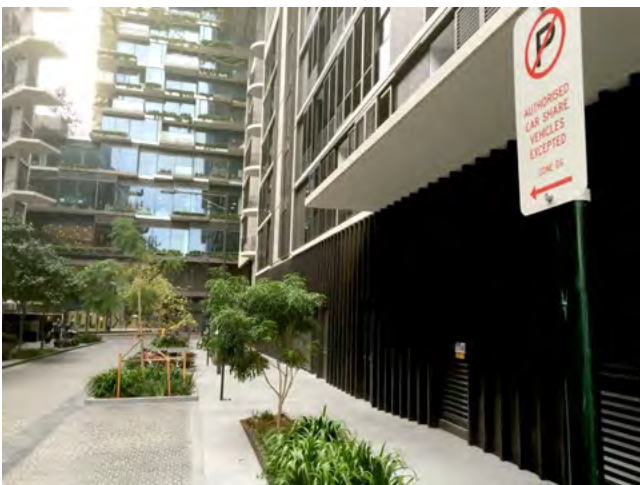


Figure 3J.3 Car share parking spaces can be provided in private areas of development for use by residents

Objective 3J-1

Car parking is provided based on proximity to public transport in metropolitan Sydney and centres in regional areas

Design criteria

- For development in the following locations:
 - on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or
 - on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre

the minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less

The car parking needs for a development must be provided off street

Design guidance

Where a car share scheme operates locally, provide car share parking spaces within the development. Car share spaces, when provided, should be on site

Where less car parking is provided in a development, council should not provide on street resident parking permits

Objective 3J-2

Parking and facilities are provided for other modes of transport

Design guidance

Conveniently located and sufficient numbers of parking spaces should be provided for motorbikes and scooters

Secure undercover bicycle parking should be provided that is easily accessible from both the public domain and common areas

Conveniently located charging stations are provided for electric vehicles, where desirable

3J Bicycle and car parking



Figure 3J.4 Permeable roller doors allow for natural ventilation and improve the safety of car parking areas by enabling passive surveillance



Figure 3J.5 Bicycle parking for residents should be secure and easy to access from common areas



Figure 3J.6 Natural ventilation to the underground car park is integrated into the landscape design of this development



Figure 3J.7 An example of a car wash bay integrated into the basement car park of a residential apartment building



Figure 3J.8 Efficient car park layouts and ramp design should be used



Figure 3J.9 Car wash bays can be accessed without crossing car parking spaces



Figure 3J.10 Car parking is well organised and used a logical, clearly marked structure



Figure 3J.11 Visitor car parking is provided within car parks



Figure 3J.12 Where car parks are located above ground and visible from public or common areas, they should be partially or fully screened from view

Objective 3J-3

Car park design and access is safe and secure

Design guidance

Supporting facilities within car parks, including garbage, plant and switch rooms, storage areas and car wash bays can be accessed without crossing car parking spaces

Direct, clearly visible and well lit access should be provided into common circulation areas

A clearly defined and visible lobby or waiting area should be provided to lifts and stairs

For larger car parks, safe pedestrian access should be clearly defined and circulation areas have good lighting, colour, line marking and/or bollards

Objective 3J-4

Visual and environmental impacts of underground car parking are minimised

Design guidance

Excavation should be minimised through efficient car park layouts and ramp design

Car parking layout should be well organised, using a logical, efficient structural grid and double loaded aisles

Protrusion of car parks should not exceed 1m above ground level. Design solutions may include stepping car park levels or using split levels on sloping sites

Natural ventilation should be provided to basement and sub basement car parking areas

Ventilation grills or screening devices for car parking openings should be integrated into the facade and landscape design

3J Bicycle and car parking



Figure 3J.13 Landscaped on-street parking can enhance streetscape character



Figure 3J.14 Landscaping of on-street parking reduces visual impact while providing amenity and environmental benefits such as shade, reduced surface temperatures and water management



Figure 3J.15 The impact of car parking and vehicular access points on the streetscape should be minimised



Figure 3J.16 Screening can be used to integrate above ground car parking with the facade

Photo: Michael Zanarolo

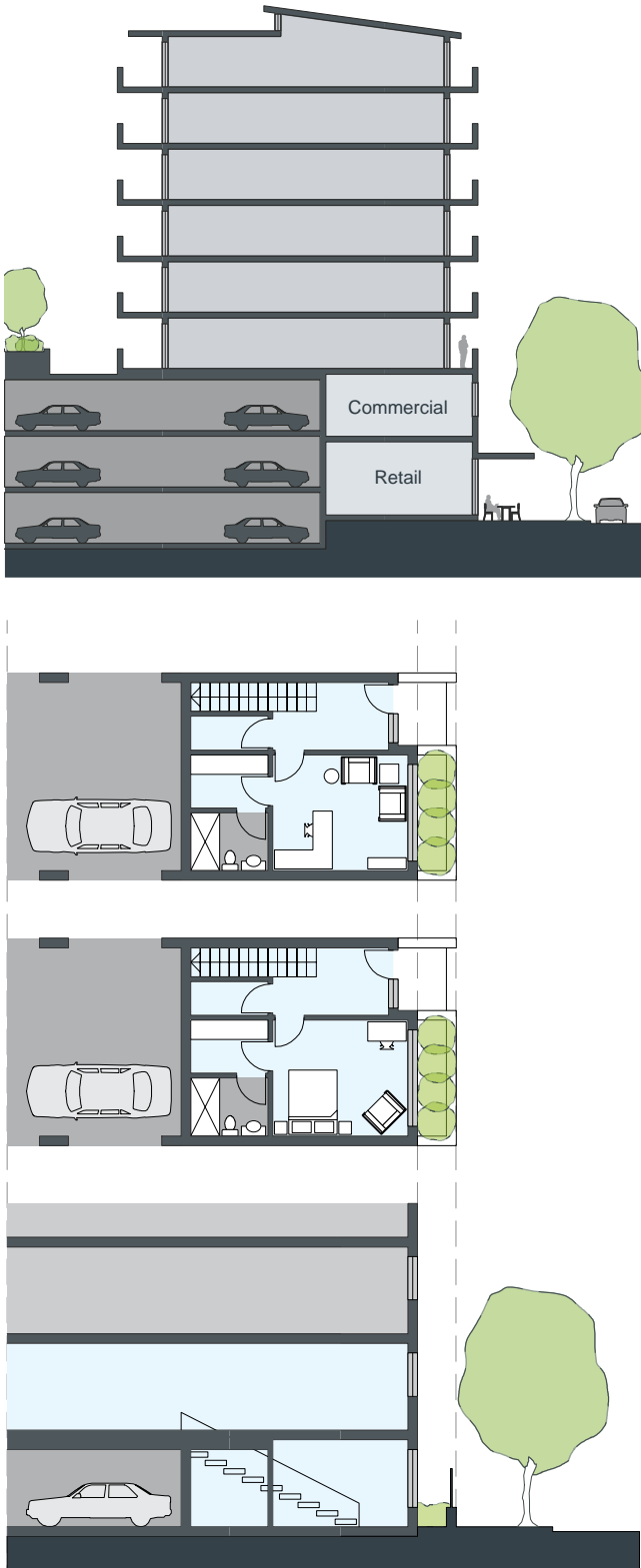


Figure 3J.17 Above ground parking should be concealed behind the building facade and wrapped with other uses along the primary street frontage, such as retail, commercial or two storey SOHO units

Objective 3J-5

Visual and environmental impacts of on-grade car parking are minimised

Design guidance

On-grade car parking should be avoided

Where on-grade car parking is unavoidable, the following design solutions are used:

- parking is located on the side or rear of the lot away from the primary street frontage
- cars are screened from view of streets, buildings, communal and private open space areas
- safe and direct access to building entry points is provided
- parking is incorporated into the landscape design of the site, by extending planting and materials into the car park space
- stormwater run-off is managed appropriately from car parking surfaces
- bio-swales, rain gardens or on site detention tanks are provided, where appropriate
- light coloured paving materials or permeable paving systems are used and shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures from large areas of paving

Objective 3J-6

Visual and environmental impacts of above ground enclosed car parking are minimised

Design guidance

Exposed parking should not be located along primary street frontages

Screening, landscaping and other design elements including public art should be used to integrate the above ground car parking with the facade. Design solutions may include:

- car parking that is concealed behind the facade, with windows integrated into the overall facade design (approach should be limited to developments where a larger floor plate podium is suitable at lower levels)
- car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Office/Home Office (SOHO) units along the street frontage (see figure 3J.9)

Positive street address and active frontages should be provided at ground level

