

Low Rise Medium Density

Design Guide

**for development
applications**



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***Low Rise
Medium Density***



***Design
Guide***
for development
applications

Contents

1	Introduction				
1.1	About this Guide	2	U	Energy Efficiency	183
1.2	How to use this Guide	6	V	Water Management and Conservation	185
1.3	Obtaining Approval	8	W	Waste Management	187
1.4	Design Principles	9	X	Universal Design	189
1.5	Examples of Low Rise Medium Density Housing	12	Y	Communal Areas and Open Space	191
2	Design Criteria		4	Delivery	
2.1	Dual Occupancy (side by side)	35	4.1	Site Considerations	195
2.2	Manor House and Dual Occupancy (one above the other)	57	4.2	Pre-application Meetings	198
2.3	Terraces	79	4.3	Development Application	199
2.4	Multi Dwelling Housing	101	4.4	Design Review Panels	203
3	Explanatory Guidance			Appendices	
3.1	Design Principles and Design Criteria Relationship	127		Design Verification Statement Template	209
3.2	Using this Section	128		Glossary	212
				Image Reference List	215
A	Building Envelopes - Heights and Setbacks	130			
B	Gross Floor Area / Floor Space Ratio	135			
C	Landscaped Area	136			
D	Local Character and Context	140			
E	Public Domain Interface	144			
F	Pedestrian and Vehicle Access	146			
G	Orientation, Siting and Subdivision	149			
H	Solar and Daylight Access	152			
I	Natural Ventilation	154			
J	Ceiling Height	156			
K	Dwelling Size and Layout	158			
L	Principle Private Open Spaces	160			
M	Storage	162			
N	Car and Bicycle Parking	164			
O	Visual Privacy	166			
P	Acoustic Privacy	170			
Q	Noise and Pollution	172			
R	Architectural Form and Roof Design	174			
S	Visual Appearance and Articulation	177			
T	Pools and Detached Development	181			

1

Introduction

This Section provides an introduction to the guide, and how and when to use it.

It also contains the nine Design Principles that all developments should respond to.

1.1 About this Guide

What is low rise medium density housing?

Low rise medium density residential development includes:

- Dual occupancies
- Manor houses and 'one above the other' dual occupancies - buildings of between 2-4 dwellings
- Multi dwelling housing (terraces)
- Multi dwelling housing (town houses and villas)

It is development that contains two or more dwellings and is no more than two storeys in height.

Type	Definition
Dual occupancy	<p>dual occupancy (attached) means 2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling.</p> <p>dual occupancy (detached) means 2 detached dwellings on one lot of land, but does not include a secondary dwelling.</p>
Manor House	<p>A building containing 3 or 4 dwellings, where:</p> <ul style="list-style-type: none"> • Each dwelling is attached to another dwelling by a common wall or floor, and • At least 1 dwelling is partially or wholly located above another dwelling, and • The building contains no more than 2 storeys (excluding any basement).
Multi dwelling housing	3 or more dwellings (attached or detached) on one lot of land, each with access at ground level but does not include residential flat buildings.
Multi dwelling housing (terraces)	Multi dwelling housing where all dwellings face and generally follow the alignment of one or more public roads.

Development consent for subdivision of low rise medium density housing may also be carried out concurrently with the consent of the dwellings.

Examples of this form of housing are provided at the end of this Section.

What is the Low Rise Medium Density Design Guide for Development Applications?

The Low Rise Medium Density Design Guide for Development Applications (Design Guide for DAs) provides consistent planning and design standards for low rise medium density residential dwellings across NSW.

When does the Low Rise Medium Density Design Guide for DAs apply?

The Design Guide for DAs will provide councils with best practice controls and design standards for various forms of medium density housing, including dual occupancies, manor houses, terraces, townhouses and villas.

The Design Guide for DAs is a tool for councils to use to assess medium density housing. Councils can choose to either adopt the Design Guide for DAs fully or in part into their DCP. Councils will also be required to consider the Design Guide for DAs when assessing DAs for manor houses and terraces, unless council has another DCP in place.

Aims of the Guide

The Design Guide for DAs is intended to help achieve better design and planning for low rise medium density housing by providing the best practice requirements for designing and assessing these developments.

The Design Guide for DAs aims to:

- Deliver better quality design for buildings that respond appropriately to the character of the area, landscape setting and surrounding built form;
- Improve the quality of neighbourhoods and precincts;
- Create consistency in the assessment of medium density development across approval pathways and and between councils;
- Improve livability through optimal internal and external multi dwelling amenity, including better layout, dwelling depth and ceiling heights, solar access, natural ventilation and visual privacy;

- Deliver quality landscaping including tree planting for new developments;
- Deliver improved sustainability through better transport solutions, greater building adaptability and robustness, improved energy efficiency and water sensitive urban design;
- Improve the relationship of dwellings to the public domain including streets, lanes and parks;
- Deliver design guidance and assist in providing a diverse housing mix and choice; and
- Provide guidance to prepare an application for a DA.

Relationship to Local Environmental Plans

The Local Environmental Plan (LEP) that applies to the land determines:

- the types of development permissible on the land,
- development standards such as floor space ratio, height and landscaped area, and
- other controls that shape or restrict development on the land.

Relationship to Development Control Plans and council policies

The Design Criteria refers to the Development Control Plan (DCP) or council policies for certain matters that apply to the land, such as building envelopes, landscaped area, stormwater and waste collection.

A DCP can also contain local strategic planning statements that describe local character and will inform the content of the Design Verification Statement and site analysis required by the Design Criteria.

Figure 1-2 explains the relationship between the LEP, DCP and the Design Criteria.

Relationship to other legislation

It may be necessary to consider other legislation and regulations that apply to the development or the land including:

- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Environmental Planning and Assessment Regulation 2000 (EP&A Regulation)
- State Environmental Planning Policies
- Roads Act 1993
- Swimming Pools Act 1992
- Conveyancing Act 1919
- Local Government Act 1993

Low Rise Medium Density Housing as complying development

Low rise medium density housing can also be carried out as complying development under the *State Environmental Planning Policy (Exempt and Complying Codes) 2008 (Codes SEPP)*. Complying development must satisfy development standards within the Codes SEPP and the Design Criteria for complying development.

The standards in the Codes SEPP and Design Criteria for complying development are similar to the Design Criteria in this guide providing a consistent planning framework and outcome under both approval pathways.

Strategic Context

The future character of an area is determined by the local council and community through the regional or district plans, and LEPs. Low rise medium density housing is often an important component, providing housing diversity and affordability in areas that are in close proximity to existing and future centres and services.

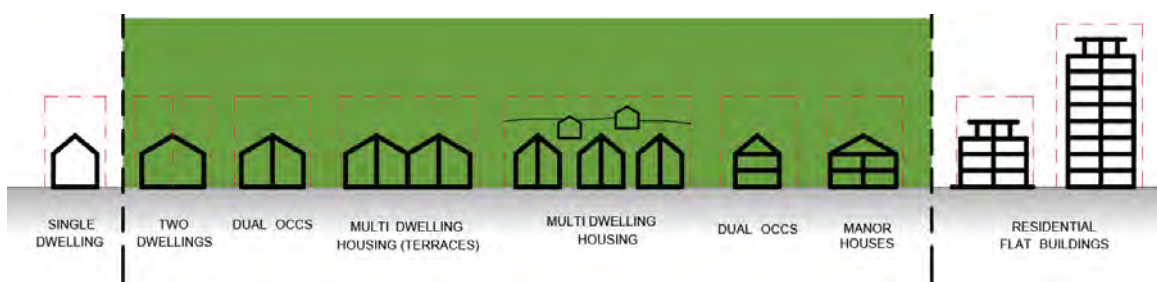
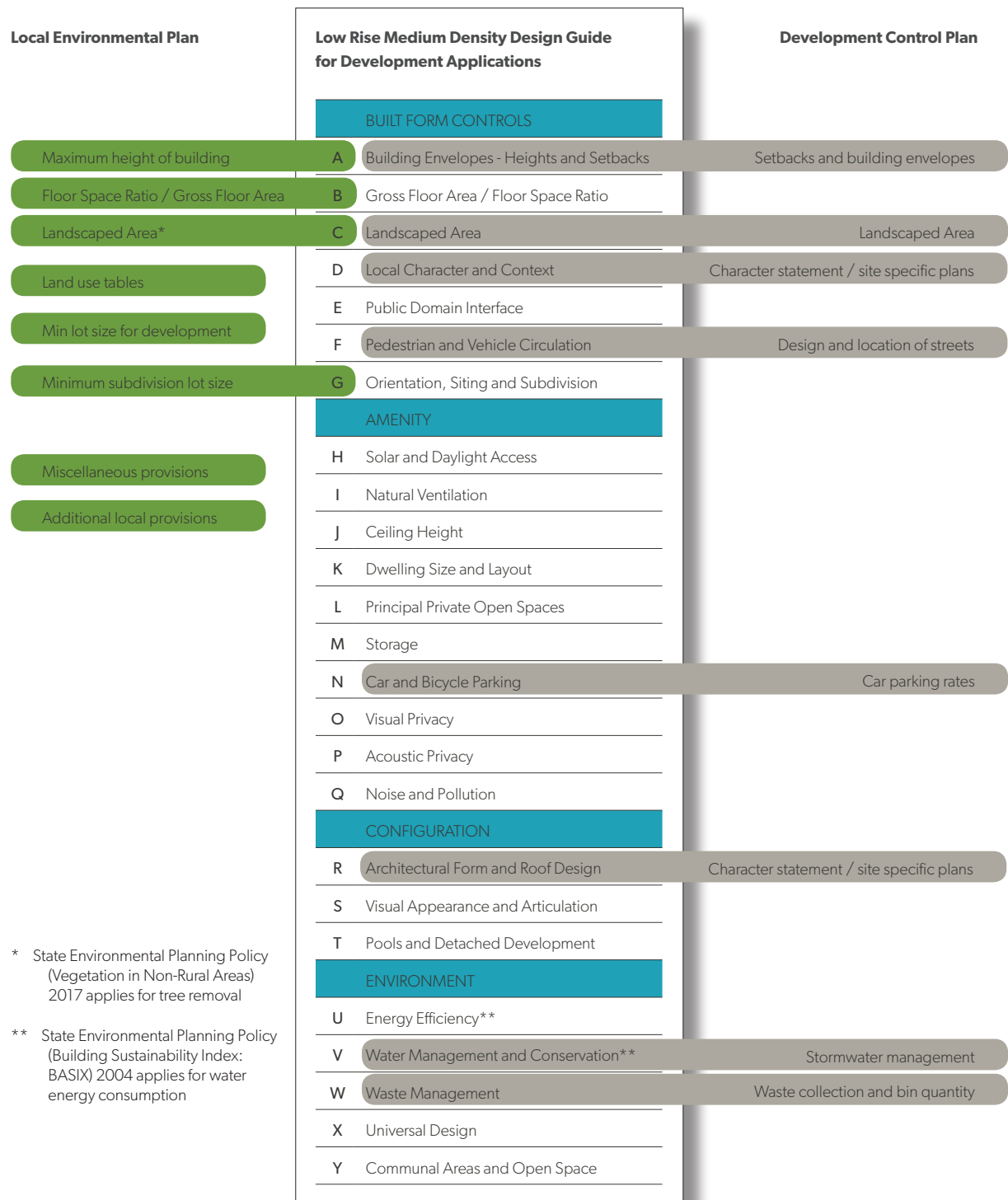


Figure 1-1 Medium density development in the spectrum of residential accommodation

Relationship between Design Guide, LEP and DCP



* State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 applies for tree removal

** State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 applies for water energy consumption

Figure 1-2 Relationship between LEP, DCP and Design Criteria



Figure 1-3 Low rise medium density housing

1.2 How to use this Guide

Who is the Low Rise Medium Density Design Guide for Development Applications intended for?

The Design Guide for DAs has been prepared to:

- assist developers, planners, urban designers, architects, building designers, landscape architects, builders and other professionals when designing and preparing DAs for low rise medium density housing;
- assist planning professionals in local government with preparing local controls and in assessing development applications for low rise medium density housing; and
- inform the community of what is required to achieve good design and planning practice for low rise medium density residential dwellings, as a development application.

Structure of the Guide

The Design Guide for DAs has four Sections:

Section 1 – Introduction

An introduction to how and when to apply the Design Guide for DAs. It also sets out overarching Design Principles that enable good design for low rise medium density housing.

Section 2 - Objectives and Design Criteria

This Section provides Objectives and Design Criteria for each development type of low rise medium density housing.

- Section 2.1 - Dual occupancies (side by side)
- Section 2.2 - Manor houses and dual occupancies (one over the other)
- Section 2.3 - Multi dwelling housing (terraces)
- Section 2.4 - Multi dwelling housing

The Design Criteria provides a straightforward means for development to comply with the Objectives and overarching Design Principles.

To obtain development approval, a proposed development is to satisfy each of the Objectives for the relevant development type.

The format of Section 2 is explained in Figure 1-4.

Objectives

Set out the desired outcomes. The DA is to satisfy all the Objectives.

Development standards

Development standards are located in the LEP. The development must comply with these standards.

Design criteria

Design Criteria are located in Section 2 of the Design Guide for DAs. The Design Criteria are the measurable standards that are deemed to meet the Objective.

2.1A Building Envelopes									
Summary Development Standard									
Maximum height of building	The maximum building height as specified in the LEP.								
Objectives	Design Criteria								
Objective 2.1A-1 The building height is consistent with the streetscape and character of the street and locality and provides an acceptable impact on the privacy of adjoining properties.	1. Where the LEP or DCP does not include a maximum building height, that height of buildings is: <ul style="list-style-type: none"> • 6.5m, or • For detached dual occupancies in a built-up arrangement, the dwelling furthest from the street: 5.4m. 								
Objective 2.1A-2 The development provides a setback from the front boundary or principal road that: <ul style="list-style-type: none"> • defines the street edge; • creates usable front and side setbacks; and • assists in defining visual privacy to adjacent rear dwellings from the street; • contributes to the streetscape character and heritage; • relates to the existing pattern of setbacks of the street; and • maintains a pattern of setbacks that is consistent with the streetscape. 	2. The maximum number of storeys excluding basement is: <ul style="list-style-type: none"> • 2, or • For detached dual occupancies in a built-up arrangement, the dwelling furthest from the street: 1. 								
	3. Refer to the DCP for front setback or envelope controls.								
	4. Where the DCP does not contain front setback controls, the following apply: <ul style="list-style-type: none"> • Where existing dwelling houses or dual occupancies are within 40m of the development (average of the two closest dwelling houses or dual occupancies) • Where no existing dwelling houses or dual occupancies are within 40m of the development then the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0-500</td> <td>4.5m</td> </tr> <tr> <td>>500-1500</td> <td>6.5m</td> </tr> <tr> <td>>1500</td> <td>10m</td> </tr> </tbody> </table> 	Lot Area (m ²)	Setback	0-500	4.5m	>500-1500	6.5m	>1500	10m
Lot Area (m ²)	Setback								
0-500	4.5m								
>500-1500	6.5m								
>1500	10m								
	5. Where the DCP does not contain setback controls for secondary roads the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0-500</td> <td>2m</td> </tr> <tr> <td>>500-1500</td> <td>3m</td> </tr> <tr> <td>>1500</td> <td>5m</td> </tr> </tbody> </table>	Lot Area (m ²)	Setback	0-500	2m	>500-1500	3m	>1500	5m
Lot Area (m ²)	Setback								
0-500	2m								
>500-1500	3m								
>1500	5m								
	6. Setback from classified road: 0m								
	7. Setback to public reserve: 3m								
	8. A dual occupancy and any attached development is to have a setback from a boundary with a parallel road, or least 3m unless, in the case of a dual occupancy (detached), 1 of the dwellings in that dual occupancy faces the parallel road, in which case the setback is to be the same as if the parallel road were a primary road.								

Figure 1-4 Explanation of terms used in Section 2 of this guide

Section 3 - Explanatory Guidance

The explanatory guidance is provided to assist interpretation and assessment of proposals against the Design Criteria.

The explanatory guidance sets out the intent behind the Design Criteria and provides advice on achieving good design outcomes in low rise medium density development.

Designers will use this Section to provide clarification of the meaning of terms used in Section 2, provide approaches which might be used to achieve the Design Criteria and seek general advice on good design outcomes.

Councils can use this Section to help them establish precinct plans and principal controls for a locality and in assessing DAs for low rise medium density housing.

The community can use this Section to better understand how the design of their development can achieve good design outcomes

The format of Section 3 is explained in Figure 1-5.

Section 4 - Delivery

This Section includes information to assist in the preparation and assessment of a DA.

Appendices

The appendices provide a template for the Design Verification Statement that should be submitted with a development application and a glossary of commonly used terms.

Terms used in the Design Guide for DAs

Only architectural terms used in the Design Guide for DAs are defined in the appendix. Any other definition has the same meaning as those within the EP&A Act, EP&A Regulation, and the Standard Instrument - Principal Local Environmental Plan.

Guidance Notes
Explains the intent of each element.

Diagrams explain the meaning of the Design Criteria.



Figure 1-5 Explanation of terms used in Section 3 of this guide

1.3 Obtaining Approval

Development application assessment process

Approval for development types covered by this Design Guide for DAs can be obtained by applying for a DA submitted to the local council for determination.

A DA is a merit assessment where the proposal is measured against the standards and controls that apply and the impacts on the environment. Council is required to notify and consult with neighbouring owners. Approval will be granted by council or local planning panel.

Guidance on preparing and assessing an application for a DA can be found in Section 4.

Local Environmental Plan and development standards

The LEP that applies to the land contains development standards and requirements that must be complied with.

Design Controls

Section 2 of this Design Guide contains Objectives and Design Criteria. The development is required to meet the Objectives contained in this guide.

The Design Criteria set a clear and measurable standard of how each Objective can be practically achieved. Alternate solutions which achieve the Objectives can also be considered by the consent authority when assessing an application.

The Design Guide refers to Council policies with respect to building envelope, waste collection, car parking and stormwater management.

Submission requirements for development applications are set within Schedule 1 of the EP&A Regulation.

The development should be designed by a registered architect or an accredited building designer. A Design Verification Statement should be provided to illustrate how the Design Criteria in Section 2 of the Design Guide has been achieved.



Figure 1-6 Streetscape of Low Rise Medium Density Development

1.4 Design Principles

New development has the potential to transform quality of life for people, stimulate the economy and enhance the environment. The design of the built environment shapes the places we live, work and meet. The quality of design affects how spaces and places function, how they integrate, what they contribute to the broader environment, and the users, inhabitants and audiences they support or attract.

Good design is integral to creating sustainable and liveable communities. As a core planning principle, planners, designers and decision makers should always seek to achieve high quality design outcomes. Achieving good design is about creating places and buildings that respond in a creative and practical way to enhance the function and identity of a place.

The following Design Principles underpin the Objectives in Section 2 of this Design Guide for DAs. These Design Principles are a recognised means of assessing design quality and ensure the development carried out under this guide can be healthy, responsive, integrated, equitable and resilient.



Principle 1 - Context and neighbourhood character

Good design responds and contributes to its context. Context includes the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions

Responding to context involves identifying the desirable elements of an area's existing or future character. Well-designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood.

Consideration of local context is important for all sites, including established areas and those undergoing or identified for change.



Principle 2 - Built form and scale

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings.

Good design also achieves appropriate built form for a site and the building purpose in regard to building alignments, proportions, building type, articulation and the manipulation of building elements. The space between buildings should be of a scale and character that is defined and appropriate for the purpose.

Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.



Principle 3 - Density

Good design achieves a high level of amenity for residents and each dwelling, resulting in a density appropriate to the site and context.

Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.



Principle 5 - Landscape

Good design recognises that landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well-designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood.

Good landscape design enhances a development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values and preserving green networks.

It optimises usability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity and provides for practical establishment and long term management.



Principle 4 - Sustainability

Good design combines positive environmental, social and economic outcomes.

Good sustainable design includes the use of natural cross ventilation and sunlight for the amenity and liveability of residents, as well as passive thermal design for ventilation, heating and cooling. These measures reduce the reliance on technology and operating costs. Additional elements include recycling and reuse of materials and waste, use of sustainable materials and deep soil zones for groundwater recharge and vegetation.



Principle 6 - Amenity

Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident wellbeing.

Good amenity combines appropriate room dimensions access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.



Principle 7 - Safety

Good design optimises safety and security within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promotes safety.

A positive relationship between public and private spaces is achieved through clearly defined secure access points, well-lit and visible areas that are easily maintained and appropriate to the location and purpose.



Principle 9 - Aesthetics

Good design achieves a built form which exhibits good proportions and a balanced composition of elements, reflecting the internal layout and structure. It uses a variety of materials, colours and textures.

The visual appearance of a well-designed development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.



Principle 8 - Housing diversity and social interaction

Good design achieves a mix of dwelling sizes, providing housing choice for different demographics, lifestyles and household budgets.

Well-designed developments respond to social context by providing housing and facilities to suit the existing and future social mix.

Good design involves practical and flexible features, including different types of communal open space for a broad demographic range and provide opportunities for social interaction.

It allows for dwellings to be adaptable to facilitate people living in a dwelling through different stages of life by accommodating various household types.

1.5 Examples of Low Rise Medium Density Housing

Dual Occupancy - Side by Side (detached)

Detached dual occupancies consist of two dwellings on one lot. They are usually characterised by two dwellings located on a corner lot arranged in a linear order, with one dwelling facing the primary road and the second dwelling facing the secondary road.

Appropriate care needs to be taken to reduce tree canopy loss in the garden, and manage privacy and overshadowing impacts.

Context and subdivision

This building type is best suited to narrow and long lots with a minimum width of 18 metres or corner lots, where one dwelling faces the secondary road, with a minimum width of 15 metres.

This type of development is most commonly carried out as Torrens title subdivision. However, this development type can be carried out as strata title subdivision when individual lots do not meet the minimum lot size requirement under the relevant LEP.



Figure 1-7 Example of a dual occupancy with two detached dwellings

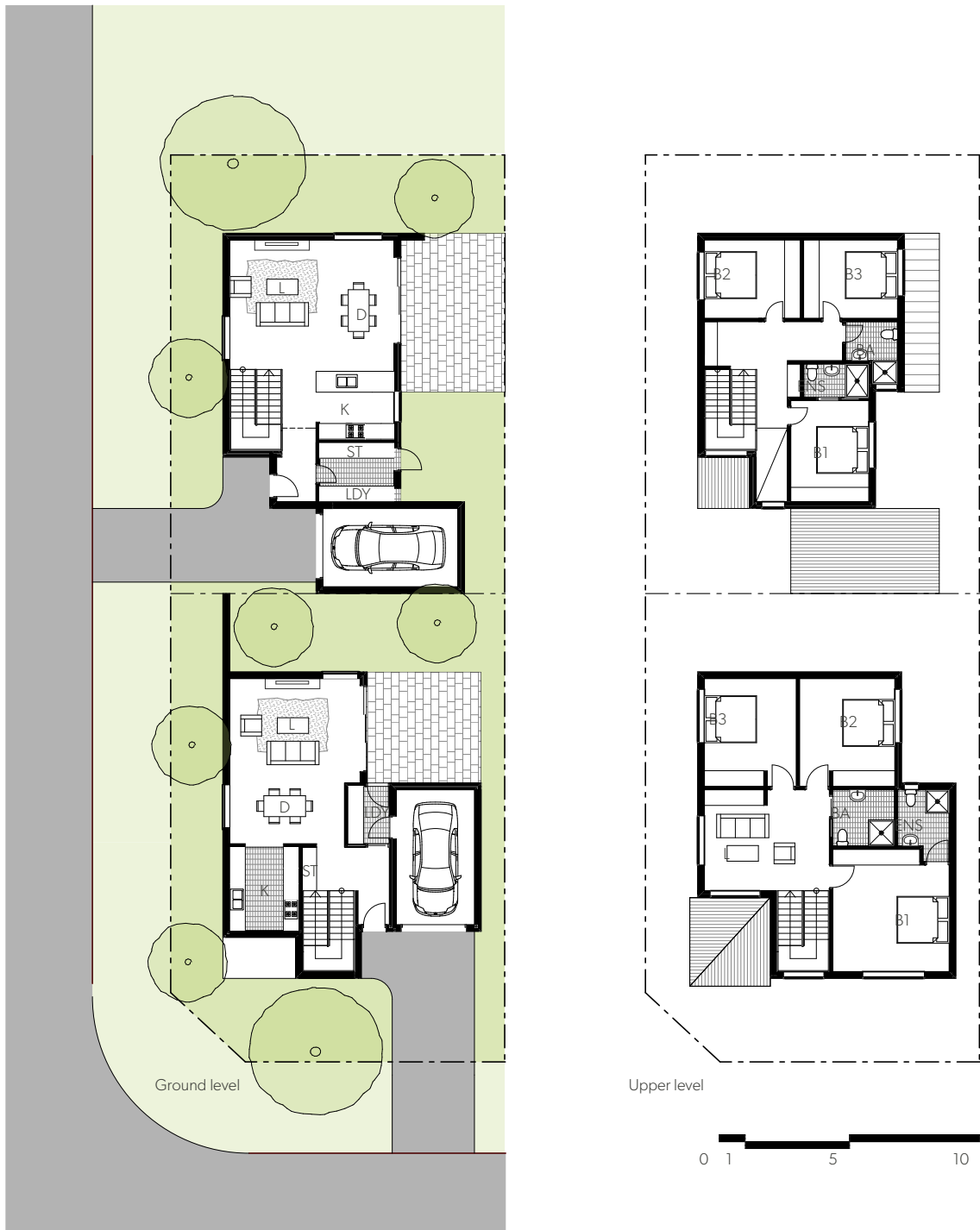


Figure 1-8 Example plan of a dual occupancy with two detached dwellings

Dual Occupancy - Two Dwellings Side by Side (attached)

Side by side attached dual occupancies consist of two dwellings on one lot. They are characterised by two dwellings sharing a common wall in a semi-detached configuration. Both dwellings are arranged to face the primary street frontage. Dwellings can be single or double storey.

Side by side attached dual occupancies tend to have limited impact on the streetscape and surrounds as the scale of the development is consistent with that of a large dwelling house.

This typology of housing maintains a suburban pattern of a front setback and large rear yard which is popular in suburban settings where the lot sizes are wider and deeper.

Dwellings tend to be symmetrical in both layout and architectural form, however occasionally architectural expression can vary between dwellings to add individuality.

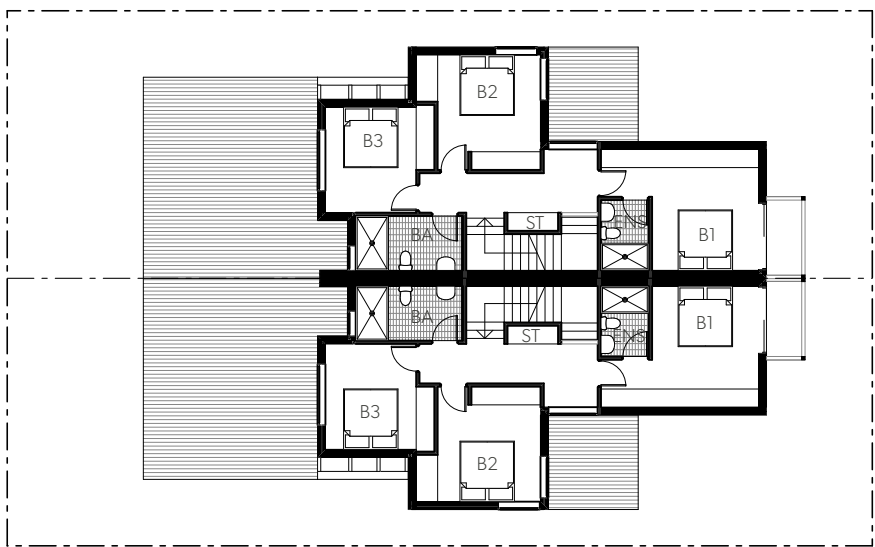
Basement parking can be provided but is rare except on steep terrain.

Context and subdivision

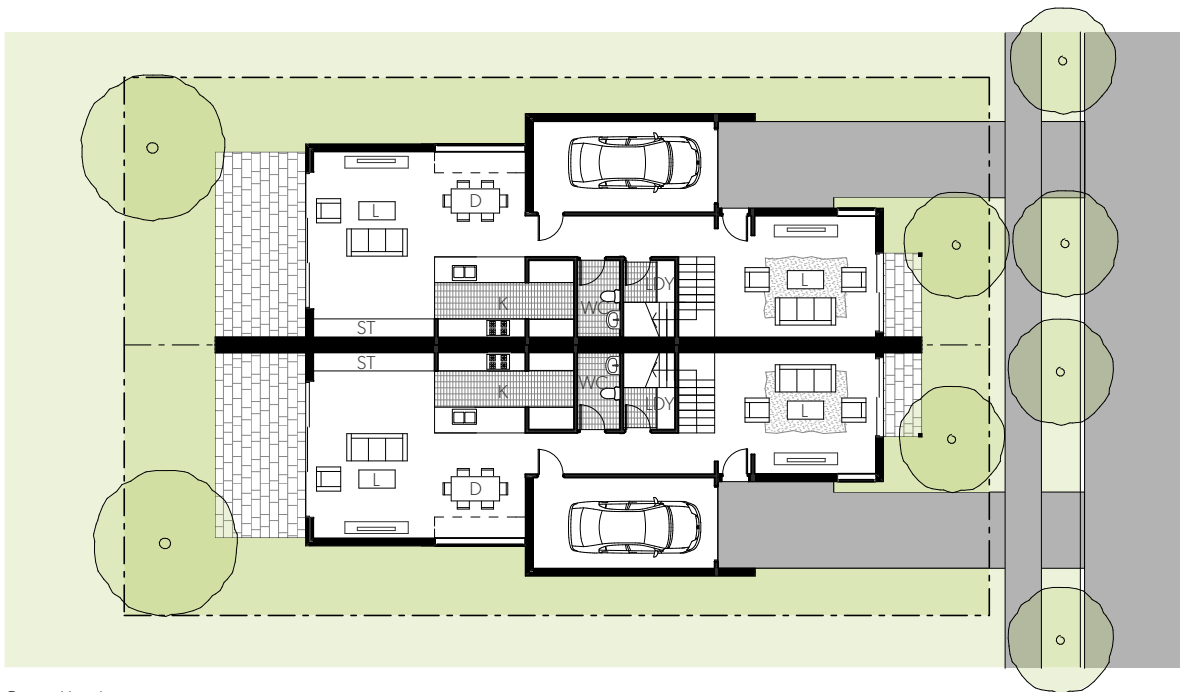
- The building type is best suited to lots with a minimum width of at least 15 metres.
- This building type is most commonly carried out as Torrens title subdivision due to the small scale nature of this development. However, it can be carried out as strata title subdivision when individual lots do not meet the minimum lot size requirement under the relevant LEP.
- This form of low rise medium density housing is ideal for infill development.
- The minimum lot width is highly dependent on vehicle access. Where garages can be located on a rear lane, lot widths can be minimum of 12 metres.
- Where garages can only be located at the front of a lot, the ideal lot width is a minimum of 15 metres. For double car garages, the minimum lot width increases to 25 metres.



Figure 1-9 Example of a dual occupancy - two dwellings side by side (attached)



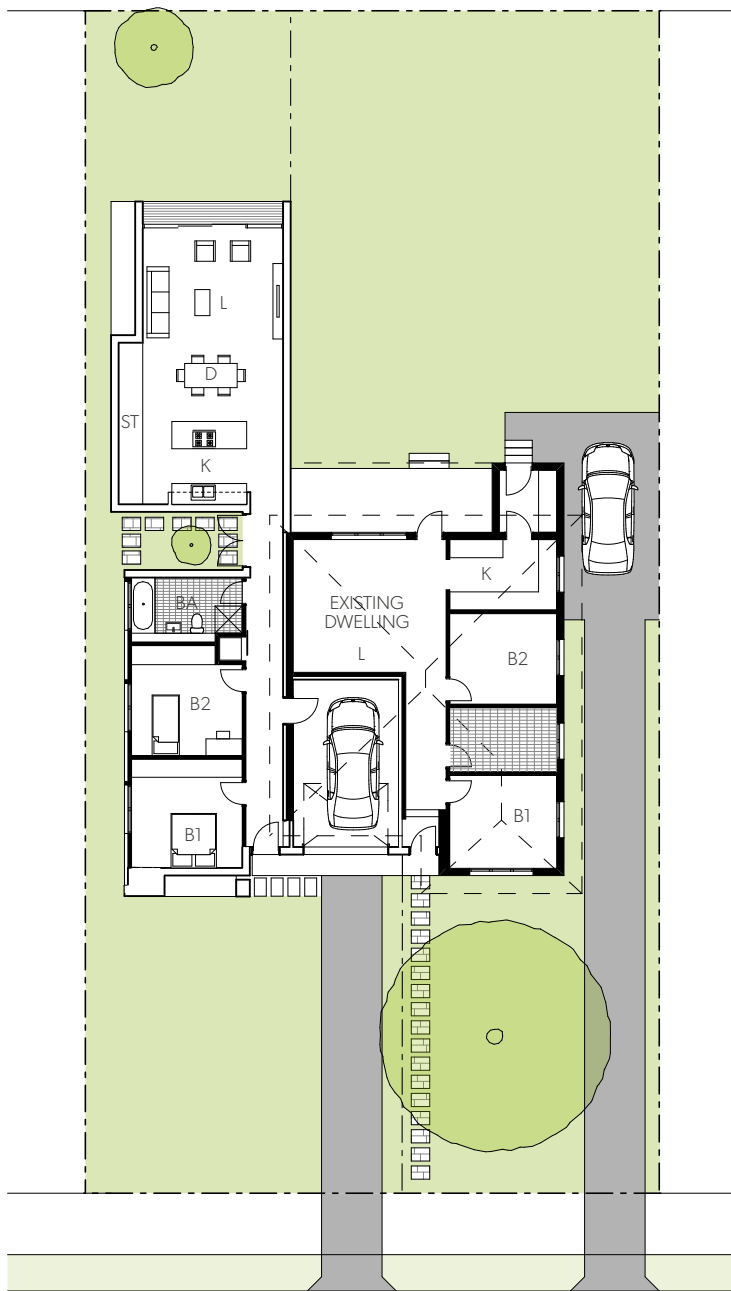
Upper level



Ground level



Figure 1-10 Sample plan of a dual occupancy - two dwellings side by side (attached)



Ground level



Figure 1-11 Sample plan adapting an existing dwelling into a dual occupancy side by side (attached)

Terrace Houses - Car Parking to Primary Road

Terrace houses with front access to a primary road typically consist of two storey houses in a traditional terrace style, formed in a row.

Car parking for this building type is from the primary road frontage. A pattern of driveways, gardens and entry paths form the streetscape.

In order to achieve an effective internal layout including garaging, the widths of each dwelling normally needs to be 7.5 metres. If each individual lot meets the minimum lot size, the development can be subdivided into Torrens title lots.

Typically, each dwelling is orientated front to back, with private open space arranged at the rear of the property. This achieves good visual privacy outcomes between dwellings and minimises privacy issues to adjoining neighbouring properties.

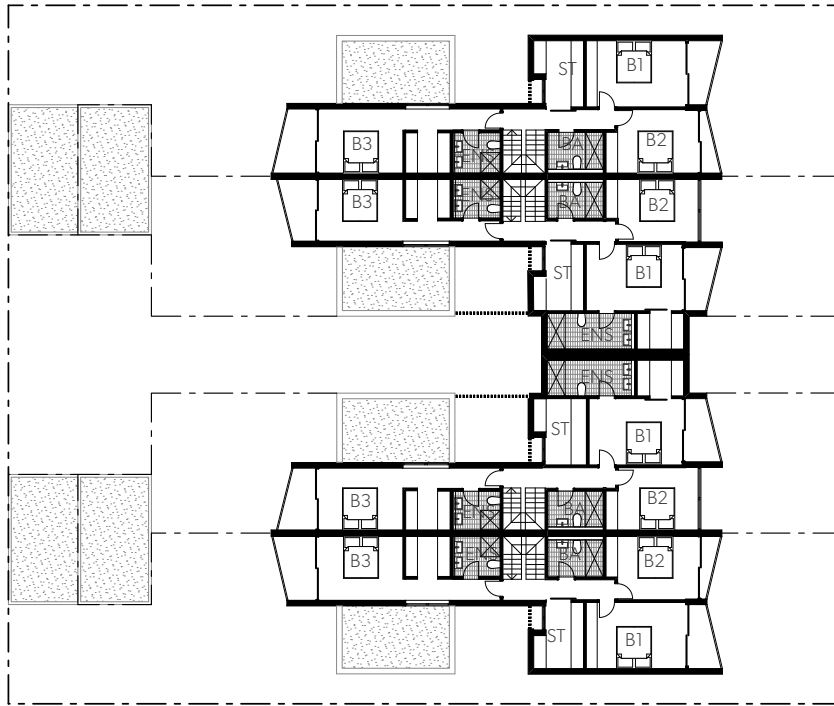
The use of courtyards can provide solar access and natural daylight into the middle of the dwelling.

Context and subdivision

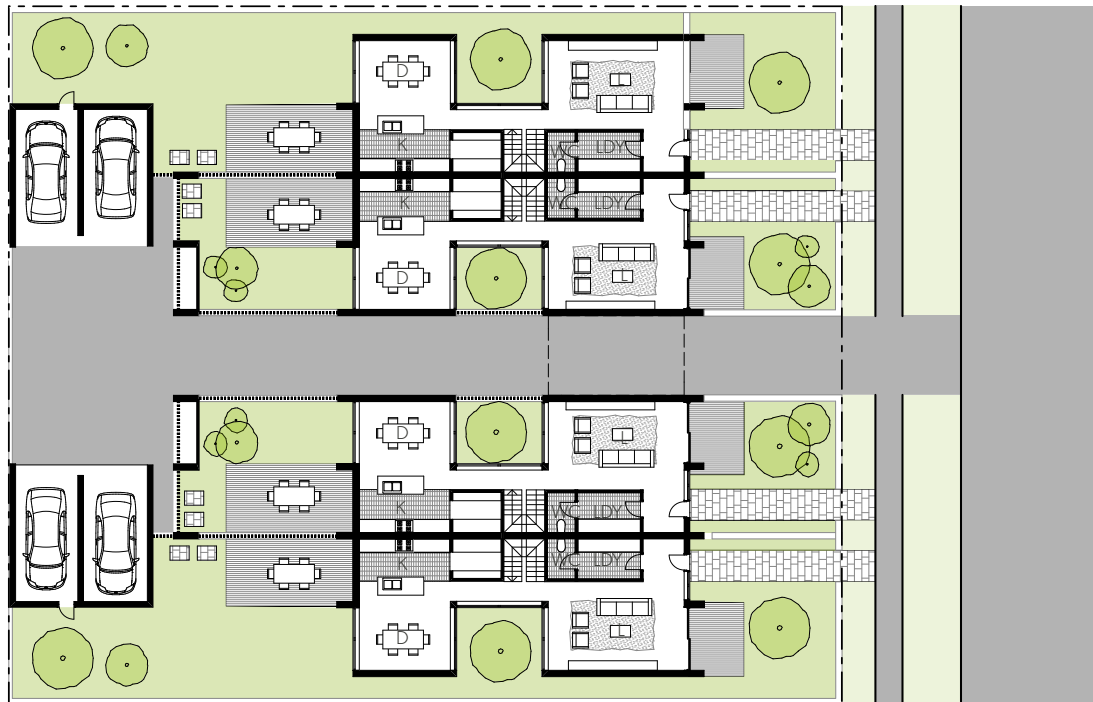
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape or in urban infill areas.
- This building type is best suited to wide shallow lots and amalgamated sites which on deep lots will result in larger rear gardens and more generous courtyards.
- This building type is most commonly carried out as Torrens title subdivision and can be carried out as Strata subdivision when individual lots do not meet the minimum lot size requirements.



Figure 1-12 Example of terrace house with car parking fronting a primary road



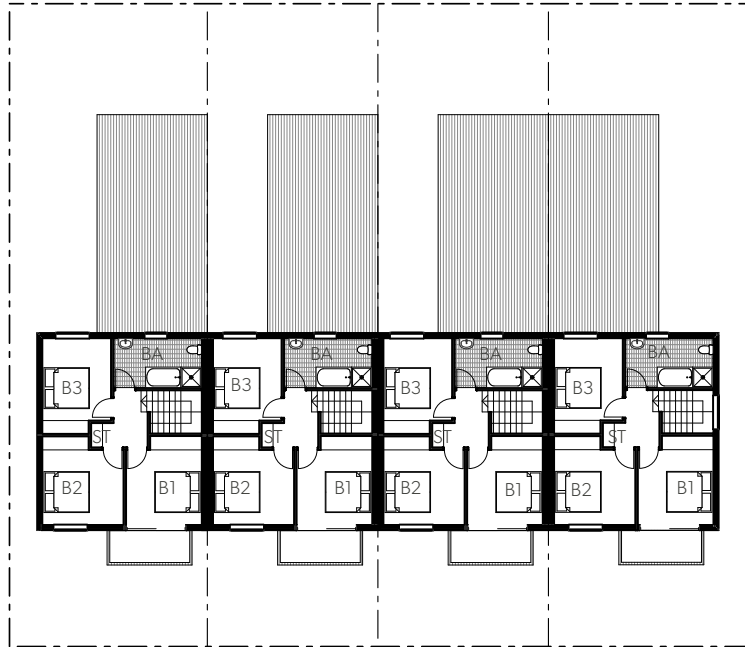
Upper level



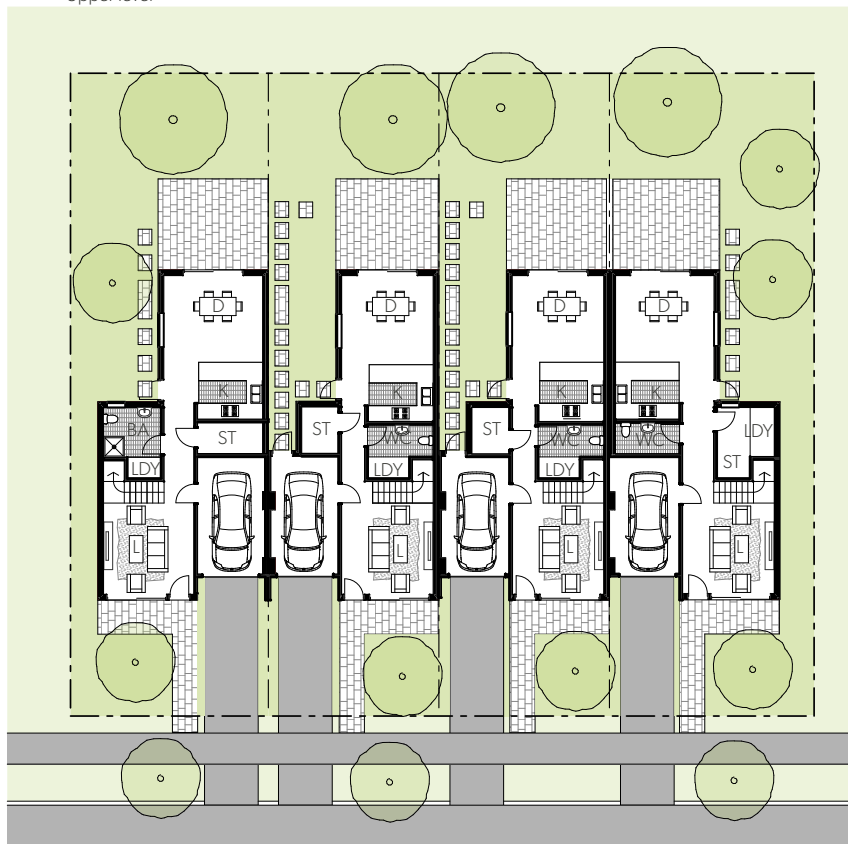
Ground level



Figure 1-13 Sample plan of terraces with car parking at rear but accessed from the primary road frontage



Upper level



Ground level



Figure 1-14 Sample plan of terraces with car parking fronting a primary road

Terrace Houses - Rear Lane Access

Terrace houses with rear lane access typically consist of two storey dwellings in a traditional terrace style, formed in a row.

Car parking for this building type is provided from the rear lane with access to rear garages. By removing car parking from the front streetscape a more aesthetically pleasing repetitive pattern of terrace houses with front gardens and entry paths form the streetscape.

Each dwelling is orientated front to back, with private open space typically arranged at the rear of the property. This achieves good visual privacy outcomes between dwellings and minimises privacy issues to adjoining neighbouring properties.

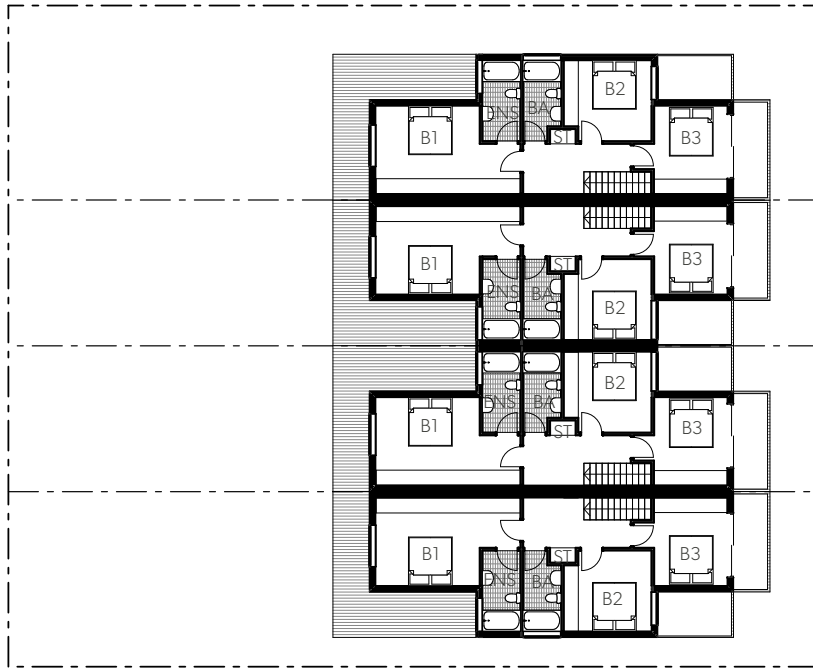
The use of courtyards can also provide solar access and natural daylight into the middle of the dwelling.

Context and subdivision

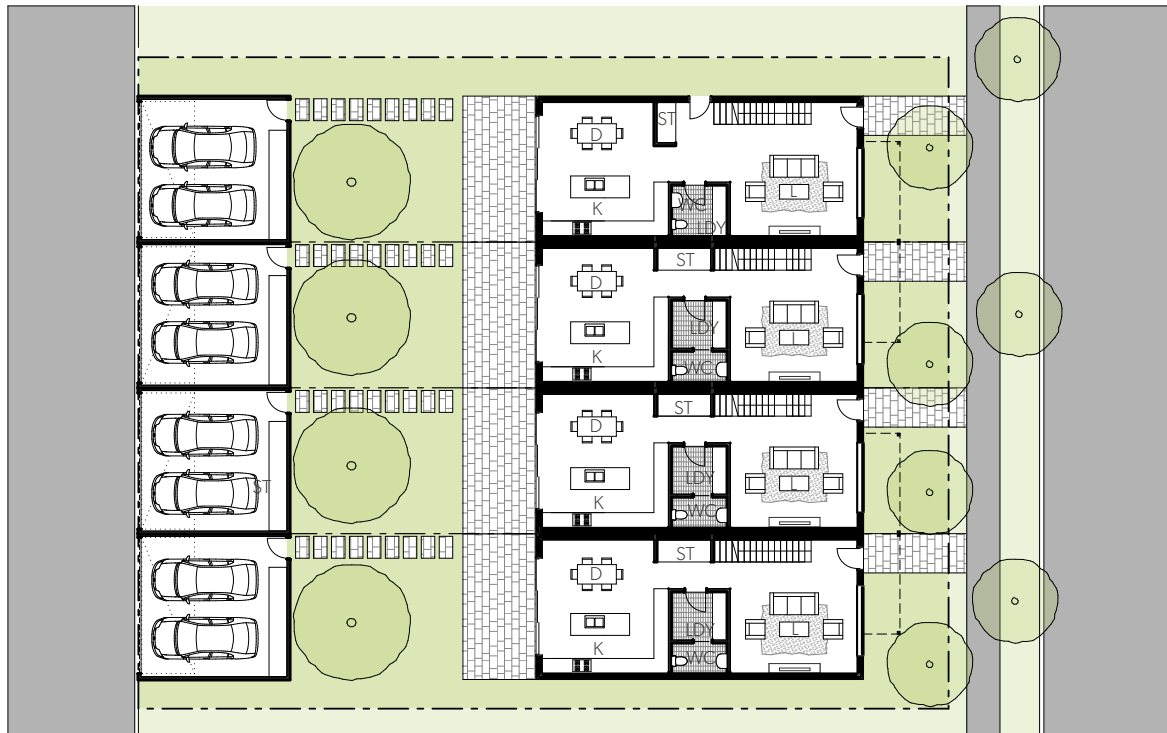
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape, in urban infill areas or in new subdivisions where laneway access can be designed.
- This building type is best suited to wide shallow lots or amalgamated sites.
- This building type is most commonly carried out as Torrens title subdivision and can be carried out as Strata title subdivision when individual lots do not meet minimum lot size requirements.



Figure 1-15 Example of terraces with parking at rear



Upper level



Ground level



Figure 1-16 Sample plan of terraces with car parking accessed from rear lane

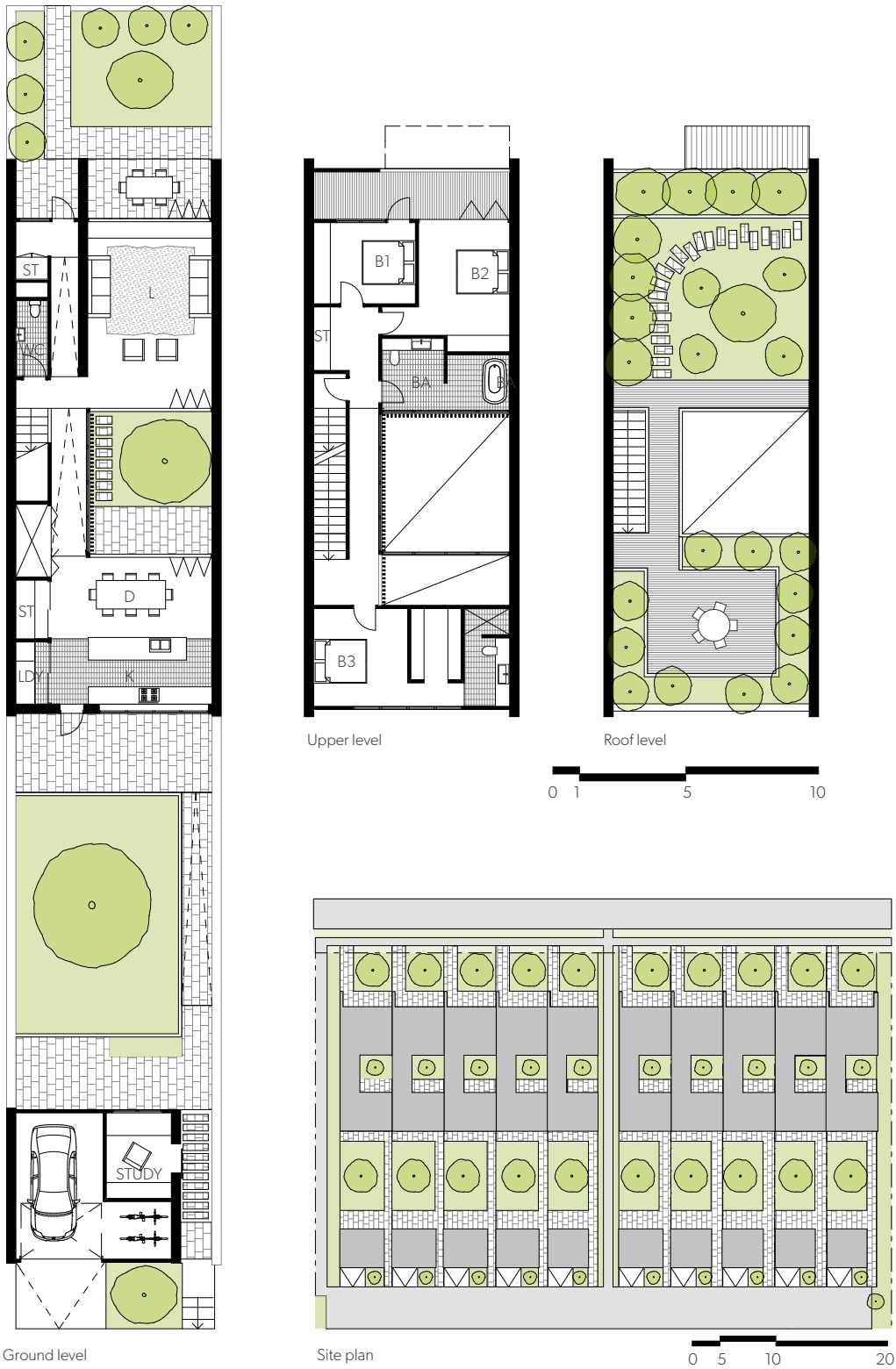


Figure 1-17 Sample detail plan of terraces car parking accessed from rear lane

Terrace Houses - Basement Car Parking

Terrace houses with basement parking typically consist of a row of two storey dwellings in a traditional terrace style, formed in a row.

This building type provides car parking in a basement under the development, accessed off the street. Direct access from the garage is provided to the dwelling. By removing car parking from the front streetscape to the basement, a more aesthetically pleasing repetitive pattern of terrace houses with front gardens and entry paths form the streetscape.

This is ideal where there is no rear lane access and areas with sloping terrain where the car park entrance can be located at the lowest point on the lot.

Each dwelling is orientated front to back, with private open space typically arranged at the rear of the property. This achieves good visual privacy outcomes between dwellings and minimises privacy issues to adjoining neighbouring properties.

Context and subdivision

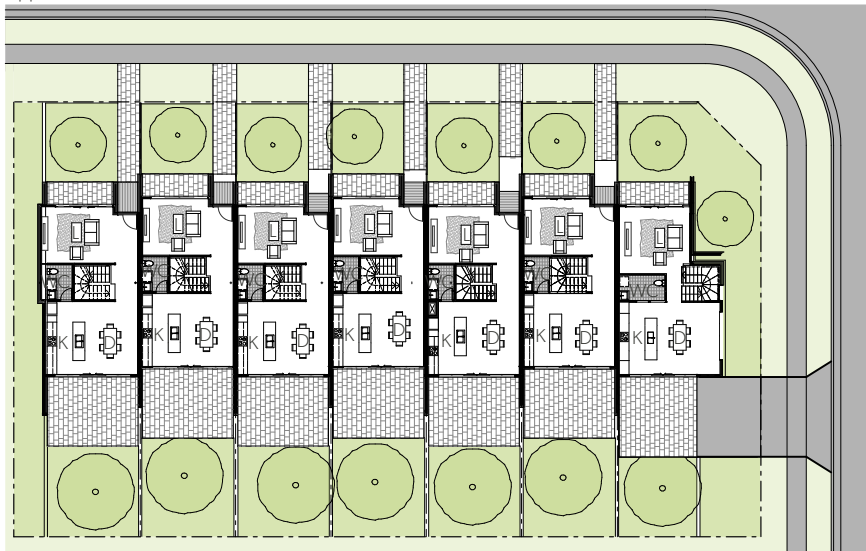
- This building type is best suited to wide shallow lots or amalgamated sites.
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape or in urban infill areas.
- This building type may typically be more expensive to construct but achieves some of the best streetscape and landscaping outcomes.
- This building type is popular in high property value areas, where the costs of basement construction can be offset by higher dwelling prices.
- This building type is most commonly carried out as strata title subdivision due to the use of common access and circulation through basement car parking. However, if basement car parking aligns with the above dwellings, Torrens title subdivision is possible with the use of easements in smaller developments.



Figure 1-18 Example of terraces with basement car parking



Upper level



Ground level



Basement level

0 1 5 10

Figure 1-19 Sample plan of terraces with basement car parking

Manor House

This form of development contains three or four dwellings in a two storey building. Historically, this building type contains two dwellings on the ground floor and two located directly above.

Manor houses often have a common entry, however the entry to the ground floor and upper level apartments may also be separate.

This form of dwelling is useful to provide a more affordable housing type within a low and medium density context. The level floor plates also provide good accessibility for seniors or persons with a disability.

To reduce the impact on the streetscape and surrounds, the scale of a manor house is designed to be similar to an oversized double storey dwelling house.

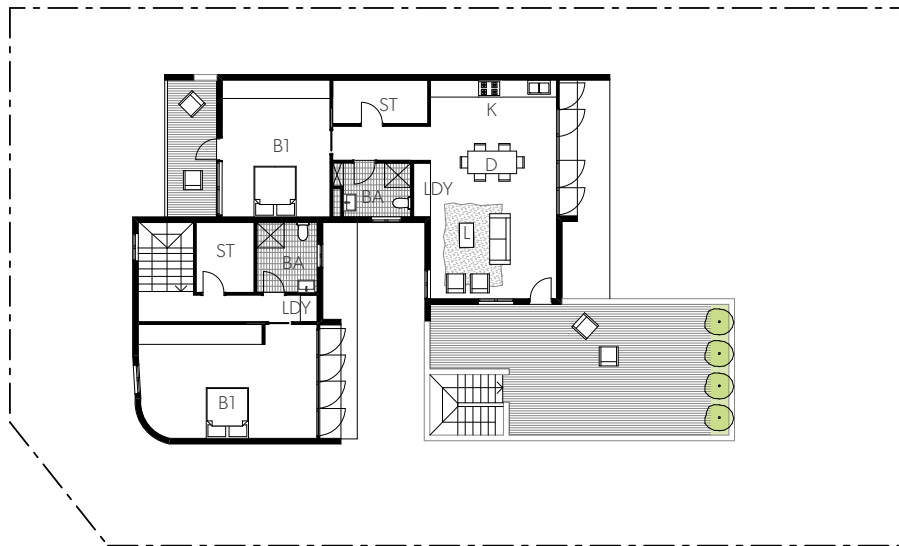
Private open space can be obtained by the use of balconies and communal private open space in the rear of the development.

Context and subdivision

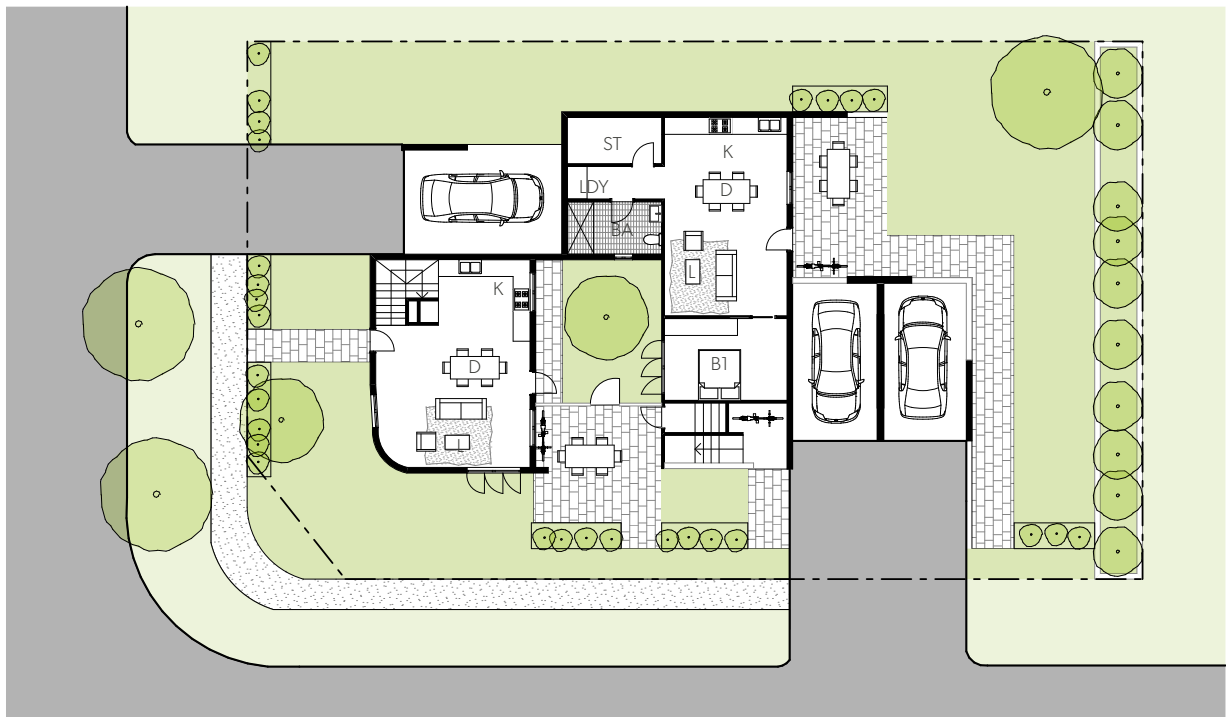
- This building type is best suited to corner lots or lots with rear lane access to accommodate garages and car parking.
- This building type is carried out as strata title subdivision, with a common entry and internal hallway.
- Typically a lot width of 15 metres is required to achieve setback requirements and sufficient space for car parking.



Figure 1-20 Example of manor house on a corner lot



Upper level



Ground level



Figure 1-21 Sample plan of manor house with three dwellings on a corner lot

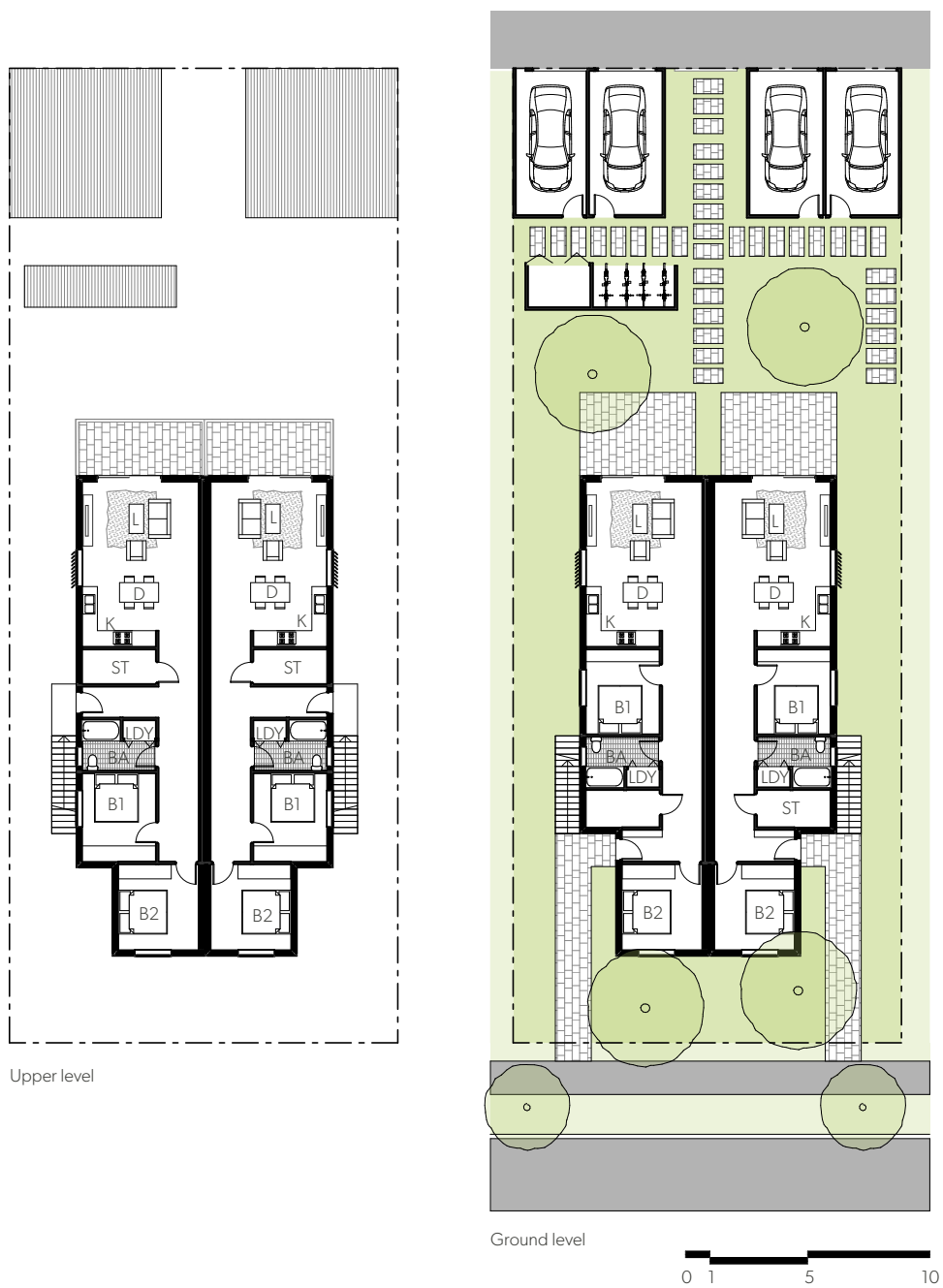
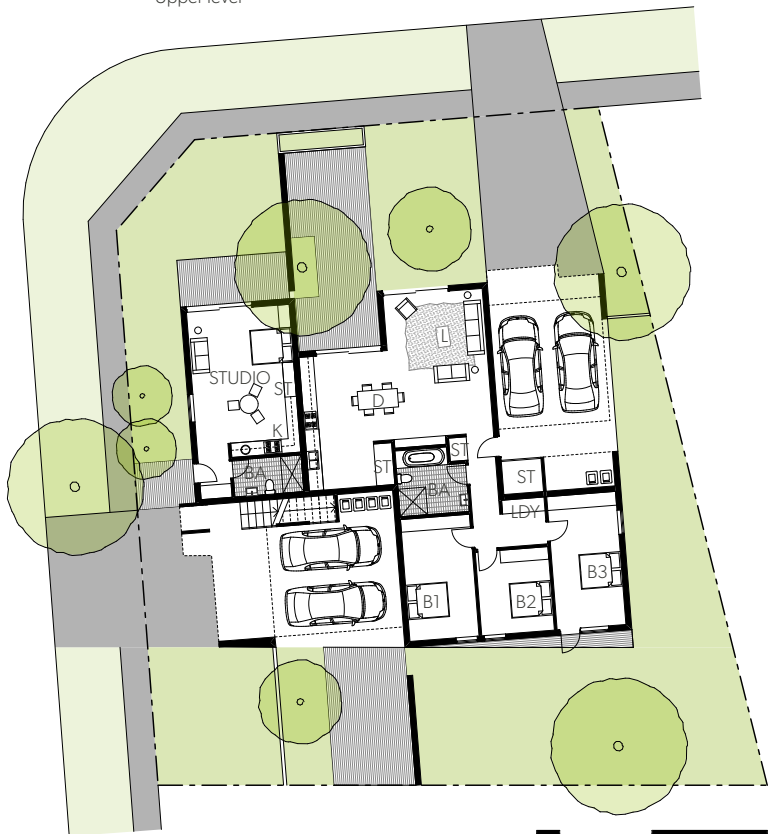


Figure 1-22 Sample plan of manor house with four dwellings and parking accessed from the rear laneway or street



Upper level



Ground level



Figure 1-23 Sample plan of manor house with four dwellings on corner site



Figure 1-24 Sample plan of manor house with three dwellings and basement parking

Multi Dwelling Housing

This form of development contains three or more attached or detached dwellings arranged around an internalised street and lane network. Two storey forms of this development are referred to as townhouses, and single storey forms as villas.

This form of development can be useful where the existing subdivision pattern contains large lots, or in mid-block where there is a need to create new internal streets to break up large blocks. New streets and lanes can be designed to connect through to existing streets.

Vehicle and pedestrian access to the dwellings should take the form of new streets, with clearly defined 'public' and private space.

To reduce the impact on neighbouring properties, dwellings are ideally arranged parallel to the existing street pattern.

Basement car parking can maximise the development potential for the site as less of the site is dedicated to vehicle circulation. Poor design outcomes can result from this typology when a majority of the site is given over to driveway access, and paved areas dominate the view from the street.

Context and subdivision

- This building type is best suited to wide lots or lots amalgamated to connect two existing streets.
- Larger lots can create a network of streets and lanes to increase permeability and provide each dwelling with a new 'street' address.
- This building type is carried out as strata title subdivision, larger sites may contain a mix of torrens title with streets dedicated for public use or under community title
- Typically a lot width of at least 20m is required, however better outcomes are achieved when the lot is greater than 24m.
- In more urban areas more compact forms with reduced setbacks can create courtyard housing.
- Consider how an area will transition in setting setbacks and location of landscaped area
- Opportunities in larger developments for pocket parks as communal open space.



Figure 1-25 Example of multi-dwelling housing with pedestrian street access



Figure 1-26 Sample plan of multi dwelling housing arranged in a 'mews' style with internal lanes

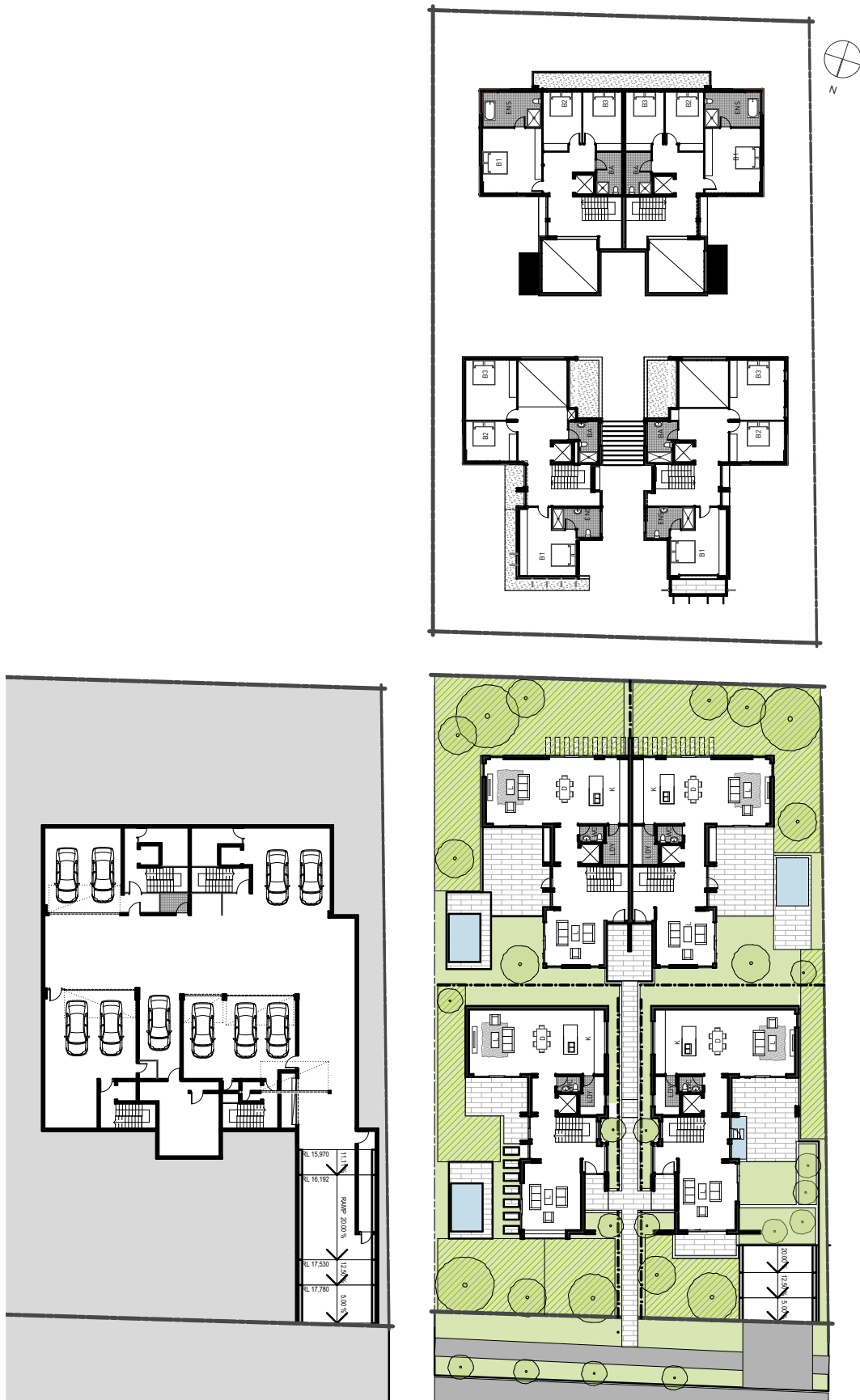


Figure 1-27 Example of multi-dwelling housing with pedestrian street access and basement car parking

2

Design Criteria

This Section provides the specific Objectives and Design Criteria that relate to the different types of low rise medium density housing.

A development application must be consistent with the Objectives in this section.

2.1



**Dual
Occupancy
(side by side)**

2.1 Dual occupancy (side by side)

This Section provides the Objectives and Design Criteria for development that contains two dwellings that are located side by side.

Key characteristics of development to which this Section applies are:

- The dwellings are located side by side and each dwelling has a frontage to a public road;
- There are no other dwellings above or below any of the dwellings; and
- Each dwelling has private open space generally located near or at ground level.

Permissibility

Development types that can use this Section include:

- Dual occupancy (attached) - 2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling; and
- Dual occupancy (detached) - 2 detached dwellings on one lot of land, but does not include a secondary dwelling.

The development type must be permissible on the lot on which the development is proposed. The LEP that applies to the land will indicate if the development is permissible.

The relevant development type is the description of the development as proposed, including any subdivision. For example, construction of an attached dual occupancy (two dwellings side by side) and Torrens title subdivision.

Subdivision

Subdivision allows separate ownership of the two dwellings constructed under this Section.

Development carried out under this Section may receive concurrent approval for the development and for the strata or Torrens title subdivision.

Certain LEPs may not permit subdivision of a dual occupancy. If this is the case, the subdivision is not permitted.

Understanding the proposed subdivision is important as the development standards for gross floor area and landscaped area apply differently for each subdivision type.

Strata title

A dual occupancy that is strata subdivided will result in two dwellings on one lot of land.

A dual occupancy may be strata titled either because the individual dwellings do not meet the minimum lot size requirements for Torrens title subdivision, or they have basement car parking or other common property that does not enable simple Torrens title subdivision.

The dwellings to be strata subdivided can be attached or detached.

Torrens title

A dual occupancy may be Torrens title subdivided to create two dwelling houses or a semi-detached dwelling. At the completion of the development, each dwelling is located on a separate Torrens title lot with separate ownership of the lots.

Each lot that proposes to be the Torrens title subdivision must comply with the minimum lot sizes specified in the LEP.

Development Application

A development application can be submitted where the development is permissible in the zone.

This Section is to be used with the following documents:

- Local Environmental Plan (LEP) for permissibility, development standards and controls
- Development Control plan for local character, built form controls, parking, waste and stormwater requirements
- Other SEPPs and regulations where relevant.

A summary of the steps required to prepare a DA is provided in Figure 2.1-1.

A qualified designer or a building designer that is accredited by the Building Designers Association of Australia is to certify that the design of the development is consistent with the Design Criteria in the Design Verification Statement.



Figure 2.1-1 Workflows: Preparing a DA

Using this Section

This Section contains Objectives and Design Criteria.

Objectives : relate to the Design Principles and set out what the design should achieve.

Design Criteria: are the measurable standards that are deemed to meet the Objectives.

The development application proposal is merit assessed.

If the development application cannot meet the Design Criteria then the consent authority is to be flexible in applying these provisions and allow reasonable alternative solutions that achieve the relevant Objectives.

Section 3 provides explanatory guidance to assist with the interpretation of terms used in this Section.



Figure 2.1-2 Dual occupancy (side by side)

2.1A Building Envelopes

Summary Development Standard	
Maximum height of building	The maximum building height as specified in the LEP.

Objectives	Design Criteria																
<p>Objective 2.1A-1</p> <p>The building height is consistent with the desired scale and character of the street and locality and provides an acceptable impact on the amenity of adjoining properties.</p>	<ol style="list-style-type: none"> Where the LEP or DCP does not include a maximum building height, that height of buildings is: <ul style="list-style-type: none"> 8.5m, or For detached dual occupancies in a battle axe arrangement, the dwelling furthest from the street: 5.4m. The maximum number of storeys excluding basements is: <ul style="list-style-type: none"> 2, or For detached dual occupancies in a battle axe arrangement, the dwelling furthest from the street: 1 																
<p>Objective 2.1A-2</p> <p>The development provides a setback from the front boundary or public space that:</p> <ul style="list-style-type: none"> defines the street edge; creates a clear threshold and transition from public to private space; assists in achieving visual privacy to ground floor dwellings from the street; contributes to the streetscape character and landscape; and relates to the existing streetscape and setback pattern or the desired future streetscape pattern if different to the existing. 	<ol style="list-style-type: none"> Refer to the DCP for front setback or envelope controls. Where the DCP does not contain front setback controls the following apply: <ul style="list-style-type: none"> Where existing dwelling houses or dual occupancies are within 40m of the development - average of the two closest dwelling houses or dual occupancies. Where no existing dwelling houses or dual occupancies are within 40m of the development then the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900</td> <td>4.5m</td> </tr> <tr> <td>>900 - 1500</td> <td>6.5m</td> </tr> <tr> <td>>1500</td> <td>10m</td> </tr> </tbody> </table> Where the DCP does not contain setback controls for secondary roads the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900</td> <td>2m</td> </tr> <tr> <td>>900 - 1500</td> <td>3m</td> </tr> <tr> <td>>1500</td> <td>5m</td> </tr> </tbody> </table> Setback from a boundary with a parallel road: 3m, unless in the case of a dual occupancy (detached), 1 of the dwellings in the dual occupancy faces the parallel road, in which case the setback is to be the same as a primary road. Setback from classified road: 9m. Setback from public reserve: 3m. 	Lot Area (m ²)	Setback	0 - 900	4.5m	>900 - 1500	6.5m	>1500	10m	Lot Area (m ²)	Setback	0 - 900	2m	>900 - 1500	3m	>1500	5m
Lot Area (m ²)	Setback																
0 - 900	4.5m																
>900 - 1500	6.5m																
>1500	10m																
Lot Area (m ²)	Setback																
0 - 900	2m																
>900 - 1500	3m																
>1500	5m																

Objective 2.1A-3

The development provides side boundary setbacks that reflects the character and separation of buildings within the surrounding area.

9. Refer to the DCP for side setback or envelope controls.

10. Where the DCP does not contain side setback controls the following apply:

Lot width at the building line (m)	Building height	Minimum required setback from each side boundary
0 – 24	0m – 4.5m	0.9m
	> 4.5m – 8.5m	= (building height – 4.5m) ÷ 4 + 0.9m
> 24 – 36	0m – 4.5m	1.5m
	> 4.5m – 8.5m	= (building height – 4.5m) ÷ 4 + 1.5m
> 36	0m – 8.5m	2.5m

See Figures 3-8 to 3-9 in section 3 of this Design Guide.

Objective 2.1A-4

The development provides a rear boundary setback that provides opportunity to retain and protect or establish significant landscaping and trees in deep soil areas.

11. Refer to DCP for rear setback or envelope controls.

12. Where the DCP does not contain rear setback controls the following apply:

Lot Area (m ²)	Building height	Minimum required setback from Rear boundary
0 - 900	0m – 4.5m	3m
	> 4.5m	8m
>900 - 1500	0m – 4.5m	5m
	> 4.5m	12m
>1500	0m - 4.5m	10m
	> 4.5m	15m

13. The setback to a lane is 0m.

Notes:

1. When applying primary road, secondary road and rear setbacks – the lot area refers to the lot area prior to any subdivision.
2. The side setbacks only apply to the side boundaries of the lot prior to any subdivision.
3. Setbacks do not apply to the following: access ramps, down pipes, driveways or hard standard spaces, electricity or gas meters, fascias, fences, gutters, light fittings, pathways and paving, privacy screens fixed to the building.
4. If a dual occupancy on a corner lot has dwelling fronting different roads, the rear of each dwelling is to be treated as a side for the purposes of determining the setbacks required under this clause.
5. Refer to Section 3 for an explanation of the application of setbacks.

2.1B Gross Floor Area / Floor Space Ratio

Summary Development Standard							
Gross Floor Area / Floor Space Ratio	The floor space ratio / gross floor area as specified in the LEP.						
Objectives	Design Criteria						
<p>Objective 2.1B-1</p> <p>To ensure that the bulk and scale is appropriate for the context, minimises impacts on surrounding properties and allows for articulation of the built form.</p>	<p>14. Where the LEP or DCP do not contain an FSR or Gross floor area the following maximum gross floor area applies for all development on the site:</p> <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Maximum GFA</th> </tr> </thead> <tbody> <tr> <td>0 - 2000</td> <td>25% of lot area + 300m²</td> </tr> <tr> <td>>2000</td> <td>800m²</td> </tr> </tbody> </table>	Lot Area (m ²)	Maximum GFA	0 - 2000	25% of lot area + 300m ²	>2000	800m ²
Lot Area (m ²)	Maximum GFA						
0 - 2000	25% of lot area + 300m ²						
>2000	800m ²						

2.1C Landscaped Area

Summary Development Standard	
Landscaped Area	The minimum landscaped area as specified in the LEP.
Objectives	Design Criteria
<p>Objective 2.1C-1</p> <p>To provide adequate opportunities for the retention of existing and provision of new vegetation that:</p> <ul style="list-style-type: none"> - contributes to biodiversity; - enhances tree canopy; and - minimises urban runoff. 	<p>15. Where the LEP or DCP does not contain a minimum landscaped area the minimum landscaped area is:</p> <p>50% of the lot area minus 100m².</p> <p>16. The minimum dimension of any area included in the landscaped area calculation is 1.5m.</p> <p>17. At least 25% of the area forward of the building line is to be landscaped area.</p>

<p>Objective 2.1C-2</p> <p>Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees.</p>	<p>18. An ongoing maintenance plan is to be provided as part of the landscape plan.</p> <p>19. Minimum soil standards for plant sizes are provided in accordance with the Table below.</p> <table border="1" data-bbox="766 481 1412 728"> <thead> <tr> <th>Tree Size</th> <th>Height</th> <th>Spread</th> <th>Min Soil Area</th> <th>Min soil depth</th> </tr> </thead> <tbody> <tr> <td>Large trees</td> <td>>12m</td> <td>>8m</td> <td>10 x 10m</td> <td>1.2m</td> </tr> <tr> <td>Medium trees</td> <td>8-12m</td> <td>4-8m</td> <td>6 x 6m</td> <td>1.0m</td> </tr> <tr> <td>Small trees</td> <td>5-8m</td> <td><4m</td> <td>3.5 x 3.5m</td> <td>0.8m</td> </tr> <tr> <td>Shrubs</td> <td></td> <td></td> <td></td> <td>0.5-0.6m</td> </tr> <tr> <td>Groundcover</td> <td></td> <td></td> <td></td> <td>0.3-0.45m</td> </tr> <tr> <td>Turf</td> <td></td> <td></td> <td></td> <td>0.2m</td> </tr> </tbody> </table> <p>20. If the DCP does not specify tree planting of a particular size or species the following is to be provided:</p> <ul style="list-style-type: none"> • Front: 1 tree with mature height of 5m if primary road setback is greater than 3m. • Rear: 1 tree with mature height of 8m. 	Tree Size	Height	Spread	Min Soil Area	Min soil depth	Large trees	>12m	>8m	10 x 10m	1.2m	Medium trees	8-12m	4-8m	6 x 6m	1.0m	Small trees	5-8m	<4m	3.5 x 3.5m	0.8m	Shrubs				0.5-0.6m	Groundcover				0.3-0.45m	Turf				0.2m
Tree Size	Height	Spread	Min Soil Area	Min soil depth																																
Large trees	>12m	>8m	10 x 10m	1.2m																																
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Groundcover				0.3-0.45m																																
Turf				0.2m																																
<p>Objective 2.1C-3</p> <p>Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced.</p>	<p>21. Mature trees are to be retained, particularly those along the boundary, (except those where approval is granted by Council for their removal).</p> <p>22. Landscape features including trees and rock outcrops are to be retained where they contribute to the streetscape character or are located within the rear setback.</p>																																			
<p>Objective 2.1C-4</p> <p>Landscape design contributes to a local sense of place and creates a micro climate.</p>	<p>23. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers.</p> <p>24. The landscape plan indicates that at least 50% of the overall number of trees and shrubs are species native to the region.</p>																																			

2.1D Local Character and Context

Objectives	Design Criteria
<p>Objective 2.1D-1</p> <p>The built form, articulation and scale relates to the local character of the area and the context.</p>	<p>25. Provide a description in the Design Verification Statement how the built form of the development contributes to the character of the local area, using the guidance in Section 3D Local Character and Context.</p>

2.1E Public Domain Interface

Objectives	Design Criteria
<p>Objective 2.1E-1</p> <p>Provide activation and passive surveillance to the public streets.</p>	<p>26. The front door of each dwelling is to be directly visible from the public street.</p> <p>27. Windows from habitable rooms are to overlook the public domain.</p>
<p>Objective 2.1E-2</p> <p>Front fences and walls do not dominate the public domain instead they respond to and complement the context and character of the area (including internal streets).</p>	<p>28. Private courtyards within the front setback are located within the articulation zones and / or behind the required front building line.</p> <p>29. Front fences:</p> <ul style="list-style-type: none"> • Are visually permeable (no more than 50% of the allowable fence area will be solid masonry, timber or metal). • Average height no greater than 1.2m. • Have a consistent character with other front fences in the street. • Are not to be constructed of solid metal panels or unfinished timber palings. <p>30. High solid walls are only used to shield the dwelling from the noise of classified roads. The walls are to have a maximum height of 2.1m and be setback at least 1.5m from the property boundary. Landscape planting is to be provided between the wall and the boundary, with a mature height of at least 1.5m.</p> <p>31. Retaining walls greater than 600mm within the front setback are softened by planting for a minimum depth of 600mm on the low side of the retaining wall.</p>
<p>Objective 2.1E-3</p> <p>The secondary frontage of a development positively contributes to the public domain by providing an active edge and semi-transparency to the boundary treatment.</p>	<p>32. Where the development adjoins public parks, open space, bushland, or is a corner site, the design positively addresses this interface using any of the following design solutions:</p> <ul style="list-style-type: none"> • Habitable room windows facing the public domain. • Street access, pedestrian paths and building entries. • Paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space. • Walls fronting the public spaces are to have openings not less than 25% of the surface area of the wall.

2.1F Pedestrian and Vehicle Circulation

Objective	Design Criteria
<p>Objective 2.1F-1</p> <p>Ensure there is adequate space for vehicle circulation and off-street parking.</p>	33. Vehicle circulation complies with AS2890.1.
	34. Where on street parking is currently available in front of the development, the proposed driveways are located so that at least one car space remains.
	35. Vehicular crossing is to have a maximum width of 3.5m at the street boundary.

2.1G Orientation, Siting and Subdivision

Summary Development Standard	
<i>Minimum lot size for carrying out dual occupancy development</i>	<i>The minimum lot area and / or minimum lot width as specified in the LEP.</i>
<i>Minimum lot size resulting from the subdivision of a dual occupancy</i>	<i>The minimum subdivision lot area and / or minimum lot width as specified in the LEP.</i>

Objectives	Design Criteria
<p>Objective 2.1G-1</p> <p>To achieve planned residential density consistent with the local housing strategy</p>	36. Where the LEP or DCP does not contain a minimum lot area, the minimum lot area is 400m ² .
	<p>37. Where the LEP or DCP does not contain a minimum lot width, the minimum lot width is:</p> <ul style="list-style-type: none"> • 12m measured at the building line where parking is provided from a secondary road, parallel road or lane, or • 15m measured at the building line where parking is accessible from a primary road.
<p>Objective 2.1G-2</p> <p>To ensure that lots created resulting from the subdivision of land have sufficient area for the dwelling, vehicle access, landscaping, parking and amenity and are consistent with the desired future character of an area.</p>	<p>38. If the LEP or DCP does not contain a minimum lot area for subdivision of a dual occupancy, then the following apply:</p> <ul style="list-style-type: none"> • 60% of the minimum lot area for subdivision of land as specified in the LEP that applies to the land, or , • if the LEP or DCP does not specify a minimum lot area for subdivision - 200m².
	39. The ground floor footprint of the strata area is not less than 180m ² for each dwelling.

	<p>40. The following provisions apply if no minimum lot width is specified in the LEP or DCP</p> <p>On R3 zoned land:</p> <ul style="list-style-type: none"> • Garages not fronting primary road - 5m • Garages fronting primary road - 7.5m <p>On R1, R2, & RU5 zoned land:</p> <ul style="list-style-type: none"> • Garages not fronting primary road - 6m • Garages fronting primary road - 7.5m
	<p>41. A dwelling on a proposed battle-axe lot (whether strata or Torrens title) must be a part of a detached dual occupancy and have a lot with minimum dimensions as required by the DCP or LEP. If the DCP or LEP has no control, then the minimum dimensions are:</p> <ul style="list-style-type: none"> • 4.5m wide access to the primary road • Minimum dimension of 18m x 18m.
<p>Objective 2.1G-3</p> <p>The built form, articulation and scale relates to the local character of the area and the context.</p>	<p>42. The dwelling frontage is to be at least 5m.</p>
	<p>43. Each dwelling on a corner lot is to have a frontage to a different street.</p>
<p>Objective 2.1G-4</p> <p>Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings.</p>	<p>44. A window that is more than 3m from the boundary to a living room of an adjoining dwelling is to receive more than 3 hours of direct sunlight between 9am and 3pm on the winter solstice (June 21). If the window currently receives less than 3hrs - direct sunlight is not reduced.</p> <p>Note: Direct sunlight is measured consistent with Design Criteria 51 and is only required to one window serving the living room.</p>
	<p>45. Where the location of the living room windows of an adjoining dwelling cannot be verified, the proposed development is accommodated within a building envelope defined by a 35° plane springing from 3.6m above the boundary.</p>
<p>Objective 2.1G-5</p> <p>The development responds to the natural landform of the site, reducing the visual impact and avoiding large amounts of cut and fill and minimises the impacts of retaining walls.</p>	<p>46. Dwellings are located to step with the topography.</p>
	<p>47. Unless a dwelling is over a basement, the ground floor is not more than 1.3m above ground level, and no more than 1m below ground level.</p>
<p>Objective 2.1G-6</p> <p>The development minimises impacts to vegetation on adjoining properties and allow for vegetation within the setbacks.</p>	<p>48. Basement car parking should not be provided within the setbacks described in the table in Section 2.1A.</p>

<p>Objective 2.1G-7</p> <p>Independent services and utilities are available to service each lot.</p>	<p>49. All lots must have access to reticulated water, sewer, electricity, telecommunications and where available, gas.</p>
<p>Objective 2.1G-8</p> <p>Provide adequate separation between buildings to allow for landscape, provide visual separation and daylight access between buildings</p>	<p>50. For a dual occupancy (detached) the minimum separation between two dwellings that is 3m.</p>

2.1H Solar and Daylight Access

Objective	Design Criteria
<p>Objective 2.1H-1</p> <p>To optimise sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment.</p>	<p>51. A living room or principal private open space in each dwelling is to receive a minimum of 3 hours direct sunlight between 9 am and 3 pm on the winter solstice (June 21).</p> <p>Note: Direct sunlight is achieved when 1m² of direct sunlight on the glass is received for at least 15 minutes. To satisfy 3 hours direct sunlight, 12 periods of 15 minutes will need to be achieved, however the periods do not need to be consecutive.</p>
<p>Objective 2.1H-2</p> <p>To provide good access to daylight suited to the function of the room, minimises reliance on artificial lighting, and improves amenity.</p>	<p>52. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road.</p> <p>53. No part of a habitable room is more than 8m from a window.</p> <p>54. No part of a kitchen work surface is more than 6m from a window or skylight.</p> <p>55. Courtyards are to:</p> <ul style="list-style-type: none"> • Be fully open to the sky; and • Have a minimum dimension of one third of the perimeter wall height, and an area of 4m². <p>56. A window is visible from 75% of the floor area of a habitable room.</p>

2.1I Natural Ventilation

Objectives	Design Criteria
<p>Objective 2.1I-1</p> <p>All habitable rooms are naturally ventilated.</p>	<p>57. All habitable rooms are naturally ventilated.</p> <p>58. Each dwelling is naturally cross ventilated.</p>

2.1J Ceiling Height

Objective	Design Criteria
<p>Objective 2.1J-1</p> <p>Ceiling height achieves sufficient natural ventilation and daylight access, and provides spatial quality.</p>	<p>59. Minimum ceiling heights are:</p> <ul style="list-style-type: none"> • 2.7m to ground floor habitable rooms. • 2.7m to upper level living rooms. • 2.4m to upper level habitable rooms (excluding living rooms). <p>The ceiling height is measured from finished floor level to finished ceiling level.</p>

2.1K Dwelling Size and Layout

Objective	Design Criteria
<p>Objective 2.1K-1</p> <p>The dwelling has a sufficient area to ensure the layout of rooms is functional, well organised and provides a high standard of amenity.</p>	<p>60. Dwellings are to have the following minimum internal floor areas:</p> <ul style="list-style-type: none"> • 1 bed 65m² • 2 bed 90m² • 3+ bed 115m² <p>61. The minimum internal areas outlined above only include one bathroom. The minimum area of each additional bathroom is 5m² added onto the minimum dwelling area.</p> <p>62. The minimum area of any additional bedroom is 12m². The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 60.</p> <p>63. Kitchens are not part of a circulation space, such as a hallway.</p>
<p>Objective 2.1K-2</p> <p>Room sizes are appropriate for the intended purpose and number of occupants.</p>	<p>64. One bedroom has a minimum area of 10m², excluding wardrobe space.</p> <p>65. Bedrooms have a minimum length and width of 3m, excluding wardrobe space.</p> <p>66. Combined living and dining rooms have a minimum area of:</p> <ul style="list-style-type: none"> • 1 and 2 bed 24m² • 3+ bed 28m² <p>67. Living room or lounge rooms are to have a minimum length and width of 4m, excluding fixtures.</p>

2.1L Principal Private Open Spaces

Objectives	Design Criteria
<p>Objective 2.1L-1</p> <p>Dwellings provide appropriately sized private open space and balconies to enhance residential amenity.</p>	<p>68. The area of principal private open space provided for each dwelling is at least 16m² with a minimum length and width of 3m.</p>
<p>Objective 2.1L-2</p> <p>Principal private open space and balconies are appropriately located to enhance liveability for residents.</p>	<p>69. The principal private open space is located behind the front building line.</p>
	<p>70. The principal private open space is located adjacent to the living room, dining room or kitchen to extend the living space.</p>
	<p>71. 25% of the private open space is to be covered to provide shade and protection from rain.</p>

2.1M Storage

Objectives	Design Criteria
<p>Objective 2.1M-1</p> <p>Adequate, well-designed storage is provided in each dwelling.</p>	<p>72. In addition to storage in kitchens and bedrooms, the following storage with a minimum dimension of 500mm is provided:</p> <ul style="list-style-type: none"> • 1 bed 6m³ • 2 bed 8m³ • 3+ bed 10m³
	<p>73. At least 50% of the required storage is located inside the dwelling.</p>
	<p>74. Storage not located in dwellings is secure and clearly allocated to specific dwellings, if in a common area.</p>

2.1N Car and Bicycle Parking

Objectives	Design Criteria
<p>Objective 2.1N-1</p> <p>Car parking is provided appropriate for the scale of the development.</p>	<p>75. Car parking is to be provided at the rate required for a dual occupancy within the DCP that applies to the land. If there is no rate in the DCP - 1 space per dwelling is to be provided.</p>
	<p>76. Car parking spaces and circulation are to comply with AS 2890.1:2004.</p>
	<p>77. Covered space is to be provided for the secure storage of at least 1 bicycle per dwelling.</p>
<p>Objective 2.1N-2</p> <p>Parking facilities are provided for bicycles.</p>	

Objective 2.1N-3

Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale in relationship with the dwelling.

78. Basement car parking is not to protrude more than 1m above finished ground level except at the entrance to the car park.

79. The maximum dimensions of any basement car park entry is to be 2.7m high by 3.5m wide.

80. Where a driveway is adjacent to an existing tree, it is either outside the drip line or complies with the recommendations in a report prepared by a qualified arborist.

81. The setback of a car space from a primary, secondary or parallel road is to be at least:

Setback of Dwelling from Road	Minimum Off-Street Parking Setback From Road
<4.5m	5.5m
4.5m or more	1m behind the building line

82. The maximum width of all garage doors facing a primary or secondary road:

Lot Width	Maximum Width of Garage Door Openings
12m - 15m	3.2m
>15m - 20m	6m
>20m	9.2m
>25m	12m

Note: Lot width refers to the completed Torrens title lot or in the case of a strata subdivision being the development site.

83. The maximum width of all garage doors facing a parallel road:

Lot Width	Maximum Width of Garage Door Openings
12m - 15m	6m
>15m - 20m	9.2m
>20m	12m

2.1O Visual Privacy

Objectives	Design Criteria												
<p>Objective 2.1O-1</p> <p>The separation of windows and terraces, decks and balconies within a site and to adjoining existing or future buildings provide a degree of visual privacy without the reliance on fixed screening.</p>	<p>84. Orientate living room windows, primary private open space to the street front or rear.</p> <p>85. At least one window for each habitable room is provided without the need for a privacy screen.</p> <p>86. A privacy screen is required when:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Boundary</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Windows in Dwelling on Same Lot</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 3m</td> </tr> <tr> <td><12m</td> <td>>3m</td> </tr> </tbody> </table> <p>Note: This does not apply to a habitable room with a floor level not more than 1m above ground level (existing), bedroom windows that have an area less than 2m² or windows that have a frontage to a road or public open space.</p>	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 3m	<12m	>3m
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Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)												
<6m	1 - 3m												
<12m	>3m												
<p>Objective 2.1O-2</p> <p>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.</p>	<p>87. A privacy screen is required at the edge of that part of a terrace, deck, balcony or verandah that is parallel or faces towards a side or rear boundary.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Boundary</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Windows in Dwelling on Same Lot</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 2m</td> </tr> <tr> <td><12m</td> <td>>2m</td> </tr> </tbody> </table> <p>Note: This does not apply to a terrace, deck, balcony or patio that has an area less than 3m² or has a frontage to a road or public open space.</p>	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 2m	<12m	>2m
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<12m	>2m												
<p>Objective 2.1O-2</p> <p>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.</p>	<p>88. Where privacy screens are provided to windows, they must not cover part of the window required to meet the minimum daylight or solar access requirements, or restrict ventilation.</p>												

2.1P Acoustic Privacy

Objectives	Design Criteria
<p>Objective 2.1P-1</p> <p>Noise transfer is minimised through the siting of buildings and building layout.</p>	<p>89. Electrical, mechanical, hydraulic and air conditioning equipment is housed so that it does not create an 'offensive noise' as defined in the <i>Protection of the Environment Operations Act 1997</i> either within or at the boundaries of any property at any time of the day.</p>

2.1Q Noise and Pollution

Objectives	Design Criteria
<p>Objective 2.1Q-1</p> <p>Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings.</p>	<p>90. Any development within the 20 ANEF contour is to be constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion.</p> <p>91. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures not exceeding:</p> <ul style="list-style-type: none"> • In any bedroom: 35dB(A) between 10pm-7am. • Anywhere else in the building (other than a kitchen, garage, bathroom or hallway): 40dB(A) at any time. <p>This is achieved by:</p> <ul style="list-style-type: none"> • Providing a full noise assessment prepared by a qualified acoustic engineer; and • Complying with relevant noise control treatment for sleeping areas and other habitable rooms in Appendix C of <i>RMS Development Near Rail Corridors and Busy Roads - Interim Guideline</i>.

Note: Development that is on land immediately adjacent to a rail corridor and development that involves penetration of the ground to a depth of 2m within 25m of a rail corridor may be integrated development and *State Environmental Planning Policy (Infrastructure) 2007* applies.

2.1R Architectural Form and Roof Design

Objectives	Design Criteria
<p>Objective 2.1R-1</p> <p>The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape.</p>	<p>92. Provide in the Design Verification Statement a description as to how the architectural form reduces the visual bulk and provides a cohesive design response.</p> <p>Note: Refer to Section 3 for guidance.</p>
<p>Objective 2.1R-2</p> <p>The roof treatments are integrated into the building design and positively respond to the street.</p>	<p>93. Provide in the Design Verification Statement how the roof design integrates harmoniously with the overall building form</p> <p>94. Skylights and ventilation systems are integrated into the roof design.</p>

2.1S Visual Appearance and Articulation

Objectives	Design Criteria
<p>Objective 2.1S-1</p> <p>To promote well designed buildings of high architectural quality that contribute to the local character.</p>	<p>95. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.</p> <p>Note: Refer to Section 3 for guidance.</p> <hr/> <p>96. The development may have a primary road articulation zone that extends up to 1.5m forward of the minimum required setback from the primary road.</p> <p>The following elements can be located in the articulation zone:</p> <ul style="list-style-type: none"> • An entry feature or portico. • A balcony, deck, pergola, terrace or verandah. • A window box treatment. • A bay window or similar feature. • An awning or other feature over a window. • A sun shading feature. • An eave. • An access ramp.

2.1T Pools and Detached Development

Objectives	Design Criteria
<p>Objective 2.1T-1</p> <p>The location of swimming pools and spas minimise the impacts on adjoining properties.</p>	<p>97. Swimming pools and spas are to have a maximum height above ground level (existing):</p> <ul style="list-style-type: none"> • At the water line – 1.2m, • At the top of the coping - 1.4m, and • Where the coping is more than 300mm wide – 600mm. <hr/> <p>98. Swimming pools and spas are to be located in the rear yard with a minimum setback of 1m from any side or rear boundary.</p> <hr/> <p>99. The swimming pool pump must be located in an enclosure that is sound proofed.</p>

Objective 2.1T-2

The location of the detached development minimises the impact on adjoining properties.

100. Maximum height above ground level (existing) - 4.5m.

101. A detached studio with a frontage to a rear lane or parallel road may have a height of 6m.

102. Maximum floor area for detached development:

- generally: 45m²
- detached studios: 36m²

103. Where the DCP does not contain setbacks for detached development, side setbacks are the same as for the dwelling except for the following:

- side setback: 0.9m, or
- side setback with wall height less than 3.3m: 0m, and adjoining lot building is <0.9m from boundary and building wall is of masonry construction with no windows,
- side setback of detached studio with frontage to a lane: 0m
- side setback of detached studio without a frontage to a lane:

Lot Width at building line	Rear setback
0 - 18m	900mm
>18m	1.5m

104. Where the DCP does not contain setbacks for detached development, rear setbacks are:

Lot Area	Rear setback
0 - 900m ²	900mm
>900-1500m ²	1.5m
>1500m ²	2.5m

105. The maximum floor level of a detached deck, patio, pergola or terrace that is less than 0.9m from the side boundary is 0.6m above ground level (existing).

Note: A child-resistant barrier must be constructed or installed in accordance with the requirements of the Swimming Pools Act 1992.

Note: Privacy and building separation and other Design Criteria still apply.

2.1U Energy Efficiency

Objectives	Design Criteria
<p>Objective 2.1U-1</p> <p>The development incorporates passive environmental design.</p>	106. An outdoor area for clothes drying that can accommodate at least 16 lineal metres of clothes line is provided for each dwelling.
	107. Any clothes drying area is screened from public and communal areas.

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum energy consumption target.

2.1V Water Management and Conservation

Objectives	Design Criteria
<p>Objective 2.1V-1</p> <p>Flood management systems are integrated into site design.</p>	108. A stormwater system must: <ul style="list-style-type: none"> • Comply with requirements in the DCP that applies to the land. • Be approved (if required) under s.68 of the Local Government Act 1993.
	109. Detention tanks are to be located under paved areas, driveways or in basements.

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum water consumption target.

2.1W Waste Management

Objectives	Design Criteria
<p>Objective 2.1W-1</p> <p>Waste storage facilities meet the needs of the residents, are easy to use and access, and enable efficient collection of waste.</p>	110. Provide storage space for the type and number of bins designated in council’s waste policy.
	111. Where waste storage is provided in a communal area, access to this waste area is to be provided for all residents without crossing a private lot.
	112. Where waste storage is provided in the basement car park, a maximum ramp gradient of 1:6 is to be provided to the waste collection point.
	113. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.
	114. Any communal waste area is to: <ul style="list-style-type: none"> • provide water supply for cleaning, • have a solid floor grated to a floor waste (connected to sewer), and • be designed to meet the requirements of council’s waste policy.

	<p>115. Despite any requirements in council's waste policy, on-site waste vehicle access is not required.</p> <p>Note: The waste collection point is typically located on the footpath.</p>
	<p>116. If a waste collection point is provided on-site and used for permanent storage of bins it is to:</p> <ul style="list-style-type: none"> • be screened from view from the public domain, • have a height no greater than 1.3m if forward of the building line, • be less than 10m from the street boundary, • be located on a surface with a gradient less than 1:20, • not require access through a security door or gate (unless this is permitted by council's waste policy), and • have a path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps to all for the transfer of bins to the collection vehicle.
<p>Objective 2.1W-2</p> <p>Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents.</p>	<p>117. Storage areas for rubbish and recycling bins are to be provided:</p> <ul style="list-style-type: none"> • Within garages; • In a screened enclosure that is part of the overall building design; or • In the basement car park. <p>118. Communal waste areas are to be located at least 3m from any bedroom or living room window.</p>



2.2

***Manor house and
dual occupancy
(one above the
other)***

2.2 Manor house and dual occupancies (one above the other)

This Section provides the Objectives and Design Criteria for development that contains a manor house or a dual occupancy where one dwelling is located above the other.

Key characteristics of development to which this Section applies are:

- Dwellings are located above other dwellings in the development;
- Development can contain up to four dwellings; and
- Development is typically strata titled with common areas for circulation, parking and landscaped areas.

Permissibility

Development types that can use this Section include:

- Dual occupancy (one above the other) where two dwellings on one lot of land are attached to each other, but does not include a secondary dwelling. Dual occupancies must be a permissible land use for this type of development to be carried out.
- Manor houses where three or four dwellings are on one lot of land, where each dwelling is attached to another dwelling by a common wall and/or floor, but cannot be characterised as multi dwelling housing.

The development type must be permissible on the land on which the development is proposed. The LEP that applies to the land will indicate if the development is permissible.



Figure 2.2-1 Manor House - 3 dwellings

Strata title subdivision

When subdivided:

- A dual occupancy will contain two dwellings on one lot; and
- A manor house will contain three or four dwellings on one lot. These may be strata titled to allow for separate ownership of each dwelling.

Development that complies with this Section may receive development approval for the development and strata title subdivision.

Development Application

A development application can be submitted where the development is permissible in the zone.

This section is to be used with the following documents:

- Local Environmental Plan (LEP) for permissibility, development standards and controls



Figure 2.2-2 Workflows: Preparing a DA

- Development Control plan for local character, built form controls, parking, waste and stormwater requirements
- SEPPs and regulations where relevant.

A summary of the steps required to prepare a DA is provided in Figure 2.2-2.

A qualified designer or a building designer that is accredited by the Building Designers Association of Australia is to certify that the design of the development is consistent with the Design Criteria in the Design Verification Statement.

Using this Section

This Section contains Objectives and Design Criteria.

Objectives relate to the Design Principles and set out what the design should achieve

Design Criteria: are the measurable standards that are deemed to meet the Objectives.

The development application proposal is merit assessed.

If the development application cannot meet the Design Criteria then the consent authority is to be flexible in applying these provisions and allow reasonable alternative solutions that achieve the relevant Objectives.

Section 3 provides explanatory guidance to assist with the interpretation of terms used in this Section.

2.2A Building Envelopes

Summary Development Standard	
Height of Building	The maximum building height as specified in the LEP.

Objectives	Design Criteria														
<p>Objective 2.2A-1</p> <p>The building height is consistent with the desired scale and character of the street and locality and provides an acceptable impact on the amenity of adjoining properties.</p>	<p>1. Where the LEP or DCP does not include a maximum building height, that height of buildings is: 8.5m.</p>														
<p>Objective 2.2A-2</p> <p>The development provides a setback from the front boundary or public space that:</p> <ul style="list-style-type: none"> defines the street edge; creates a clear threshold and transition from public to private space; assists in achieving visual privacy to ground floor dwellings from the street; contributes to the streetscape character and landscape; and relates to the existing streetscape and setback pattern or the desired future streetscape pattern if different to the existing. 	<p>2. The maximum number of storeys excluding basements is: 2</p> <p>3. Refer to the DCP for front setback or envelope controls.</p> <p>4. Where the DCP does not contain front setback controls the following should apply:</p> <ul style="list-style-type: none"> Where existing dwellings are within 40m - average of the two closest dwelling houses, dual occupancies or multi dwelling housing terraces. Where no existing dwellings are within 40m then: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900</td> <td>4.5m</td> </tr> <tr> <td>>900 - 1500</td> <td>6.5m</td> </tr> <tr> <td>>1500</td> <td>10m</td> </tr> </tbody> </table> <p>5. Where the DCP does not contain setback controls for secondary roads or to public reserves the following apply:</p> <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 1500</td> <td>3m</td> </tr> <tr> <td>>1500</td> <td>5m</td> </tr> </tbody> </table> <p>6. Setback from a parallel road for manor house or dual occupancy (one above the other): 3m.</p> <p>7. Setback from classified road: 9m</p> <p>8. Setback from public reserve: 3m</p>	Lot Area (m ²)	Setback	0 - 900	4.5m	>900 - 1500	6.5m	>1500	10m	Lot Area (m ²)	Setback	0 - 1500	3m	>1500	5m
Lot Area (m ²)	Setback														
0 - 900	4.5m														
>900 - 1500	6.5m														
>1500	10m														
Lot Area (m ²)	Setback														
0 - 1500	3m														
>1500	5m														
<p>Objective 2.2A-3</p> <p>The development provides side boundary setbacks that reflect the character and form intent of the area where is characterised by the separation of buildings.</p>	<p>9. Refer to the DCP for side boundary setbacks or envelope controls.</p> <p>10. Where the DCP does not contain side setback controls the following should apply:</p> <ul style="list-style-type: none"> not more than 10m from the front building line - 1.5m greater than 10m from front building line - building envelope defined by a 45° plane 3m above the boundary. <p>See Figures 3-8 to 3-9 in section 3 of this Design Guide.</p>														

Objective 2.2A-4

The development provides a rear boundary setback that provides opportunity to retain and protect or establish significant landscape trees in deep planting areas.

11. Refer to the DCP for rear boundary setbacks or envelope controls.
12. Where the DCP does not contain rear setback controls the following apply:

Lot Area (m ²)	Building height	Minimum required setback from Rear boundary
0 - 1500	0m – 4.5m	6m
	> 4.5m	10m
>1500	0m - 4.5m	10m
	> 4.5m	15m
13. The setback to a lane is 0m

Notes:

1. When applying primary road, secondary road and rear setbacks – the lot area refers to the lot area prior to any subdivision.
2. The side setbacks only apply to the side boundaries of the lot prior to any subdivision.
3. Setbacks do not apply to the following: access ramps, down pipes, driveways or hard standard spaces, electricity or gas meters, fascias, fences, gutters, light fittings, pathways and paving, privacy screens fixed to the building.
4. Refer to Section 3 for an explanation of the application of setbacks.

2.2B Gross Floor Area / Floor Space Ratio

Summary Development Standard

Gross Floor Area / Floor Space Ratio

The floor space ratio / gross floor area as specified in the LEP.

Objectives

Objective 2.2B-1

To ensure that the bulk and scale is appropriate for the context, minimises impacts on surrounding properties and allows for articulation of the built form.

Design Criteria

14. Where the LEP or DCP do not contain an FSR or Gross floor area the following maximum gross floor area applies for all development on the site:
25% of lot area + 150m² to a maximum of 400m².

2.2C Landscaped Area

Summary Development Standard	
Landscaped Area	The minimum landscaped area as specified in the LEP.

Objectives	Design Criteria																																			
<p>Objective 2.1C-1</p> <p>To provide adequate opportunities for the retention of existing and provision of new vegetation that:</p> <ul style="list-style-type: none"> - contributes to biodiversity; - enhances tree canopy; and - minimises urban runoff. 	<p>15. Where the LEP or DCP do not contain a minimum landscaped area the minimum landscaped area is:</p> <p>50% of lot area minus 100m²</p> <p>16. The minimum dimension of any area included in the landscaped area calculation is 1.5m</p> <p>17. At least 50% of the area forward of the building line is to be landscaped area.</p>																																			
<p>Objective 2.2C-2</p> <p>Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees.</p>	<p>18. An ongoing maintenance plan s to be provided as part of the landscape plan.</p> <p>19. Minimum soil standards for plant sizes are provided in accordance with the Table below.</p> <table border="1"> <thead> <tr> <th>Tree Size</th> <th>Height</th> <th>Spread</th> <th>Min Soil Area</th> <th>Min soil depth</th> </tr> </thead> <tbody> <tr> <td>Large trees</td> <td>>12m</td> <td>>8m</td> <td>10 x 10m</td> <td>1.2m</td> </tr> <tr> <td>Medium trees</td> <td>8-12m</td> <td>4-8m</td> <td>6 x 6m</td> <td>1.0m</td> </tr> <tr> <td>Small trees</td> <td>5-8m</td> <td><4m</td> <td>3.5 x 3.5m</td> <td>0.8m</td> </tr> <tr> <td>Shrubs</td> <td></td> <td></td> <td></td> <td>0.5-0.6m</td> </tr> <tr> <td>Groundcover</td> <td></td> <td></td> <td></td> <td>0.3-0.45m</td> </tr> <tr> <td>Turf</td> <td></td> <td></td> <td></td> <td>0.2m</td> </tr> </tbody> </table> <p>20. If the DCP does not specify tree planting of a particular size or species the following is to be provided:</p> <ul style="list-style-type: none"> • Front: 1 tree with mature height of 5m if primary road setback is greater than 3m. • Rear: 1 tree with mature height of 8m. 	Tree Size	Height	Spread	Min Soil Area	Min soil depth	Large trees	>12m	>8m	10 x 10m	1.2m	Medium trees	8-12m	4-8m	6 x 6m	1.0m	Small trees	5-8m	<4m	3.5 x 3.5m	0.8m	Shrubs				0.5-0.6m	Groundcover				0.3-0.45m	Turf				0.2m
Tree Size	Height	Spread	Min Soil Area	Min soil depth																																
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Groundcover				0.3-0.45m																																
Turf				0.2m																																
<p>Objective 2.2C-3</p> <p>Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced.</p>	<p>21. Mature trees are to be retained, particularly those along the boundary, (except those where approval is granted by Council for their removal).</p> <p>22. Existing landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback.</p>																																			
<p>Objective 2.2C-4</p> <p>Landscape design contributes to a local sense of place and creates a micro climate.</p>	<p>23. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers.</p> <p>24. The landscape plan indicates that at least 50% of the overall number of trees and shrubs are species native to the region.</p>																																			

2.2D Local Character and Context

Objectives	Design Criteria
<p>Objective 2.2D-1</p> <p>The built form, articulation and scale relates to the local character of the area and the context.</p>	<p>25. Provide a description in the Design Verification Statement how the built form of the development contributes to the character of the local area, using the guidance in Section 3D Local Character and Context.</p>

2.2E Public Domain Interface

Objectives	Design Criteria
<p>Objective 2.2E-1</p> <p>Provide high level activation and passive surveillance to the public streets.</p>	<p>26. Pedestrian entries are to be directly visible from the public street.</p> <p>27. Windows from habitable rooms are to overlook the public domain.</p> <p>28. Direct visibility is provided along paths and driveways from the public domain to the front door.</p>
<p>Objective 2.2E-2</p> <p>Front fences and walls do not dominate the public domain instead they respond to and complement the context and character of the area (including internal streets).</p>	<p>29. Private courtyards within the front setback are only to be located within the articulation zones and / or behind the required front building line.</p> <p>30. Front fences:</p> <ul style="list-style-type: none"> • Are visually permeable (no more than 50% of the allowable fence area will be solid masonry, timber or metal). • Average height no greater than 1.2m. • Have a consistent character with other front fences in the street. • Are not to be constructed of solid metal panels or unfinished timber palings. <p>31. High solid walls are only used to shield a dwelling from the noise of classified roads. The walls are to have a maximum height of 2.1m and be setback at least 1.5m from the property boundary. Landscape planting is to be provided between the wall and the boundary, with a mature height of at least 1.5m.</p> <p>32. Retaining walls greater than 600mm within the front setback are softened by planting to a minimum depth of 600mm on the low side of the retaining wall.</p>

Objective 2.2E-3

The secondary frontage of a development positively contributes to the public domain by providing an active edge and semi-transparency to the boundary treatment.

33. Where development adjoins public parks, open space, bushland, or is a corner lot, the design positively addresses this interface using any of the following design solutions:

- Habitable room windows facing the public domain.
- Street access, pedestrian paths and building entries
- Paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space
- Walls fronting the public spaces are to have openings not less than 25% of the surface area of the wall.

2.2F Pedestrian and Vehicle Circulation

Objectives**Objective 2.2F-1**

Ensure there is adequate space for vehicle circulation and off-street parking.

Design Criteria

34. Vehicle circulation complies with AS2890.1.

35. Vehicular crossing is to have a maximum width of 3.5m at the street boundary.

36. Where a driveway services more than 3 dwellings, the driveway must be designed to ensure all vehicles must leave the site in a forward direction.

37. Only one driveway cross-over is located on the same street frontage.

2.2G Orientation, Siting and Subdivision

Summary Development Standard

Minimum lot size for carrying out dual occupancy development or manor house development.

The minimum lot area and / or minimum lot width as specified in the LEP.

Objectives**Objective 2.2G-1**

To achieve planned residential density consistent with the local housing strategy.

Design Criteria

38. Where the LEP or DCP does not contain a minimum lot area and / or dimension

- the minimum lot area for a dual occupancy (attached) is: 600m²
- the minimum lot area for a manor house is: 600m²
- minimum lot width measured at the building line is: 15m

<p>Objective 2.2G-2</p> <p>The building is orientated to the street and provides opportunities for street surveillance and connectivity.</p>	<p>39. Dwellings orientate to the street or rear garden, not solely to the side boundary.</p> <p>40. The front door is visible from the public domain.</p> <p>41. Development is not located on a battle axe lot.</p>
<p>Objective 2.2G-3</p> <p>Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings.</p>	<p>42. A window that is more than 3m from the boundary to a living room of an adjoining dwelling is to receive more than 3 hours of direct sunlight between 9am and 3pm on the winter solstice (June 21). If the window currently receives less than 3hrs - direct sunlight is not reduced.</p> <p>Note: Direct sunlight is measured consistent with Design Criteria 47 and is only required to one window serving the living room.</p> <p>43. Where the location of the living room windows of an adjoining dwelling cannot be verified, the proposed development is accommodated within a building envelope defined by a 35° plane springing from 3.6m above the boundary.</p>
<p>Objective 2.2G-4</p> <p>The development responds to the natural landform of the site, reducing the visual impact and avoiding large amounts of cut and fill and minimises the impacts of retaining walls.</p>	<p>44. The lowest level of the dwelling is not more than 1.3m above ground level, and no more than 1m below ground level.</p>
<p>Objective 2.2G-5</p> <p>To minimise impacts to vegetation on adjoining properties and allow for vegetation within the setbacks.</p>	<p>45. Basement car parking is not provided within the setbacks described in the table in Section 2.2A.</p>
<p>Objective 2.2G-6</p> <p>Independent services and utilities are available to service each lot.</p>	<p>46. All lots must have access to reticulated water, sewer, electricity, telecommunications and where available, gas.</p>

2.2H Solar and Daylight Access

Objectives	Design Criteria
<p>Objective 2.2H-1</p> <p>To optimise sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment.</p>	<p>47. At least 75% of dwellings in a development are to receive a minimum of 3 hours direct sunlight between 9am and 3pm on the winter solstice (June 21) to a living room and private open space.</p> <p>Note: Direct sunlight is achieved when there is 1m² of sunlight on the glass for a period of at least 15 minutes. To satisfy 3 hours direct sunlight, 12 periods of 15 minutes will need to be achieved - the periods do not need to be consecutive.</p>

<p>Objective 2.2H-2</p> <p>To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity.</p>	48. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road.
	49. No part of a habitable room is more than 8m from a window.
	50. No part of a kitchen work surface is more than 6m from a window or skylight.
	51. Courtyards are to be: <ul style="list-style-type: none"> • Be fully open to the sky; and • Have a minimum dimension of one third of the perimeter wall height, and area of 4m².
	52. A window is visible from 75% of the floor area of a habitable room.

2.2I Natural Ventilation

Objectives	Design Criteria
<p>Objective 2.2I-1</p> <p>All habitable rooms are naturally ventilated.</p>	53. All habitable rooms are naturally ventilated.
	54. Each dwelling is naturally cross ventilated.

2.2J Ceiling Height

Objectives	Design Criteria
<p>Objective 2.2J-1</p> <p>Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality.</p>	<p>55. Minimum ceiling heights are:</p> <ul style="list-style-type: none"> • 2.7m to ground floor habitable rooms • 2.7m to upper level living rooms. • 2.4m to upper level habitable rooms (excluding living rooms). <p>The ceiling height is measured from finished floor level to finished ceiling level.</p>

2.2K Dwelling Size and Layout

Objectives

Objective 2.2K-1

The dwelling has a sufficient area to ensure the layout of rooms are functional, well organised and provide a high standard of amenity.

Objective 2.2K-2

Room sizes are appropriately sized for the intended purpose and number of occupants.

Design Criteria

56. Dwellings are required to have the following minimum internal floor areas:

- Studio 35m²
- 1 bed 50m²
- 2 bed 70m²
- 3+ bed 90m²

57. The minimum internal areas outlined above only include one bathroom. The minimum area of each additional bathroom is 5m² added onto the minimum dwelling area.

58. The minimum area of any additional bedroom is 12m². The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 56.

59. Kitchens are not to be part of a circulation space such as a hallway, except in studio apartments.

60. One bedroom has a minimum area of 10m² excluding space for a wardrobe.

61. Bedrooms have a minimum length and width of 3m excluding wardrobe space.

62. Combined living and dining rooms are to have a minimum area of:

- 1 and 2 bed 24m²
- 3+ bed 28m²

63. Living room or lounge rooms are to have a minimum length and width of 4m, excluding fixtures.

2.2L Principal Private Open Spaces

Objectives	Design Criteria
<p>Objective 2.2L-2</p> <p>Dwellings provide appropriately sized private open space and balconies to enhance residential amenity.</p>	<p>64. All dwellings are to have access to principal private open space with a minimum length and width of 3m:</p> <ul style="list-style-type: none"> • 1 bed or studio 8m² • 2+ bed 12m² • Dwellings with living area at ground level 16m²
<p>Objective 2.2L-1</p> <p>Principal private open space and balconies are appropriately located to enhance liveability for residents.</p>	<p>65. The principal private open space is located behind the front building line.</p> <p>66. The principal private open space is located adjacent to the living room, dining room or kitchen to extend the living space.</p> <p>67. 25% of the private open space is to be covered to provide shade and protection from rain.</p>

2.2M Storage

Objectives	Design Criteria
<p>Objective 2.2M-1</p> <p>Adequate, well designed storage is provided in each dwelling.</p>	<p>68. In addition to storage in kitchens, and bedrooms, the following storage with a minimum dimension of 500mm is provided:</p> <ul style="list-style-type: none"> • 1 bed or studio 6m³ • 2 bed 8m³ • 3+ bed 10m³ <p>69. At least 50% of the required storage is located inside the dwelling.</p> <p>70. Storage not located in dwellings is secure and clearly allocated to specific dwellings if in a common area.</p>

2.2N Car and Bicycle Parking

Objectives	Design Criteria																
<p>Objective 2.2N-1</p> <p>Car parking is provided appropriate for the scale of the development.</p>	<p>71. Dual Occupancies car parking is to be provided at the rate required for a dual occupancy within the DCP that applies to the land. If there is no rate in the DCP - 1 space per dwelling is to be provided.</p> <p>72. Manor Houses car parking is to be provided at the rate required for a Manor House within the DCP that applies to the land. If there is no rate in the DCP - 1 space per dwelling is to be provided.</p> <p>73. Car parking spaces and circulation are to comply with AS 2890.1:2004.</p>																
<p>Objective 2.2N-2</p> <p>Parking facilities are provided for bicycles.</p>	<p>74. Covered space is to be provided for the secure storage of at least 1 bicycle per dwelling.</p>																
<p>Objective 2.2N-3</p> <p>Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling.</p>	<p>75. Basement car parking should not protrude more than 1m above finished ground level except at the entrance to the car park.</p> <p>76. The maximum dimensions of any basement car park entry will be 2.7m high by 3.5m wide.</p> <p>77. Where a driveway is adjacent to an existing tree, it is either outside the tree canopy or complies with the recommendations in a report prepared by a qualified arborist.</p> <p>78. The setback of a car space from a primary, secondary or parallel road is to be at least:</p> <table border="1" data-bbox="794 1384 1390 1552"> <thead> <tr> <th>Setback of Dwelling from Road</th> <th>Maximum Off-Street Parking Setback From Road</th> </tr> </thead> <tbody> <tr> <td><4.5m</td> <td>5.5m</td> </tr> <tr> <td>4.5m or more</td> <td>1m behind the building line</td> </tr> </tbody> </table> <p>79. The maximum width of all garage doors facing a primary or secondary road:</p> <table border="1" data-bbox="794 1664 1390 1906"> <thead> <tr> <th>Lot Width</th> <th>Maximum Width of Garage Door Openings</th> </tr> </thead> <tbody> <tr> <td>12m - 15m</td> <td>3.2m</td> </tr> <tr> <td>>15m - 20m</td> <td>6m</td> </tr> <tr> <td>>20m - 25m</td> <td>9.2m</td> </tr> <tr> <td>>25m</td> <td>12m</td> </tr> </tbody> </table>	Setback of Dwelling from Road	Maximum Off-Street Parking Setback From Road	<4.5m	5.5m	4.5m or more	1m behind the building line	Lot Width	Maximum Width of Garage Door Openings	12m - 15m	3.2m	>15m - 20m	6m	>20m - 25m	9.2m	>25m	12m
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2.20 Visual Privacy

Objectives	Design Criteria																								
<p>Objective 2.20-1</p> <p>The separation of windows and terraces, decks and balconies within a site and to adjoining existing or future buildings provide a degree of visual privacy without the reliance on fixed screening.</p>	<p>80. Orientate living room windows, primary private open space to the street front or rear.</p> <p>81. At least one window for each habitable room is provided without the need for a privacy screen.</p> <p>82. A privacy screen is required when:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Boundary</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Windows in Dwelling on Same Lot</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 3m</td> </tr> <tr> <td><12m</td> <td>>3m</td> </tr> </tbody> </table> <p>Note: This does not apply to bedroom windows that have an area less than 2m² or windows that have a frontage to a road or public open space.</p> <p>83. A privacy screen is required at the edge of that part of a terrace, deck, balcony or verandah that is parallel or faces towards a side or rear boundary</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Boundary</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Distance from Windows in Dwelling on Same Lot</th> <th style="text-align: left;">Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 2m</td> </tr> <tr> <td><12m</td> <td>>2m</td> </tr> </tbody> </table> <p>Note: This does not apply to a terrace, deck, balcony or patio that has an area less than 3m² or has a frontage to a road or public open space.</p>	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 3m	<12m	>3m	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 2m	<12m	>2m
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<p>Objective 2.20-2</p> <p>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.</p>	<p>84. Where privacy screens are provided to windows, they must not cover part of the window required to meet the minimum daylight or solar access requirements, or restrict ventilation.</p>																								

2.2P Acoustic Privacy

Objectives	Design Criteria
<p>Objective 2.2P-1</p> <p>Noise transfer is minimised through the siting of buildings and building layout.</p>	<p>85. Electrical, mechanical, hydraulic and air conditioning equipment is housed so that it does not create an 'offensive noise' as defined in the <i>Protection of the Environment Operations Act 1997</i> either within or at the boundaries of any property at any time of the day.</p>

2.2Q Noise and Pollution

Objectives	Design Criteria
<p>Objective 2.2Q-1</p> <p>Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings.</p>	<p>86. Any development within the 20 ANEF contour is constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion.</p> <p>87. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures not exceeding:</p> <ul style="list-style-type: none"> • in any bedroom: 35dB(A) between 10pm-7am; and • anywhere else in the building (other than a kitchen, garage, bathroom or hallway): 40dB(A) at any time. <p>This can be achieved by:</p> <ul style="list-style-type: none"> • Providing a full noise assessment prepared by a qualified acoustic engineer; and • Complying with relevant noise control treatment for sleeping areas and other habitable rooms in Appendix C of <i>RMS Development Near Rail Corridors and Busy Roads - Interim Guideline</i>.

Note: Development that is on land immediately adjacent to a rail corridor and development that involves penetration of the ground to a depth of 2m within 25m of a rail corridor may be integrated development and *State Environmental Planning Policy (Infrastructure) 2007* applies.

2.2R Architectural Form and Roof Design

Objectives	Design Criteria
<p>Objective 2.2R-1</p> <p>The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape.</p>	<p>88. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.</p> <p>Note: Refer to Section 3 for guidance.</p>
<p>Objective 2.2R-2</p> <p>The roof treatments are integrated into the building design and positively respond to the street.</p>	<p>89. The roof design is integrated harmoniously with the overall building form.</p> <p>90. Skylights and ventilation systems are integrated into the roof design.</p>

2.2S Visual Appearance and Articulation

Objectives	Design Criteria
<p>Objective 2.2S-1</p> <p>To promote well designed buildings of high architectural quality that contribute to the local character.</p>	<p>91. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.</p> <p>Note: Refer to Section 3 for guidance.</p> <p>92. The development may have a primary road articulation zone that extends up to 1.5m forward of the minimum required setback from the primary road.</p> <p>The following elements can be located in the articulation zone:</p> <ul style="list-style-type: none"> • An entry feature or portico. • A balcony, deck, pergola, terrace or verandah. • A window box treatment. • A bay window or similar feature. • An awning or other feature over a window. • A sun shading feature. • An eave • An access ramp.

2.2T Pools and Detached Development

Objectives	Design Criteria
<p>Objective 2.2T-1</p> <p>The location of swimming pools and spas minimise the impacts on adjoining properties.</p>	<p>93. Swimming pools and spas are to have a maximum height above ground level (existing):</p> <ul style="list-style-type: none"> • At the water line – 1.2m, • At the top of the coping - 1.4m, and • Where the coping is more than 300mm wide – 600mm. <p>94. Swimming pools and spas are to be located in the rear yard with a minimum setback of 1m from any side or rear boundary.</p> <p>95. The swimming pool pump must be located in an enclosure that is sound proofed.</p>

Objective 2.2T-2

The location of the detached development minimises the impact on adjoining properties.

<p>96. Maximum height above ground level (existing) - 4.5m</p>									
<p>97. A detached studio with a frontage to a rear lane or parallel road may have a height of 6m.</p>									
<p>98. Maximum floor area for each dwelling:</p> <ul style="list-style-type: none"> • generally: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;">Lot Area (m²)</th> <th style="text-align: left;">Maximum GFA</th> </tr> </thead> <tbody> <tr> <td>400 - 600</td> <td>45m²</td> </tr> <tr> <td>>600 - 900</td> <td>60m²</td> </tr> <tr> <td>>900</td> <td>100m²</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • detached studios: 36m² 	Lot Area (m ²)	Maximum GFA	400 - 600	45m ²	>600 - 900	60m ²	>900	100m ²	
Lot Area (m ²)	Maximum GFA								
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<p>99. Where the DCP does not contain setbacks for detached development, side setbacks are the same as for the dwelling except for the following:</p> <ul style="list-style-type: none"> • side setback: 0.9m, or • side setback with wall height less than 3.3m: 0m, and adjoining lot building is <0.9m from boundary and building wall is of masonry construction with no windows, • side setback of detached studio with frontage to a lane: 0m • side setback of detached studio without a frontage to a lane: <table border="1" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;">Lot Width at building line</th> <th style="text-align: left;">Rear setback</th> </tr> </thead> <tbody> <tr> <td>0 - 18m</td> <td>900mm</td> </tr> <tr> <td>>18m</td> <td>1.5m</td> </tr> </tbody> </table>	Lot Width at building line	Rear setback	0 - 18m	900mm	>18m	1.5m			
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<p>101. The maximum floor level of a detached deck, patio, pergola or terrace that is less than 0.9m from the side boundary is 0.6m above ground level (existing).</p>									

Note: Privacy and building separation and other Design Criteria still apply.

2.2U Energy Efficiency

Objectives	Design Criteria
<p>Objective 2.2U-1</p> <p>The development incorporates passive environmental design.</p>	<p>102. Provide an outdoor area for clothes drying that can accommodate at least 8 lineal metres of clothes line for each dwelling.</p>
	<p>103. Any clothes drying area should be screened from public and communal areas.</p>

Note: A development application for a dwelling is required to have a BASIX Certificate that applies a minimum energy consumption target.

2.2V Water Management and Conservation

Objectives	Design Criteria
<p>Objective 2.2V-1</p> <p>Flood management systems are integrated into site design.</p>	<p>104. A stormwater system must:</p> <ul style="list-style-type: none"> • Comply with requirements in the DCP that applies to the land. • Be approved (if required) under s.68 of the Local Government Act 1993.
	<p>105. Detention tanks are located under paved areas, driveways or in basements.</p>

2.2W Waste Management

Objectives	Design Criteria
<p>Objective 2.2W-1</p> <p>Waste storage facilities meet the needs of the residents, are easy to use and access and enable efficient collection of waste.</p>	<p>106. Provide storage space for the type and number of bins designated in council's waste policy.</p>
	<p>107. Where waste storage is provided in a communal area, access to this waste area is to be provided for all residents without crossing a private lot.</p>
	<p>108. Where waste storage is provided in the basement car park a maximum ramp gradient of 1:6 is to be provided to the waste collection point.</p>
	<p>109. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.</p>

	<p>110. Any communal waste area is to:</p> <ul style="list-style-type: none"> • provide water supply for cleaning, • have a solid floor grated to a floor waste (connected to sewer), and • be designed to meet the requirements of council's waste policy.
	<p>111. Despite any requirements in council's waste policy, on-site waste vehicle access is not required.</p> <p>Note: The waste collection point is typically located on the footpath.</p>
	<p>112. If a waste collection point is provided on-site and used for permanent storage of bins it is to:</p> <ul style="list-style-type: none"> • be screened from view from the public domain, • have a height no greater than 1.3m if forward of the building line, • be less than 10m from the street boundary, • be located on a surface with a gradient less than 1:20, • not require access through a security door or gate (unless this is permitted by council's waste policy), and • have a path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps to all for the transfer of bins to the collection vehicle.
<p>Objective 2.2W-2</p> <p>Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents.</p>	<p>113. Storage areas for rubbish and recycling bins are to be provided:</p> <ul style="list-style-type: none"> • Within garages; • In a screened enclosure that is part of the overall building design; or • In the basement car park. <p>114. Communal waste areas are to be located at least 3m from any bedroom of living room window.</p>

2.2X Universal Design

Objectives	Design Criteria
<p>Objective 2.2X-1</p> <p>Universal design features are included in dwelling design to promote flexible housing for all community members.</p>	<p>115. At least one ground floor dwelling is to include the Silver Level Seven Core Liveable Housing Design Elements contained in the <i>Liveable Housing Design Guidelines</i>.</p>

2.2Y Communal Areas and Open Space

Objectives	Design Criteria
<p>Objective 2.2Y-1</p> <p>Communal areas are designed to enhance residential amenity and maximise safety and connectivity to the dwelling and promote social interaction between residents.</p>	<p>116. Communal open spaces are visible from habitable rooms and private open space while maintaining visual privacy.</p> <p>117. Any communal open space is directly accessible from the building entry and common circulation.</p> <p>118. For manor houses the active communal open space is at least 5% of the site area and has a maximum grade of 1:50.</p> <p>119. Active communal open space is at least 3m from the habitable room of a dwelling on the lot.</p>
<p>Objective 2.2Y-2</p> <p>Common circulation spaces achieve good amenity with access to daylight and ventilation.</p>	<p>120. Common circulation above ground is provided with natural daylight and ventilation.</p>

2.3

Terraces



2.3 Terraces

This Section provides the Objectives and Design Criteria for development that contains multi dwelling housing (terraces).

Key characteristics of development to which this Section applies are:

- The development contains three or more dwellings;
- Each dwelling has a frontage to a public road; and
- The dwellings are located side by side, with no part of a dwelling located above another dwelling.

Permissibility

Multi dwelling housing (terraces) must be permissible on the lot on which the development is proposed. The LEP that applies to the land will indicate if the development is permissible.



Figure 2.3-1 Multi dwelling (terraces)

Subdivision

Subdivision allows separate ownership of the three or more dwellings that can be constructed under this Section.

Development carried out under this Section may receive concurrent approval for the development and strata or Torrens title subdivision.

Strata title

Terraces that are strata subdivided will result in three or more dwellings on one lot of land.

They may be strata titled either because the individual dwellings do not meet the minimum lot size requirements for Torrens title subdivision, or they have a basement car parking or other common property that does not enable simple Torrens title subdivision.

The dwellings to be strata subdivided can be attached or detached.

Torrens title

A terrace development may be subdivided to create separate dwellings or attached dwellings. At the completion of the development each dwelling is located on a separate Torrens title lot allowing for separate ownership of the lots.

Each lot that proposes to be the Torrens title subdivision must comply with the minimum lot size requirement in the LEP.

Where rear laneways are created, this land could either be retained under a community title scheme (to ensure the effective and appropriate management of the road) or dedicated to Council as a public road if all relevant requirements are met

Development Application

A development application can be submitted where the development is permissible in the zone.

This section is to be used with the following documents:

- Local Environmental Plan (LEP) for permissibility, development standards and controls
- Development Control plan for local character, built form controls, parking, waste and stormwater requirements
- SEPPs and regulations where relevant.

A summary of the steps required to prepare a DA is provided in Figure 2.3-2.

A qualified designer or a building designer that is accredited by the Building Designers Association of Australia is required to certify that the design of the development is consistent with the Design Criteria in the Design Verification Statement.

Using this Section

This Section contains Objectives and Design Criteria.

Objectives : relate to the Design Principles and set out what the design is to achieve.

Design Criteria: are the measurable standards that are deemed to meet the Objectives.

The development application proposal is merit assessed.

If the development application cannot meet the Design Criteria then the consent authority is to be flexible in applying these provisions and allow reasonable alternative solutions that achieve the relevant Objectives.

Section 3 provides explanatory guidance to assist with the interpretation of terms used in this Section



Figure 2.3-2 Workflows: Preparing a DA

2.3A Building Envelopes

Summary Development Standard									
Height of Building	The maximum building as specified in the LEP.								
Objectives	Design Criteria								
<p>Objective 2.3A-1</p> <p>The building height is consistent with the desired scale and character of the street and locality and provides an acceptable impact on the amenity of adjoining properties.</p>	<ol style="list-style-type: none"> Where the LEP or DCP does not include a maximum building height, that height of buildings is: <ul style="list-style-type: none"> R1, R2, or RU5 zoned land: 9m R3 zoned land: 11m The maximum number of storeys (excluding basements) are: <ul style="list-style-type: none"> R1, R2, or RU5 zoned land: 2 R3 zoned land: 3 								
<p>Objective 2.3A-2</p> <p>The development provides a setback from the front boundary or public space that:</p> <ul style="list-style-type: none"> defines the street edge; creates a clear threshold and transition from public to private space; assists in achieving visual privacy to ground floor dwellings from the street; contributes to the streetscape character and landscape; and relates to the existing streetscape and setback pattern or the desired future streetscape pattern if different to the existing. 	<ol style="list-style-type: none"> Refer to the DCP for front setback or envelope controls. Where the DCP does not contain front setback controls the following apply: <ul style="list-style-type: none"> Where existing dwellings are within 40m - average of the two closest dwelling houses, dual occupancies or multi dwelling housing (terraces), or Where no existing dwellings are within 40m then the front setback is 3.5m. R3 zoned land - Where the DCP does not contain front setback controls the setback to primary road is 3.5m. Where the DCP does not contain setback controls for secondary roads or to public reserves the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900</td> <td>2m</td> </tr> <tr> <td>>900 - 1500</td> <td>3m</td> </tr> <tr> <td>>1500</td> <td>5m</td> </tr> </tbody> </table> Setback from a parallel road: 3m, unless dwellings have a frontage to the parallel road, in which case the setback must be the same as if the parallel road were a primary road. Setback from classified road: 9m Setback from public reserve: 3m 	Lot Area (m ²)	Setback	0 - 900	2m	>900 - 1500	3m	>1500	5m
Lot Area (m ²)	Setback								
0 - 900	2m								
>900 - 1500	3m								
>1500	5m								
<p>Objective 2.3A-3</p> <p>The development provides side boundary setbacks that reflect the character and form intent of the area where is characterised by the separation of buildings.</p>	<ol style="list-style-type: none"> Refer to the DCP for side boundary setback or envelope controls. Where the DCP does not contain side setback controls the side setback is 1.5m. 								

Objective 2.3A-4

The development provides a rear boundary setback that provides opportunity to retain and protect or establish significant landscape trees in deep planting areas.

12. Refer to the DCP for rear boundary setbacks or envelope controls.

13. Where the DCP does not contain a rear setback controls the following apply:

Lot Area (m ²)	Building height	Minimum required setback from Rear boundary
600 - 900	0m – 4.5m	3m
	> 4.5m	8m
>900 - 1500	0m – 4.5m	5m
	> 4.5m	12m
>1500	0m - 4.5m	10m
	> 4.5m	15m

14. The setback to a lane is 0m.

Notes:

1. When applying primary road, secondary road and rear setbacks – the lot area refers to the lot area prior to any subdivision.
2. The side setbacks only apply to the side boundaries of the lot prior to any subdivision.
3. Setbacks do not apply to the following: access ramps, down pipes, driveways or hard standard spaces, electricity or gas meters, fascias, fences, gutters, light fittings, pathways and paving, privacy screens fixed to the building.
4. Refer to Section 3 for an explanation of the application of setbacks, and exceptions to the setbacks.

2.3B Gross Floor Area / Floor Space Ratio

Summary Development Standard

Gross Floor Area / Floor Space Ratio

The floor space ratio / gross floor area as specified in the LEP.

Objectives

Objective 2.3B-1

To ensure that the bulk and scale is appropriate for the context, minimises impacts on surrounding properties and allows for articulation of the built form.

Design Criteria

15. Where the LEP or DCP do not contain an FSR or Gross floor area the following maximum gross floor area applies to all buildings on a lot:
- R1, R2, or RU5 zoned land - 60% of lot area
 - R3 zoned land - 80% of lot area.

2.3C Landscaped Area

Summary Development Standard																																				
Landscaped Area	The minimum landscaped area as specified in the LEP.																																			
Objectives	Design Criteria																																			
<p>Objective 2.3C-1</p> <p>To provide adequate opportunities for the retention of existing and provision of new vegetation that:</p> <ul style="list-style-type: none"> - contributes to biodiversity; - enhances tree canopy; and - minimises urban runoff. 	<p>16. Where the LEP or DCP does not contain a minimum landscaped area the minimum landscaped area is:</p> <ul style="list-style-type: none"> • R1, R2, or RU5 zoned land - 30% of lot area • R3 zoned land - 20% of lot area. <p>17. The minimum dimension of any area included in the landscaped area calculation is 1.5m.</p> <p>18. At least 25% of the area forward of the building line is to be landscaped area.</p>																																			
<p>Objective 2.3C-2</p> <p>Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees.</p>	<p>19. An ongoing maintenance plan is to be provided as part of the landscape plan.</p> <p>20. Minimum soil standards for plant sizes are provided in accordance with the Table below.</p> <table border="1"> <thead> <tr> <th>Tree Size</th> <th>Height</th> <th>Spread</th> <th>Min Soil Area</th> <th>Min soil depth</th> </tr> </thead> <tbody> <tr> <td>Large trees</td> <td>>12m</td> <td>>8m</td> <td>10 x 10m</td> <td>1.2m</td> </tr> <tr> <td>Medium trees</td> <td>8-12m</td> <td>4-8m</td> <td>6 x 6m</td> <td>1.0m</td> </tr> <tr> <td>Small trees</td> <td>5-8m</td> <td><4m</td> <td>3.5 x 3.5m</td> <td>0.8m</td> </tr> <tr> <td>Shrubs</td> <td></td> <td></td> <td></td> <td>0.5-0.6m</td> </tr> <tr> <td>Groundcover</td> <td></td> <td></td> <td></td> <td>0.3-0.45m</td> </tr> <tr> <td>Turf</td> <td></td> <td></td> <td></td> <td>0.2m</td> </tr> </tbody> </table> <p>21. If the DCP does not specify tree planting of a particular size or species the following is to be provided:</p> <ul style="list-style-type: none"> • Front: 1 tree with mature height of 5m if primary road setback is greater than 3m. • Rear: 1 tree with mature height of 8m. 	Tree Size	Height	Spread	Min Soil Area	Min soil depth	Large trees	>12m	>8m	10 x 10m	1.2m	Medium trees	8-12m	4-8m	6 x 6m	1.0m	Small trees	5-8m	<4m	3.5 x 3.5m	0.8m	Shrubs				0.5-0.6m	Groundcover				0.3-0.45m	Turf				0.2m
Tree Size	Height	Spread	Min Soil Area	Min soil depth																																
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Turf				0.2m																																
<p>Objective 2.3C-3</p> <p>Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced.</p>	<p>22. Mature trees are to be retained, particularly those along the boundary, (except those where approval is granted by Council for their removal).</p> <p>23. Landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback.</p>																																			

Objective 2.3C-4

Landscape design contributes to a local sense of place and creates a micro climate.

24. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers.

25. On grade parking should be provided with tree planting for canopy cover at a rate of 1 tree per 4 car spaces.

26. The landscape plan indicates that at least 50% of the overall number of trees and shrubs are species native to the region.

2.3D Local Character and Context

Objectives

Objective 2.3D-1

The built form, articulation and scale relates to the local character of the area and the context.

Design Criteria

27. Provide a description in the Design Verification Statement how the built form of the development contributes to the character of the local area, using the guidance in Section 3D Local Character and Context.

2.3E Public Domain Interface

Objectives

Objective 2.3E-1

Provide activation and passive surveillance to the public streets.

Design Criteria

28. The front door of each dwelling is to be directly visible from the street.

29. Each dwelling has a habitable room that faces the street or public space.

Objective 2.3E-2

Front fences and walls do not dominate the public domain instead they respond to and complement the context and character of the area (including internal streets).

30. Private courtyards within the front setback are only located within the articulation zones and / or behind the required front building line.

31. Front fences:

- Are visually permeable (no more than 50% of the allowable fence area will be solid masonry, timber or metal).
- Average height no greater than 1.2m.
- Have a consistent character with other front fences in the street.
- Are not to be constructed of solid metal panels or unfinished timber palings.

32. High solid walls are only used to shield a dwelling from the noise of classified roads. The walls are to have a maximum height of 2.1m and be setback at least 1.5m from the property boundary. Landscape planting is to be provided between the wall and the boundary, with a mature height of at least 1.5m.

33. Retaining walls greater than 600mm within the front setback are to be softened by planting for a minimum depth of 600mm on the low side of the retaining wall.

Objective 2.3E-3

The secondary frontage of a development positively contributes to the public domain by providing an active edge and semi-transparency to the boundary treatment.

34. Where development adjoins public parks, open space or bushland, or is a corner site, the design positively addresses this interface using any of the following design solutions:
- Habitable room windows facing the public domain.
 - Street access, pedestrian paths and building entries.
 - Paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space.
 - Walls fronting the public spaces are to have openings not less than 25% of the surface area of the wall.

2.3F Pedestrian and Vehicle Circulation

Objective

Objective 2.3F-1

Internal vehicle and pedestrian circulation should function like a street, minimise the dominance of the driveway, and minimise impact on habitable spaces.

Design Criteria

35. Vehicle circulation and parking complies with AS2890.1.
36. All new internal streets and lanes are to be overlooked by windows from habitable rooms and or private open space.
37. Where new streets or lanes are created:
- Lanes: shared or pedestrian surfaces with a width of common area including landscape - minimum 6m
 - Streets: width of common area including landscape - minimum 12m.
38. Where less than 20 car spaces are provided reduce carriageway width to 3.5m, with passing areas as required by AS 2890.1.
39. Internal vehicle circulation must be:
- at least 1m setback from a fences;
 - at least 1m setback from another dwelling;
 - at least 2.5m setback from a window in a habitable room if the window exceeds 1m²; and
 - the setbacks should contain plants to soften edges.
40. Terminate driveways and streets with trees, open space or the window of a dwelling - not a garage or car space.
41. Streets to be designed to accommodate appropriate service vehicles likely to access the site.

42. Where on street parking is currently available in front of the development, the proposed driveways are located so that at least one car space remains.

43. Car parking not associated with a dwelling must be:
- setback from a fence is to be at least 1m
 - setback from another dwelling is to be at least 1m
 - setback from a habitable room window is to be at least 3m if the window exceeds 1m².
 - The setbacks should contain plants.

44. New streets and lanes
- maximum length of a dead end laneway - 40m.
 - minimum width between structures - 7m.

Objective 2.3F-2

Provide safe, connected environment for pedestrians.

45. Provide safe shared spaces for vehicles, cyclists and pedestrians by including measures that reduce vehicle speeds such as changes in pavement texture at entries or key nodes, reduce demarcation between pedestrian and vehicle spaces.

46. Pedestrian paths that are separated from an internal road or lane by a kerb or landscaped area are to be provided where there are more than 20 dwellings.

47. Where pedestrian circulation is separated from vehicle circulation the paths are still to function like streets with pavement at least 1.5m wide, clearly identifiable dwelling entrances and clear lines of sight to create a legible and safe network.

48. Roads and pedestrian spaces are to have lighting designed in accordance with A1158.3.1 that avoids light spill in to private spaces.

2.3G Orientation, Siting and Subdivision

Summary Development Standard	
Minimum lot size for carrying out multi dwelling housing (terraces) development	The minimum lot area and / or minimum lot width as specified in the LEP.
Subdivision Lot Size (Torrens title subdivision)	The minimum lot area and / or minimum lot width as specified in the LEP.

Objectives	Design Criteria
<p>Objective 2.3G-1</p> <p>To achieve planned residential density consistent with the local housing strategy</p>	<p>49. The minimum lot size for carrying out multi dwelling housing (terraces) is:</p> <ul style="list-style-type: none"> the minimum area for multi dwelling housing specified in the LEP or DCP that applies to the land, or, if the LEP or DCP does not specify a minimum lot dimension - 600m² and width measured at the building line of 18m.
<p>Objective 2.3G-2</p> <p>To ensure that lots created resulting for the subdivision of land have sufficient area for the dwelling, vehicle access, landscaping, parking and amenity and are consistent with the desired future character of the area.</p>	<p>50. If the LEP or DCP does not contain a minimum lot width the following provisions apply:</p> <p>On R3 zoned land:</p> <ul style="list-style-type: none"> Garages not fronting primary road - 5m Garages fronting primary road - 7.5m <p>On R1, R2, & RU5 zoned land:</p> <ul style="list-style-type: none"> Garages not fronting primary road - 6m Garages fronting primary road - 7.5m. <p>51. If the LEP or DCP does not contain a minimum lot area for subdivision of a multi dwelling (terraces), then the following provisions apply:</p> <ul style="list-style-type: none"> R1, R2, & RU5 zoned land - 200m² R3 zoned land - 150m².
<p>Objective 2.3G-3</p> <p>The dwelling is orientated to the street and provides opportunities for street surveillance and connectivity.</p>	<p>52. Each dwelling has a frontage to a primary, secondary or parallel road. The road must be a public road as defined by the Roads Act 1993. The frontage of each terrace is to be at least 5m.</p>
<p>Objective 2.3G-4</p> <p>Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings.</p>	<p>53. A window that is more than 3m from the boundary to a living room of an adjoining dwelling is to receive more than 3 hours of direct sunlight between 9am and 3pm on the winter solstice (June 21). If the window currently receives less than 3hrs - direct sunlight is not reduced.</p> <p>Note: Direct sunlight is measured consistent with Design Criteria 47 and is only required to one window serving the living room.</p> <p>54. Where the location of the living room windows of an adjoining dwelling cannot be verified the proposed development is accommodated within a building envelope defined by a 35° plane at 3.6m above the boundary.</p>

<p>Objective 2.3G-5</p> <p>The development responds to the natural landform of the site, reducing the visual impact and avoiding large amounts of cut and fill and minimises the impacts of retaining walls.</p>	<p>55. Unless a dwelling is over a basement, the ground floor is not more than 1.3m above ground level, and no more than 1m below ground level.</p> <p>56. Dwellings are located to step with the topography.</p>
<p>Objective 2.3G-6</p> <p>Independent services and utilities are available to service each lot.</p>	<p>57. All lots must have access to reticulated water and sewer, electricity, telecommunications, and where available gas.</p>
<p>Objective 2.3G-7</p> <p>Provide adequate space between buildings to allow for landscape, provide visual separation, reduce visual bulk and daylight access between buildings.</p>	<p>58. The minimum separation between two or more buildings containing dwelling on the same lot is 3m.</p> <p>Note: Greater separation may be required for privacy.</p> <p>59. Provide a break of 3m between buildings more than 45m long.</p>

2.3H Solar and Daylight Access

Objective	Design Criteria
<p>Objective 2.3H-1</p> <p>To optimise sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment.</p>	<p>60. The living room or private open space in each dwelling is to receive a minimum of 2 hours direct sunlight between 9 am and 3pm on the winter solstice (June 21).</p> <p>Note: Direct sunlight is achieved when 1m² of direct sunlight on the glass is achieved for at least 15 minutes. To satisfy 2 hours direct sunlight, 8 periods of 15 minutes will need to be achieved - however the periods do not need to be consecutive.</p>
<p>Objective 2.3H-2</p> <p>To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity.</p>	<p>61. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road.</p> <p>62. No part of a habitable room is more than 8m from a window.</p> <p>63. No part of a kitchen work surface is more than 6m from a window or skylight.</p> <p>64. Courtyards are to:</p> <ul style="list-style-type: none"> • Be fully open to the sky; and • Have a minimum dimension of one third of the perimeter wall height, an area of 4m². <p>65. A window is visible from 75% of the floor area of a habitable room.</p>

2.3I Natural Ventilation

Objectives	Design Criteria
<p>Objective 2.3I-1</p> <p>All habitable rooms are naturally ventilated.</p>	<p>66. All habitable rooms are naturally ventilated.</p>
	<p>67. Each dwelling is naturally cross ventilated.</p>

2.3J Ceiling Height

Objective	Design Criteria
<p>Objective 2.3J-1</p> <p>Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality.</p>	<p>68. Minimum ceiling heights are:</p> <ul style="list-style-type: none"> • 2.7m to ground floor habitable rooms. • 2.7m to upper level living rooms. • 2.4m to upper level habitable rooms (excluding living rooms). <p>The ceiling height is measured from finished floor level to finished ceiling level.</p>

2.3K Dwelling Size and Layout

Objective	Design Criteria
<p>Objective 2.3K-1</p> <p>The dwelling has a sufficient area to ensure the layout of rooms are functional, well-organised and provide a high standard of amenity.</p>	<p>69. Dwellings to have the following minimum internal floor areas:</p> <ul style="list-style-type: none"> • 1 bed 65m² • 2 bed 90m² • 3+ bed 115m²
	<p>70. The minimum internal areas outlined above only contain one bathroom. The minimum area of each additional bathroom is 5m² added onto the minimum dwelling area.</p>
	<p>71. The minimum area of any additional bedroom is 12m². The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 69.</p>
	<p>72. Kitchens are not part of a circulation space such as a hallway.</p>

Objective 2.3K-2

Room sizes are appropriate for the intended purpose and number of occupants.

73. One bedroom has a minimum area of 10m², excluding space for a wardrobe.

74. Bedrooms have a minimum length and width of 3m in any direction, excluding wardrobe space.

75. Combined living and dining rooms are to have a minimum area of:

- 1 and 2 bed 24m²
- 3+ bed 28m²

76. Living room or lounge rooms are to have a minimum length and width of 4m, excluding fixtures.

2.3L Principal Private Open Spaces

Objectives

Objective 2.3L-2

Dwellings provide appropriately sized private open space and balconies to enhance residential amenity.

Design Criteria

77. The area of principal private open space provided for each dwelling is at least 45m² with a minimum dimension of 4m.

Objective 2.3L-1

Principal private open space and balconies are appropriately located to enhance liveability for residents.

78. The principal private open space is located behind the front building line.

79. The principal private open space is located adjacent to the living room, dining room or kitchen to extend the living space.

80. 25% of the private open space is to be covered to provide shade and protection from rain.

2.3M Storage

Objectives

Objective 2.3M-1

Adequate, well-designed storage is provided in each dwelling.

Design Criteria

81. In addition to storage in kitchens and bedrooms, the following storage with a minimum dimension of 500mm is provided:

- 1 bed 6m³
- 2 bed 8m³
- 3+ bed 10m³

82. At least 50% of the required storage is located inside the dwelling.

83. Storage not located in dwellings is secure and clearly allocated to specific dwellings if in a common area.

2.3N Car and Bicycle Parking

Objectives	Design Criteria																
<p>Objective 2.3N-1</p> <p>Car parking is provided appropriate for the scale of the development.</p>	<p>84. Car parking is to be provided at the rate required for multi dwelling housing within the DCP that applies to the land. If there is no rate in the DCP - 1 space is to be provided per dwelling.</p> <p>85. Visitor parking is provided in multi dwelling housing (terraces) that are strata titled where a basement car park serves more than 10 dwellings. Provide 1 space per 5 dwellings.</p> <p>86. Car parking spaces and circulation are to comply with AS 2890.1:2004.</p>																
<p>Objective 2.3N-2</p> <p>Parking facilities are provided for bicycles.</p>	<p>87. Covered space is to be provided for the secure storage of at least 1 bicycle per dwelling.</p>																
<p>Objective 2.3N-3</p> <p>Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling.</p>	<p>88. Basement car parking should not protrude more than 1m above finished ground level except at the entrance to the car park.</p> <p>89. The maximum dimensions of any basement car park entry is to be 2.7m high by 3.5m wide.</p> <p>90. Where a driveway is adjacent to an existing tree, it is either outside the tree canopy or complies with the recommendations in a report prepared by a qualified arborist.</p> <p>91. The setback of a car space from a primary, secondary or parallel road is to be at least:</p> <table border="1" data-bbox="783 1377 1394 1552"> <thead> <tr> <th>Setback of Dwelling from Road</th> <th>Maximum Off-Street Parking Setback From Road</th> </tr> </thead> <tbody> <tr> <td><4.5m</td> <td>5.5m</td> </tr> <tr> <td>4.5m or more</td> <td>1m behind the building line</td> </tr> </tbody> </table> <p>92. The maximum width of all garage doors facing a primary or secondary road:</p> <table border="1" data-bbox="783 1659 1394 1910"> <thead> <tr> <th>Lot Width</th> <th>Maximum Width of Garage Door Openings</th> </tr> </thead> <tbody> <tr> <td>12m - 15m</td> <td>3.2m</td> </tr> <tr> <td>>15m - 20m</td> <td>6m</td> </tr> <tr> <td>>20m - 25m</td> <td>9.2m</td> </tr> <tr> <td>>25m</td> <td>12m</td> </tr> </tbody> </table> <p>Note: Lot width refers to the completed Torrens title lot or in the case of a strata subdivision being the development site.</p>	Setback of Dwelling from Road	Maximum Off-Street Parking Setback From Road	<4.5m	5.5m	4.5m or more	1m behind the building line	Lot Width	Maximum Width of Garage Door Openings	12m - 15m	3.2m	>15m - 20m	6m	>20m - 25m	9.2m	>25m	12m
Setback of Dwelling from Road	Maximum Off-Street Parking Setback From Road																
<4.5m	5.5m																
4.5m or more	1m behind the building line																
Lot Width	Maximum Width of Garage Door Openings																
12m - 15m	3.2m																
>15m - 20m	6m																
>20m - 25m	9.2m																
>25m	12m																

2.3O Visual Privacy

Objectives

Objective 2.3O-1

The separation of windows and terraces, decks and balconies within a site and to adjoining existing or future buildings provide a degree of visual privacy without the reliance on fixed screening.

Design Criteria

93. Orientate living room windows, primary private open space to the street front or rear.

94. At least one window for each habitable room is provided without the need for a privacy screen.

95. A privacy screen is required when:

Distance from Boundary	Finished Floor Level Above Ground Level (Existing)
<3m	1 - 3m
<6m	>3m

Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)
<6m	1 - 3m
<12m	>3m

Note: This does not apply to bedroom windows that have an area less than 2m² or windows that have a frontage to a road or public open space.

96. A privacy screen is required at the edge of that part of a terrace, deck, balcony or verandah that is parallel or faces towards a side or rear boundary

Distance from Boundary	Finished Floor Level Above Ground Level (Existing)
<3m	1 - 3m
<6m	>3m

Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)
<6m	1 - 2m
<12m	>2m

Note: This does not apply to a terrace, deck, balcony or patio that has an area less than 3m² or has a frontage to a road or public open space.

Objective 2.3O-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.

97. Where privacy screens are provided to windows, they must not cover part of the window required to meet the minimum daylight or solar access requirements, or restrict ventilation.

2.3P Acoustic Privacy

Objectives	Design Criteria
<p>Objective 2.3P-1</p> <p>Noise transfer is minimised through the siting of buildings and building layout.</p>	<p>98. Electrical, mechanical, hydraulic and air conditioning equipment is housed so that it does not create an 'offensive noise' as defined in the <i>Protection of the Environment Operations Act 1997</i> either within or at the boundaries of any property at any time of the day.</p>

2.3Q Noise and Pollution

Objectives	Design Criteria
<p>Objective 2.3Q-1</p> <p>Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings.</p>	<p>99. Any development within the 20 ANEF contour is to be constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion.</p> <p>100. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures are not exceeding:</p> <ul style="list-style-type: none"> • In any bedroom: 35dB(A) between 10pm-7am. • Anywhere else in the building (other than a kitchen, garage, bathroom or hallway): 40dB(A) at any time. <p>This is achieved by:</p> <ul style="list-style-type: none"> • Providing a full noise assessment report prepared by a qualified acoustic engineer; and • Complying with relevant noise control treatment for sleeping areas and other habitable rooms in Appendix C of <i>RMS Development Near Rail Corridors and Busy Roads - Interim Guideline</i>.

Note: Development that is on land immediately adjacent a rail corridor and development that involves penetration of ground to a depth of 2m within 25m of a rail corridor may be integrated development. Refer to the *State Environmental Planning Policy (Infrastructure) 2007*.

2.3R Architectural Form and Roof Design

Objectives	Design Criteria
<p>Objective 2.3R-1</p> <p>The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape.</p>	<p>101. Provide in the Design Verification Statement a description as to how the architectural form reduces the visual bulk and responds and provides a cohesive design response.</p> <p>Note: Refer to Section 3 for guidance.</p>
<p>Objective 2.3R-2</p> <p>The roof treatments are integrated into the building design and positively respond to the street.</p>	<p>102. The roof design is integrated harmoniously with the overall building form.</p> <p>103. Skylights and ventilation systems are integrated into the roof design.</p>

2.3S Visual Appearance and Articulation

Objectives	Design Criteria
<p>Objective 2.3S-1</p> <p>To promote well designed buildings of high architectural quality that contribute to the local character.</p>	<p>104. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.</p> <p>Note: Refer to Section 3 for guidance.</p> <hr/> <p>105. The development may have a primary road articulation zone that extends up to 1.5m forward of the minimum required setback from the primary road.</p> <p>The following elements can be located in the articulation zone:</p> <ul style="list-style-type: none"> • An entry feature or portico. • A balcony, deck, pergola, terrace or verandah. • A window box treatment. • A bay window or similar feature. • An awning or other feature over a window. • A sun shading feature. • An eave.

2.3T Pools and Detached Development

Objectives	Design Criteria
<p>Objective 2.3T-1</p> <p>The location of swimming pools and spas minimise the impacts on adjoining properties.</p>	<p>106. Swimming pools and spas are to have a maximum height above ground level (existing):</p> <ul style="list-style-type: none"> • At the water line – 1.2m, • At the top of the coping - 1.4m, and • Where the coping is more than 300mm wide – 600mm. <hr/> <p>107. Swimming pools and spas are to be located in the rear yard with a minimum setback of 1m from any side or rear boundary.</p> <hr/> <p>108. The swimming pool pump must be located in an enclosure that is sound proofed.</p>

Objective 2.3T-2

The location of the detached development minimises the impact on adjoining properties.

109. Maximum height above ground level (existing) - 4.5m								
110. A detached studio with a frontage to a rear lane or parallel road may have a height of 6m.								
111. Maximum floor area for each dwelling: <ul style="list-style-type: none"> generally: 45m² detached studios: 36m² 								
112. Where the DCP does not contain setbacks for detached development, side setbacks are the same as for the dwelling except for the following: <ul style="list-style-type: none"> side setback: 0.9m, or side setback with wall height less than 3.3m: 0m, and adjoining lot building is <0.9m from boundary and building wall is of masonry construction with no windows, side setback of detached studio with frontage to a lane: 0m side setback of detached studio without a frontage to a lane: <table border="1" data-bbox="861 1041 1284 1209"> <thead> <tr> <th>Lot Width at building line</th> <th>Rear setback</th> </tr> </thead> <tbody> <tr> <td>0 - 18m</td> <td>900mm</td> </tr> <tr> <td>>18m</td> <td>1.5m</td> </tr> </tbody> </table> 	Lot Width at building line	Rear setback	0 - 18m	900mm	>18m	1.5m		
Lot Width at building line	Rear setback							
0 - 18m	900mm							
>18m	1.5m							
113. Where the DCP does not contain setbacks for detached development, rear setbacks are: <table border="1" data-bbox="861 1310 1284 1500"> <thead> <tr> <th>Lot Area</th> <th>Rear setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900m²</td> <td>900mm</td> </tr> <tr> <td>>900-1500m²</td> <td>1.5m</td> </tr> <tr> <td>>1500m²</td> <td>2.5m</td> </tr> </tbody> </table>	Lot Area	Rear setback	0 - 900m ²	900mm	>900-1500m ²	1.5m	>1500m ²	2.5m
Lot Area	Rear setback							
0 - 900m ²	900mm							
>900-1500m ²	1.5m							
>1500m ²	2.5m							
114. The maximum floor level of a detached deck, patio, pergola or terrace that is less than 0.9m from the side boundary is 0.6m above ground level (existing).								

Notes:

1. A child-resistant barrier must be constructed or installed in accordance with the requirements of the Swimming Pools Act 1992
2. Privacy and building separation and other Design Criteria still apply.

2.3U Energy Efficiency

Objectives	Design Criteria
<p>Objective 2.3U-1</p> <p>Development incorporates passive environmental design.</p>	<p>115. Provide an outdoor area for clothes drying that can accommodate at least 16 lineal metres of clothes line for each dwelling.</p> <p>116. Any clothes drying area is screened from public and communal areas.</p>

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum energy consumption target.

2.3V Water Management and Conservation

Objectives	Design Criteria
<p>Objective 2.3V-1</p> <p>Flood management systems are integrated into site design.</p>	<p>117. A stormwater system must:</p> <ul style="list-style-type: none"> • Comply with requirements in the DCP that applies to the land. • Be approved (if required) under s.68 of the Local Government Act 1993. <p>118. Detention tanks are to be located under paved areas, driveways or in basements.</p>

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum water consumption target.

2.3W Waste Management

Objectives	Design Criteria
<p>Objective 2.3W-1</p> <p>Waste storage facilities meet the needs of the residents, are easy to use and access, and enable efficient collection of waste.</p>	<p>119. Provide storage space for the type and number of bins designated in council's waste policy (or DCP).</p> <p>120. Where waste storage is provided in a communal area, access to this waste area is to be provided for all residents without crossing a private lot.</p> <p>121. Where waste storage is provided in the basement car park, a maximum ramp gradient of 1:6 is to be provided to the waste collection point.</p> <p>122. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.</p> <p>123. Any communal waste area is to:</p> <ul style="list-style-type: none"> • provide water supply for cleaning, • have a solid floor grated to a floor waste (connected to sewer), and • be designed to meet the requirements of council's waste policy. <p>124. Despite any requirements in council's waste policy, on-site waste vehicle access is not required where:</p> <ul style="list-style-type: none"> • there are less than 20 dwellings, or • the development is Torrens title subdivided <p>125. A communal on site waste collection point is to be provided where:</p> <ul style="list-style-type: none"> • there are 20 or more dwellings, and • the development is strata title subdivided. <p>126. Where vehicle access is not provided to the site, any communal on-site collection point is to:</p> <ul style="list-style-type: none"> • be less than 10m from the street boundary, • be located on a surface with a gradient less than 1:20 • not require access through a security door or gate (unless this is permitted by council waste policy). • have path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps for the transfer of bins to the collection vehicle <p>127. If the waste collection point is used for permanent storage of bins, it is to be screened from view from the public domain and any structure to have height no greater than 1.3m, if forward of the building line.</p>

Objective 2.3W-2

Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents.

128. Storage areas for rubbish and recycling bins are to be provided:

- Within garages;
- In a screened enclosure that is part of the overall building design; or
- In the basement car park.

129. Communal waste areas are to be located at least 3m from any bedroom or living room window.

2.3X Universal Design

Objectives

Objective 2.3X-1

Universal design features are included in dwelling design to promote flexible housing for all community members.

Design Criteria

130. 30% of all dwellings will include the Silver Level Seven Core Liveable Housing Design Elements contained in the *Liveable Housing Design Guidelines*.

2.4



Multi Dwelling Housing

2.4 Multi Dwelling Housing

This Section provides the Objectives and Design Criteria for development that contains three or more dwellings on one lot of land but are not residential flat buildings.

Key characteristics of multi dwelling housing:

- Each dwelling typically has its entry and private open space located at ground level; and

Can either be attached or detached.

Strata title

Multi dwelling housing is a form of medium density development that is strata titled. This form of development is differentiated from other medium density housing in that there is common area that consists of communal open space, private streets and internal circulation networks

These are commonly referred to as townhouses or villas.

They are strata titled either because the individual dwellings do not meet minimum lot size requirements, they may have basement car parking, or the configuration of the lot does not enable simple Torrens titling.

Car parking can be located to the front, off a rear lane, an internal street or within an underground car park.

This form of development cannot be carried out as complying development. A development application is required for consent.



Figure 2.4-1 Multi dwelling housing

Development Application

A development application can be submitted where the development is permissible in the zone.

This Section is to be used with the following documents:

- Local Environmental Plan (LEP) for permissibility, development standards and controls
- Development Control plan for local character, built form controls, parking, waste and stormwater requirements
- SEPPs and regulations where relevant.

A summary of the steps required to prepare a DA is provided in Figure 2.4-2.

A qualified designer or a building designer that is accredited by the Building Designers Association of Australia is to certify that the design of the development is consistent with the Design Criteria in the Design Verification Statement.



Figure 2.4-2 Workflows: Preparing a DA

Using this Section

This Section contains Objectives and Design Criteria.

Objectives : relate to the Design Principles and set out what the design is trying to achieve.

Design criteria: the measurable standards that are deemed to meet the Objective.

The development application proposal is merit assessed.

If the development application cannot meet the Design Criteria then the consent authority is to be flexible in applying these provisions and allow reasonable alternative solutions that achieve the relevant Objectives.

Section 3 provides explanatory guidance to assist with the interpretation of terms used in this Section.

2.4A Building Envelopes

Summary Development Standard									
Height of Building	The maximum building as specified in the LEP.								
Objectives	Design criteria								
<p>Objective 2.4A-1</p> <p>The building height is consistent with the desired scale and character of the street and locality and provides an acceptable impact on the amenity of adjoining properties.</p>	<ol style="list-style-type: none"> Where the LEP or DCP does not include a maximum building height, that height of buildings is: <ul style="list-style-type: none"> R1, R2, or RU5 zoned land: 9m R3 zoned land: 11m The maximum number of storeys (excluding basements) are: <ul style="list-style-type: none"> R1, R2, or RU5 zoned land: 2 R3 zoned land: 3 On R1, R2, or RU5 zoned land the maximum height of building on the rear 40% of the site is: 5.4m. 								
<p>Objective 2.4A-2</p> <p>The development provides a setback from the front boundary or public space that:</p> <ul style="list-style-type: none"> defines the street edge; creates a clear threshold and transition from public to private space; assists in achieving visual privacy to ground floor dwellings from the street; contributes to the streetscape character and landscape; and relates to the existing streetscape and setback pattern or the desired future streetscape pattern if different to the existing. 	<ol style="list-style-type: none"> Refer to the DCP for front setback or envelope controls. R2 zoned land - Where the DCP does not contain front setback controls the following apply: <ul style="list-style-type: none"> Where existing dwellings are within 40m - average of the two closest dwelling houses, dual occupancies or multi dwelling housing (terraces), or Where no existing dwellings are within 40m the front setback is 3.5m. R3 zoned land - Where the DCP does not contain front setback controls the setback to primary road is 3.5m. Where the DCP does not contain setback controls for secondary roads the following apply: <table border="1"> <thead> <tr> <th>Lot Area (m²)</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>0 - 900</td> <td>2m</td> </tr> <tr> <td>>900 - 1500</td> <td>3m</td> </tr> <tr> <td>>1500</td> <td>5m</td> </tr> </tbody> </table> Setback from classified road: 9m. Setback from public reserve: 3m. 	Lot Area (m ²)	Setback	0 - 900	2m	>900 - 1500	3m	>1500	5m
Lot Area (m ²)	Setback								
0 - 900	2m								
>900 - 1500	3m								
>1500	5m								

<p>Objective 2.4A-3</p> <p>The development provides side boundary setbacks that reflect the character and form intent of the area where is characterised by the separation of buildings.</p>	<p>10. Where the DCP does not contain side setback controls the side setback is 1.5m</p> <p>Development that is 10m behind the front building line and greater than 4.5m above ground level (existing) - $s = h - 3m$</p> <p>'s' is the minimum setback in metres 'h' is the hieght of the part of the building in meters.</p>
<p>Objective 2.4A-4</p> <p>The development provides a rear boundary setback that provides opportunity to retain and protect or establish significant landscape trees in deep planting areas.</p>	<p>11. Refer to the DCP for rear setbacks or envelope controls.</p> <p>12. Where the DCP does not contain rear setback controls the rear setback is 6m.</p> <p>13. The setback to a lane is 0m.</p>

Notes:

1. When applying primary road, secondary road and rear setbacks – the lot area refers to the lot area prior to any subdivision.
2. The side setbacks only apply to the side boundaries of the lot prior to any subdivision.
3. Setbacks do not apply to the following: access ramps, down pipes, driveways or hard standard spaces, electricity or gas meters, fascias, fences, gutters, light fittings, pathways and paving, privacy screens fixed to the building.
4. For multi dwelling housing, parallel roads should be treated as primary roads and dwellings provide a frontage to them.
5. Refer to Section 3 for an explanation of the application of setbacks, and exemptions to the setbacks.

2.3B Gross Floor Area / Floor Space Ratio

Summary Development Standard	
<i>Gross Floor Area / Floor Space Ratio</i>	<i>The floor space ratio / gross floor area as specified in the LEP.</i>
Objectives	Design Criteria
<p>Objective 2.4B-1</p> <p>To ensure that the bulk and scale is appropriate for the context, minimises impacts on surrounding properties and allows for articulation of the built form.</p>	<p>14. Where the LEP or DCP do not contain an FSR or Gross floor area the following maximum gross floor area applies to all buildings on a lot:</p> <ul style="list-style-type: none"> • R1, R2, or RU5 zoned land - 50% of lot area • R3 zoned land - 80% of lot area <p>Note: For the purpose of this Design Criteria the lot area excludes any new street or lane.</p>

2.4C Landscaped Area

Summary Development Standard																																				
Landscaped Area	The minimum landscaped area as specified in the LEP.																																			
Objectives	Design criteria																																			
<p>Objective 2.4C-1</p> <p>To provide adequate opportunities for the retention of existing and provision of new vegetation that:</p> <ul style="list-style-type: none"> - contributes to biodiversity; - enhances tree canopy; and - minimises urban runoff. 	<p>15. Where the LEP or DCP does not contain a minimum landscaped area the minimum landscaped area is:</p> <ul style="list-style-type: none"> • R1, R2, or RU5 zoned land - 30% • R3 zoned land - 20%. <p>16. The minimum dimension of any area included in the landscaped area calculation is 1.5m.</p> <p>17. At least 50% of the area forward of the building line is to be landscaped area.</p>																																			
<p>Objective 2.4C-2</p> <p>Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees.</p>	<p>18. An ongoing maintenance plan is to be provided as part of the landscape plan.</p> <p>19. Minimum soil standards for plant sizes are provided in accordance with the Table below.</p> <table border="1"> <thead> <tr> <th>Tree Size</th> <th>Height</th> <th>Spread</th> <th>Min Soil Area</th> <th>Min soil depth</th> </tr> </thead> <tbody> <tr> <td>Large trees</td> <td>>12m</td> <td>>8m</td> <td>10 x 10m</td> <td>1.2m</td> </tr> <tr> <td>Medium trees</td> <td>8-12m</td> <td>4-8m</td> <td>6 x 6m</td> <td>1.0m</td> </tr> <tr> <td>Small trees</td> <td>5-8m</td> <td><4m</td> <td>3.5 x 3.5m</td> <td>0.8m</td> </tr> <tr> <td>Shrubs</td> <td></td> <td></td> <td></td> <td>0.5-0.6m</td> </tr> <tr> <td>Groundcover</td> <td></td> <td></td> <td></td> <td>0.3-0.45m</td> </tr> <tr> <td>Turf</td> <td></td> <td></td> <td></td> <td>0.2m</td> </tr> </tbody> </table> <p>20. If the DCP does not specify tree planting of a particular size or species the following is to be provided:</p> <ul style="list-style-type: none"> • Front: 1 tree with mature height of 5m if primary road setback is greater than 3m. • Rear: 1 tree with mature height of 8m. 	Tree Size	Height	Spread	Min Soil Area	Min soil depth	Large trees	>12m	>8m	10 x 10m	1.2m	Medium trees	8-12m	4-8m	6 x 6m	1.0m	Small trees	5-8m	<4m	3.5 x 3.5m	0.8m	Shrubs				0.5-0.6m	Groundcover				0.3-0.45m	Turf				0.2m
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<p>Objective 2.4C-3</p> <p>Retain existing natural features of the site that contribute to neighbourhood character, and reduce visual and privacy impacts on existing neighbouring dwellings.</p>	<p>21. Mature trees are to be retained, particularly those along the boundary, (except those where approval is granted by Council for their removal).</p> <p>22. Landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback.</p>																																			
<p>Objective 2.4C-4</p> <p>Landscape design contributes to a local sense of place and creates a micro climate.</p>	<p>23. The landscape plan is to provide for a combination of tree planting - for shade, mid height shrubs, lawn and ground covers.</p> <p>24. The landscape plan indicates that at least 50% of the overall number of trees and shrubs are species native to the region.</p>																																			

2.4D Local Character and Context

Objectives	Design criteria
<p>Objective 2.4D-1</p> <p>The built form, articulation and scale relates to the local character of the area and the context.</p>	<p>25. Provide in the Design Verification Statement a description how the built form of the development contributes to the character of the local area using the guidance in Section 3D Local Character and Context.</p>

2.4E Public Domain Interface

Objectives	Design criteria
<p>Objective 2.4E-1</p> <p>Provide activation and passive surveillance to the public streets.</p>	<p>26. The front door of each dwelling is directly visible from the street.</p> <p>27. Each dwelling has a habitable room that faces the street or public space.</p>
<p>Objective 2.4E-2</p> <p>Front fences and walls do not dominate the public domain instead they respond to and compliment the context and character of the area (including internal streets).</p>	<p>28. Private courtyards within the front setback are only located within the articulation zones and / or behind the required front building line.</p> <p>29. Front fences:</p> <ul style="list-style-type: none"> • Are visually permeable (no more than 50% of the allowable fence area will be solid masonry, timber or metal). • Average height no greater than 1.2m. • Have a consistent character with other front fences in the street. • Are not to be constructed of solid metal panels or unfinished timber palings. <p>30. High solid walls are only used to shield a dwelling from the noise of classified roads. The walls are to have a maximum height of 2.1m and be setback at least 1.5m from the property boundary. Landscape planting is to be provided between the wall and the boundary, with a mature height of at least 1.5m.</p> <p>31. Retaining walls greater than 600mm within the front setback are to be softened by planting for a minimum depth of 600mm on the low side of the retaining wall.</p>

Objective 2.4E-3

The secondary frontage of a development positively contributes to the public domain by providing an active edge and semi-transparency to the boundary treatment

32. Where development adjoins public parks, open space or bushland, or is a corner site, the design positively addresses this interface using any of the following design solutions:

- Habitable room windows facing the public domain.
- Street access, pedestrian paths and building entries.
- Paths, low fences and planting that clearly delineate between communal/private open space and the adjoining public open space.
- Walls fronting the public spaces are to have openings not less than 25% of the surface area of the wall.

2.4F Pedestrian and Vehicle Circulation

Objective	Design criteria
<p>Objective 2.4F-1</p> <p>Internal vehicle and pedestrian circulation should function like a street, minimise the dominance of the driveway, and minimise impact on habitable spaces.</p>	<p>33. Vehicle circulation and parking complies with AS2890.1.</p> <p>34. Dwellings are to be connected by new internal streets and lanes which are overlooked by windows from habitable rooms and or private open space.</p> <p>35. Where new streets or lanes are created:</p> <ul style="list-style-type: none"> • Lanes: shared or pedestrian surfaces with a width of common area including landscape - minimum 6m. • Streets: width of common area including landscape - minimum 12m. <p>36. Where less than 20 car spaces are provided reduce carriageway width to 3.5m, with passing areas as required by AS 2890.1.</p> <p>37. Internal vehicle circulation must be:</p> <ul style="list-style-type: none"> • at least 1m setback from a fences; • at least 1m setback from another dwelling; • at least 2.5m setback from a window in a habitable room if the window exceeds 1m²; and • the setbacks should contain plants to soften edges. <p>38. Terminate driveways and streets with trees, open space or the window of a dwelling - not a garage or car space.</p> <p>39. Streets to be designed to accommodate appropriate service vehicles likely to access the site.</p> <p>40. Where on street parking is currently available in front of the development, the proposed driveways are located so that at least one car space remains.</p> <p>41. Car parking not associated with a dwelling must be:</p> <ul style="list-style-type: none"> • setback from a fence is to be at least 1m • setback from another dwelling is to be at least 1m • setback from a habitable room window is to be at least 3m if the window exceeds 1m². • The setbacks should contain plants. <p>42. New streets and lanes</p> <ul style="list-style-type: none"> • maximum length of a dead end laneway - 40m. • minimum width between structures - 6m.
<p>Objective 2.4F-2</p> <p>Provide safe, connected environment for pedestrians.</p>	<p>43. Provide safe shared spaces for vehicles, cyclists and pedestrians by including measures that reduce vehicle speeds such as changes in pavement texture at entries or key nodes, reduce demarcation between pedestrian and vehicle spaces.</p>

	44. Pedestrian paths that are separated from an internal road or lane by a kerb or landscaped area are to be provided where there are more than 20 dwellings.
	45. Where pedestrian circulation is separated from vehicle circulation the paths are still to function like streets with pavement at least 1.5m wide, clearly identifiable dwelling entrances and clear lines of sight to create a legible and safe network.
	46. Roads and pedestrian spaces are to have lighting designed in accordance with A1158.3.1 that avoids light spill in to private spaces.
Objective 2.4F-3	47. Basement car parking not to protrude more than 1m above finished ground level except at the entrance to the car park.
Visual and environmental impacts of car parking are minimised	48. Basement car park entrances to have a maximum width of 3.5m where there are less than 10 dwellings being serviced by the car park.
	49. The maximum height of the car park entry is to be 2.7m.
	50. Where driveways are adjacent a tree, it is either outside the drip line or complies with the recommendations in a report prepared by a qualified arborist.

Note: Approval for a driveway crossing will be required under the Roads Act 1993, from Council. If the development has a frontage to a classified road, driveway frontages may be restricted and concurrence will be required from Roads and Maritime Services (RMS)

2.4G Orientation, Siting and Subdivision

Summary Development Standard	
Minimum lot size for carrying out multi dwelling housing (terraces) development	The minimum lot area and / or minimum lot width as specified in the LEP.

Note: If the dwellings are proposed to be subdivided into individual Torrens title lots refer to Section 2.3

Objectives	Design criteria
<p>Objective 2.4G-1</p> <p>To ensure that the development site area will have sufficient area for the dwelling, vehicle access, landscaping, parking and amenity and are consistent with the desired future character of the area.</p>	<p>51. The minimum lot size for carrying out multi dwelling housing is:</p> <ul style="list-style-type: none"> the minimum dimensions for multi dwelling housing specified in an environmental planning instrument or DCP that applies to the land, or if an environmental planning instrument or DCP does not specify a minimum lot dimension - 600m² and width measured at the building line of 20m.

<p>Objective 2.4G-2</p> <p>The development responds to the streetscape and respect the privacy of adjoining single dwelling houses.</p>	<p>52. Each dwelling is to have a frontage to an existing public street or new pedestrian or vehicle street or lane.</p> <p>53. The frontage measured at the building line is to be at least 5m.</p> <p>54. Dwellings should be orientated away from side boundaries and towards the front and rear of the lot or towards new internal streets.</p>
<p>Objective 2.4G-3</p> <p>Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings.</p>	<p>55. A window that is more than 3m from the boundary to a living room of an adjoining dwelling is to receive more than 3 hours of direct sunlight between 9am and 3pm on the winter solstice (June 21). If the window currently receives less than 3hrs - direct sunlight is not reduced.</p> <p>Note: Direct sunlight is measured consistent with Design Criteria 63 and is only required to one window serving the living room.</p> <p>56. Where the location of the living room of an adjoining dwelling cannot be verified the proposed development is accommodated within a building envelope defined by a 35° plane springing from 3.6m above the boundary.</p>
<p>Objective 2.4G-4</p> <p>The development responds to the natural landform of the site, reducing the visual impact and avoiding large amounts of cut and fill and minimise the impacts of retaining walls.</p>	<p>57. Unless a dwelling is over a basement, the ground floor is not more than 1.3m above ground level, and no more than 1m below ground level.</p> <p>58. Dwellings are located to step with the topography.</p>
<p>Objective 2.3G-5</p> <p>Independent services and utilities are available to service each lot.</p>	<p>59. All lots must have access to reticulated water and sewer, electricity, telecommunications, and where available gas.</p>
<p>Objective 2.4G-6</p> <p>To minimise impacts to vegetation on adjoining properties and allow for vegetation within the setbacks.</p>	<p>60. Basement car parking should not be provided within the setbacks described in 2.4A.</p>
<p>Objective 2.4G-7</p> <p>Provide adequate space between buildings to allow for landscape, provide visual separation, reduce visual bulk and daylight access between buildings.</p>	<p>61. The minimum separation between two or more buildings containing dwelling on the same lot is 3m. Note: Greater separation may be required for privacy.</p> <p>62. Provide a break of 3m between buildings more than 45m long.</p>

2.4H Solar and Daylight Access

Objective	Design criteria
<p>Objective 2.4H-1</p> <p>To optimise sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment</p>	<p>63. The living room or private open space in each dwelling is to receive a minimum of 2 hours direct sunlight between 9 am and 3pm on the winter solstice (June 21).</p> <p>Note: Direct sunlight is achieved when 1m² of direct sunlight on the glass is achieved for at least 15 minutes. To satisfy 2 hours direct sunlight, 8 periods of 15 minutes will need to be achieved - however the periods do not need to be consecutive.</p>
<p>Objective 2.4H-2</p> <p>To provide good access to daylight suited to the function of the room and to minimise reliance on artificial lighting and improve amenity</p>	<p>64. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road.</p> <p>65. No part of a habitable room is to be more than 8m from a window.</p> <p>66. No part of a kitchen work surface is to be more than 6m from a window or skylight.</p> <p>67. Courtyards are to be:</p> <ul style="list-style-type: none"> • Be fully open to the sky; and • Have a minimum dimension of one third of the perimeter wall height, an area of 4m². <p>68. A window is visible from 75% of the floor area of a habitable room.</p>

2.4I Natural Ventilation

Objectives	Design criteria
<p>Objective 2.4J-1</p> <p>All habitable rooms are naturally ventilated.</p>	<p>69. Natural ventilation is available to each habitable room.</p> <p>70. Each dwelling is to be naturally cross ventilated.</p>

2.4J Ceiling Height

Objective	Design criteria
<p>Objective 2.4J-1</p> <p>Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality.</p>	<p>71. Minimum ceiling heights are:</p> <ul style="list-style-type: none"> • 2.7m to ground floor habitable rooms. • 2.7m to upper level living rooms. • 2.4m to upper level habitable rooms (excluding living rooms). <p>The ceiling height is measured from finished floor level to finished ceiling level.</p>

2.4K Dwelling Size and Layout

Objective	Design criteria
<p>Objective 2.4K-1</p> <p>The dwelling has a sufficient area to ensure the layout of rooms are functional, well organised and provide a high standard of amenity.</p>	<p>72. Dwellings are required to have the following minimum internal floor areas:</p> <ul style="list-style-type: none"> • 1 bed 65m² • 2 bed 90m² • 3+ bed 115m² <p>73. The minimum internal areas outlined above only contain one bathroom. The minimum area of each additional bathroom is 5m² added onto the minimum dwelling area.</p> <p>74. The minimum area of any additional bedroom is 12m². The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 72.</p> <p>75. Kitchens should not be part of a circulation space such as a hallway.</p>
<p>Objective 2.4K-2</p> <p>Room sizes are appropriately sized for the intended purpose and number of occupants.</p>	<p>76. One bedroom has a minimum area of 10m² excluding space for a wardrobe.</p> <p>77. Bedrooms have a minimum dimension of 3m in any direction (excluding wardrobe space).</p> <p>78. Combined living and dining rooms are to have a minimum area of:</p> <ul style="list-style-type: none"> • 1 and 2 bed 24m² • 3+ bed 28m² <p>79. Living room or lounge rooms are to have a minimum width of 4m (excluding fixtures).</p>

2.4L Principal Private Open Spaces

Objectives	Design criteria
<p>Objective 2.4L-1</p> <p>Dwellings provide appropriately sized private open space and balconies to enhance residential amenity.</p>	<p>80. The area of principal private open space provided for each dwelling is at least 45m² with a minimum dimension of 5m.</p> <p>81. Provide a consolidated paved area of 12m² with minimum dimension of 3m.</p>

<p>Objective 2.4L-2</p> <p>Principal private open space and balconies are appropriately located to enhance liveability for residents.</p>	82. The principal private open space is located behind the front building line.
	83. The principal private open space is to be located adjacent to the living room, dining room or kitchen to extend the living space.
	84. 8m ² of the private open space should be covered to provide shade and protection from rain.

2.4M Storage

Objectives	Design criteria
<p>Objective 2.4M-1</p> <p>Adequate, well designed storage is provided in each dwelling.</p>	<p>85. In addition to storage in kitchens, and bedrooms, the following storage with a minimum dimension of 500mm is provided:</p> <ul style="list-style-type: none"> • 1 bed 6m³ • 2 bed 8m³ • 3+ bed 10m³
	86. At least 50% of the required storage is to be located inside the dwelling.
	87. Storage not located in dwellings is secure and clearly allocated to specific dwellings if in a common area.

2.4N Car and Bicycle Parking

Objectives	Design criteria
<p>Objective 2.4N-1</p> <p>Car parking is provided appropriate for the scale of the development</p>	<p>88. Car parking is to be provided at the rate required for multi dwelling housing within the DCP that applies to the land. If there is no rate in the DCP - 1 space is to be provided per dwelling.</p>
	89. Visitor parking is to be provided where the development contains more than 5 dwellings. Provide 1 space per 5 dwellings.
	90. Car parking spaces and circulation are to comply with AS 2890.1:2004.
<p>Objective 2.4N-2</p> <p>Parking facilities are provided for bicycles.</p>	91. Covered space is to be provided for the secure storage of at least 1 bicycle per dwelling.

Objective 2.4N-3

Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling

92. Basement car parking is not to protrude more than 1m above finished ground level except at the entrance to the car park.

93. The maximum dimensions of any basement car park entry is to be 2.7m high by 3.5m wide.

94. Where a driveway is adjacent an existing tree, it is either outside the drip line or complies with the recommendations in a report prepared by a qualified arborist.

95. The setback of a car space from a primary, secondary or parallel road is to be at least:

Setback of dwelling from road	Maximum width of garage door openings
>4.5m	1m behind the building line
<4.2m	5.5m

96. The maximum width of all garage doors facing a primary or secondary road:

Lot Width	Maximum Width of Garage Door Openings
12m - 15m	3.2m
>15m - 20m	6m
>20m - 25m	9.2m
>25m	12m

2.4O Visual Privacy

Objectives	Design criteria												
<p>Objective 2.4O-1</p> <p>The separation of windows and terraces, decks and balconies within a site and to adjoining existing or future buildings provide a degree of visual privacy without the reliance on fixed screening</p>	<p>97. Orientate living room windows, primary private open space to the street or rear.</p>												
	<p>98. At least one windows for each habitable room is provided without the need for a privacy screen.</p>												
	<p>99. A privacy screen is required when:</p> <table border="1"> <thead> <tr> <th>Distance from Boundary</th> <th>Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Distance from Windows in Dwelling on Same Lot</th> <th>Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 3m</td> </tr> <tr> <td><12m</td> <td>>3m</td> </tr> </tbody> </table> <p>Note: This does not apply to bedroom windows that have an area less than 2m² or windows that have a frontage to a road or public open space.</p>	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 3m	<12m	>3m
	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)											
<3m	1 - 3m												
<6m	>3m												
Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)												
<6m	1 - 3m												
<12m	>3m												
	<p>100. A privacy screen is required at the edge of that part of a terrace, deck, balcony or verandah that is parallel or faces towards a side or rear boundary</p> <table border="1"> <thead> <tr> <th>Distance from Boundary</th> <th>Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><3m</td> <td>1 - 3m</td> </tr> <tr> <td><6m</td> <td>>3m</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Distance from Windows in Dwelling on Same Lot</th> <th>Finished Floor Level Above Ground Level (Existing)</th> </tr> </thead> <tbody> <tr> <td><6m</td> <td>1 - 2m</td> </tr> <tr> <td><12m</td> <td>>2m</td> </tr> </tbody> </table> <p>Note: This does not apply to a terrace, deck, balcony or patio that has an area less than 3m² or has a frontage to a road or public open space.</p>	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)	<3m	1 - 3m	<6m	>3m	Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)	<6m	1 - 2m	<12m	>2m
	Distance from Boundary	Finished Floor Level Above Ground Level (Existing)											
<3m	1 - 3m												
<6m	>3m												
Distance from Windows in Dwelling on Same Lot	Finished Floor Level Above Ground Level (Existing)												
<6m	1 - 2m												
<12m	>2m												
<p>Objective 2.4O-2</p> <p>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</p>	<p>101. Where privacy screens are provided to windows, they must not cover part of the window required to meet the minimum daylight or solar access requirements, or restrict ventilation.</p>												

2.4P Acoustic Privacy

Objectives	Design criteria
<p>Objective 2.4P-1</p> <p>Noise transfer is minimised through the siting of buildings and building layout</p>	<p>102. Electrical, mechanical, hydraulic and air conditioning equipment is housed so that it does not create an 'offensive noise' as defined in the Protection of the Environment Operations Act 1997 either within or at the boundaries of any property at any time of the day.</p>

2.4Q Noise and Pollution

Objectives	Design criteria
<p>Objective 2.4Q-1</p> <p>Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings</p>	<p>103. Any development within the 20 ANEF contour is to be constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion.</p> <p>104. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures are not exceeding:</p> <ul style="list-style-type: none"> • In any bedroom: 35dB(A) between 10pm-7am. • Anywhere else in the building (other than a kitchen, garage, bathroom or hallway): 40dB(A) at any time. <p>This can be achieved by:</p> <ul style="list-style-type: none"> • A full noise assessment prepared by a qualified acoustic engineer • Complying with relevant noise control treatment for sleeping areas and other habitable rooms in Appendix C of <i>Draft Guide to Infrastructure Development Near Rail Corridors Busy Roads</i>.

Note: Development that is on land immediately adjacent a rail corridor and development that involves penetration of ground to a depth of 2m within 25m of a rail corridor may be integrated development. Refer to the *State Environmental Planning Policy (Infrastructure) 2007*.

2.3R Architectural Form and Roof Design

Objectives	Design Criteria
<p>Objective 2.4R-1</p> <p>The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape.</p>	<p>105. Provide in the Design Verification Statement a description as to how the architectural form reduces the visual bulk and responds and provides a cohesive design response.</p> <p>Note: Refer to Section 3 for guidance.</p>
<p>Objective 2.4R-2</p> <p>The roof treatments are integrated into the building design and positively respond to the street.</p>	<p>106. The roof design is integrated harmoniously with the overall building form.</p> <p>107. Skylights and ventilation systems are integrated into the roof design.</p>

2.4S Visual Appearance and Articulation

Objectives	Design criteria
<p>Objective 2.4S-1</p> <p>To promote well designed buildings of high architectural quality that contribute to the local character</p>	<p>108. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.</p> <p>Note: Refer to Section 3 for guidance.</p> <p>109. The development may have a primary road articulation zone that extends up to 1.5m forward of the minimum required setback from the primary road.</p> <p>The following elements can be located in the articulation zone:</p> <ul style="list-style-type: none"> • An entry feature or portico. • A balcony, deck, pergola, terrace or verandah. • A window box treatment. • A bay window or similar feature. • An awning or other feature over a window. • A sun shading feature. • An eave.

2.4T Pools and Detached Development

Objectives	Design criteria
<p>Objective 2.1T-1</p> <p>The location of the swimming pools and spas minimise the impacts of adjoining properties</p>	<p>110. Swimming pools and spas are to have a maximum height above ground level (existing):</p> <ul style="list-style-type: none"> • At the water line – 1.2m, • At the top of the coping - 1.4m, and • Where the coping is more than 300mm wide – 600mm. <p>111. Swimming pools and spas are to be located in the rear yard with a minimum setback of 1m from any side or rear boundary.</p> <p>112. The swimming pool pump must be located in an enclosure that is sound proofed.</p>

Objective 2.1T-2

The location of the detached development minimise the impacts of adjoining properties

113. Maximum height above ground level (existing) - 4.5m

114. A detached studio with a frontage to a rear lane or parallel road may have a height of 6m.

115. Maximum floor area for each dwelling:

- generally: 45m²
- detached studios: 36m²

116. Where the DCP does not contain setbacks for detached development, side setbacks are the same as for the dwelling except for the following:

- side setback: 0.9m, or
- side setback with wall height less than 3.3m: 0m, and adjoining lot building is <0.9m from boundary and building wall is of masonry construction with no windows,
- side setback of detached studio with frontage to a lane: 0m
- side setback of detached studio without a frontage to a lane:

Lot Width at building line

Rear setback

0 - 18m	900mm
>18m	1.5m

117. Where the DCP does not contain setbacks for detached development, rear setbacks are:

Lot Area

Rear setback

0 - 900m ²	900mm
>900-1500m ²	1.5m
>1500m ²	2.5m

118. The maximum floor level of a detached deck, patio, pergola or terrace that is less than 0.9m from the side boundary is 0.6m above ground level (existing).

Notes:

1. A child-resistant barrier must be constructed or installed in accordance with the requirements of the Swimming Pools Act 1992
2. Privacy and building separation and other Design Criteria still apply.

2.4U Energy Efficiency

Objectives	Design criteria
<p>Objective 2.4U.1</p> <p>Development incorporates passive environmental design</p>	<p>119. Provide an outdoor area for clothes drying that can accommodate at least 16 lineal metres of clothes line for each dwelling.</p> <p>120. Any clothes drying area should be screened from public and communal areas.</p>

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum energy consumption target.

2.4V Water Management and Conservation

Objectives	Design criteria
<p>Objective 2.4V-1</p> <p>Urban stormwater is treated on site before being discharged to receiving waters</p>	<p>121. A stormwater system is to:</p> <p>The system must:</p> <ul style="list-style-type: none"> • Comply with requirements in the DCP that applies to the land. • Be approved (if required) under s.68 of the Local Government Act 1993.
<p>Objective 2.1V-2</p> <p>Flood management systems are integrated into site design</p>	<p>122. Detention tanks are to be located under paved areas, driveways or in basements.</p>

Note: A DA for a dwelling is required to have a BASIX Certificate that applies a minimum water consumption target.

2.4W Waste Management

Objectives	Design criteria
<p>Objective 2.4W-1</p> <p>Waste storage facilities meet the needs of the residents, are easy to use and access and enable efficient collection of waste</p>	<p>123. Provide storage space for the type and number of bins designated in council's waste policy (or DCP).</p> <p>124. Where waste storage is provided in a communal area, access to this waste area is to be provided for all residents without crossing a private lot.</p> <p>125. Where waste storage is provided in the basement car park, a maximum ramp gradient of 1:6 is to be provided to the waste collection point.</p> <p>126. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.</p> <p>127. Despite any requirements in council's waste policy, on-site waste vehicle access is not required where:</p> <ul style="list-style-type: none"> • there are less than 20 dwellings, or • the development is Torrens title subdivided <p>128. Where vehicle access is not provided to the site, any communal on-site collection point is to:</p> <ul style="list-style-type: none"> • be less than 10m from the street boundary, • be located on a surface with a gradient less than 1:20 • not require access through a security door or gate (unless this is permitted by council waste policy). • have path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps for the transfer of bins to the collection vehicle <p>129. If the waste collection point is used for permanent storage of bins, it is to be screened from view from the public domain and any structure to have height no greater than 1.3m, if forward of the building line.</p>
<p>Objective 2.4W-2</p> <p>Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents</p>	<p>130. Storage areas for rubbish and recycling bins are to be provided:</p> <ul style="list-style-type: none"> • Within garages; • In screened enclosure that is part of the overall building design; or • In the basement car park. <p>131. Communal waste areas are to be located at least 3m from any bedroom or living room window.</p>

2.4X Universal Design

Objectives	Design criteria
<p>Objective 2.4X-1</p> <p>Universal design features are included in dwelling design to promote flexible housing for all community members</p>	<p>132. All dwellings are to include the Liveable Housing Design Guideline's Silver level universal design features.</p>

2.4Y Communal Areas and Open Space

Objectives	Design criteria
<p>Objective 2.4Y-1</p> <p>Adequate area for communal open space is provided that enhances residential amenity.</p>	<p>133. Where more than 10 dwellings are proposed a communal space with minimum area of 5% of the site area with a minimum dimension of 8m is to be provided for active communal open space.</p> <p>134. The active communal open space is at least 3m from a habitable room of a dwelling on the lot.</p> <p>135. The active communal open space is to receive at least 2hrs of direct sunlight between 9am and 3pm at the winter solstice (June 21) to 50% of the required area.</p>
<p>Objective 2.4Y-2</p> <p>Communal areas are designed to enhance residential amenity and maximise safety and connectivity to the dwelling and promote social interaction between residents.</p>	<p>136. Communal areas and open space are visible from habitable rooms and private open space while maintaining visual privacy.</p> <p>137. Where communal open space is provided, it has a direct connection to the internal street along the longest edge.</p> <p>138. Public through site links should have direct line of site between public streets.</p>
<p>Objective 2.4Y-3</p> <p>Common circulation spaces achieve good amenity with access to daylight and ventilation</p>	<p>139. Daylight and natural ventilation is provided to all common circulation above ground.</p> <p>140. Provide lighting to common spaces .</p>

3

Explanatory Guidance

Design guidance is provided to assist interpretation of the Design Criteria. It explains the intent behind the Design Criteria and provide advice on how to achieve good design outcomes.

Building designers and architects should use this Section for guidance on how a development should relate to its immediate context, interface with other buildings and the public domain, and provide quality landscaped areas.

3.1 Design Principles and Design Criteria Relationship

The Design Criteria in Section 2 are divided into 25 groups. This matrix identifies the key relationships and interactions between the Design Principles and the Design Elements in the Guide.

Design Principles		1. Context and Neighbourhood Character	2. Built Form and Scale	3. Density	4. Sustainability	5. Landscape	6. Amenity	7. Safety	8. Housing Diversity and Social Interaction	9. Visual Appearance
Design Elements										
A	Building Envelopes - Heights and Setbacks	♦	♦							
B	Gross Floor Area / Floor Space Ratio		♦	♦						
C	Landscaped Area					♦				
D	Local Character and Context	♦								
E	Public Domain Interface	♦	♦		♦					
F	Pedestrian and Vehicle Circulation		♦			♦		♦	♦	
G	Orientation, Siting and Subdivision	♦	♦					♦		
H	Solar and Daylight Access				♦		♦			
I	Natural Ventilation				♦		♦			
J	Ceiling Height						♦			
K	Dwelling Size and Layout			♦			♦			
L	Principle Private Open Spaces						♦			
M	Storage						♦			
N	Car and Bicycle Parking				♦		♦	♦	♦	
O	Visual Privacy						♦			
P	Acoustic Privacy						♦			
Q	Noise and Pollution	♦					♦			
R	Architectural Form and Roof Design	♦	♦							♦
S	Visual Appearance and Articulation	♦								♦
T	Pools and Detached Development		♦							
U	Energy Efficiency				♦					
V	Water Management and Conservation				♦					
W	Waste Management				♦					
X	Universal Design				♦				♦	
Y	Communal Areas and Open Space					♦			♦	

3.2 Using this Section

Development Applications

The explanatory guidance provided in this Section, including the diagrams will assist in the interpretation of the Objectives and Design Criteria in Section 2.

The designer prepares the Design Verification Statement to describe how the development fits within the local context and character of the area, and provides appropriate architectural form and articulation. This Section will assist the designer in preparing these descriptions.

Guide for Good Design

The design guidance provides practical measures and matters to consider that will improve the design quality of the development.

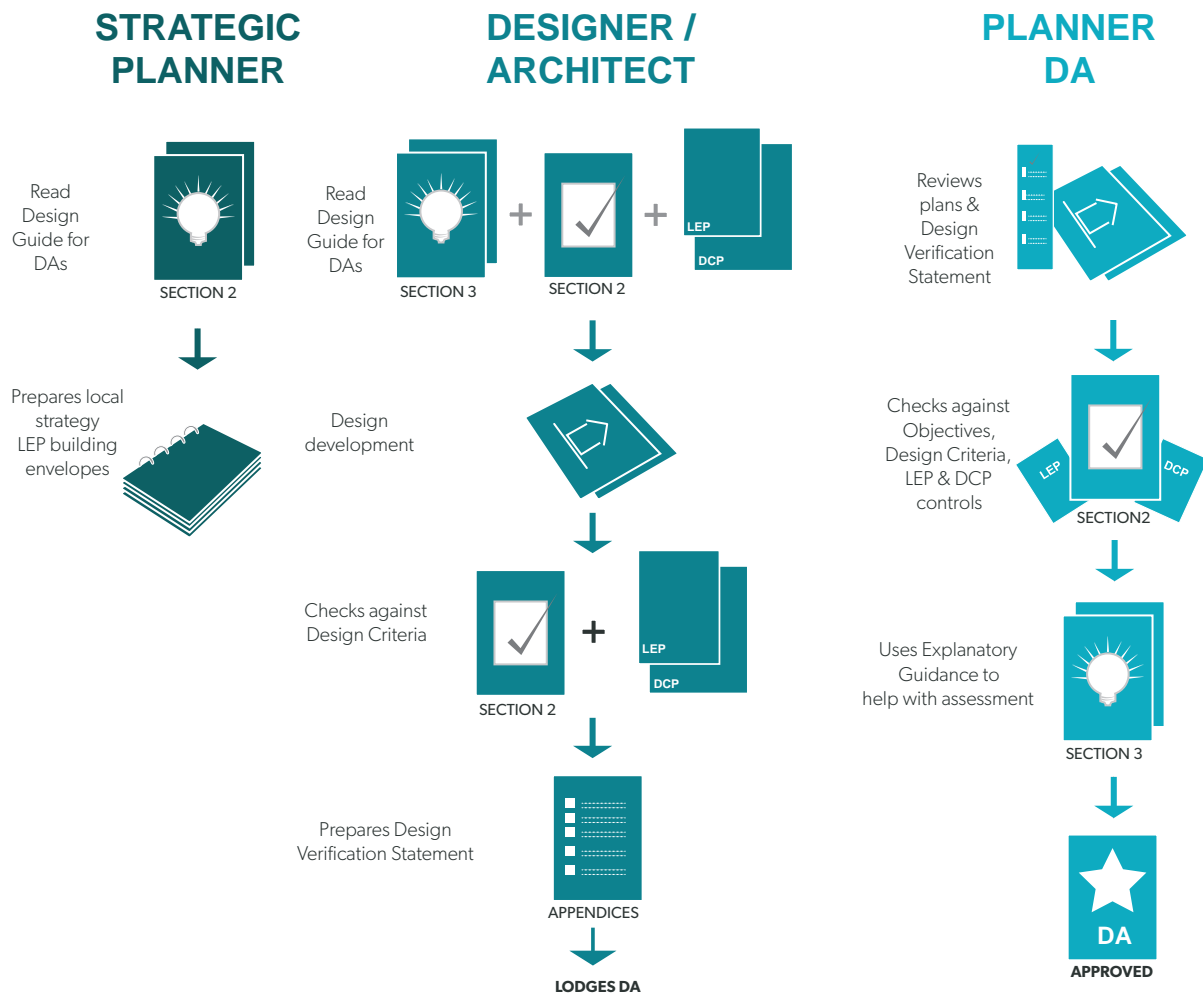
Planning Context

This Design Guide could also serve to inform the planning of a local area and to assist councils and communities in guiding the future form of development in the area.

The Design Guide for DAs encourages a design-led strategic planning process to determine the type, scale and built form of low rise medium density housing permitted.

Planning at a local level should consider the following elements:

- Spatial networks
- Movement networks
- The green grid
- Building envelopes
- Setbacks



Setting and Testing the Design Criteria

The Design Criteria will be the shapers of the built environment for low rise medium density housing carried out as a development application. For this reason the Design Criteria must work together to achieve a quality urban and built environment.

The appropriate development controls are the result of identifying future character, appropriate heights, building depths, spaces between buildings and ensuring good amenity. Control testing should also consider:

- Orientation to control sunlight and daylight access and limit overshadowing;
- Natural ventilation;
- Visual and acoustic privacy;
- Private open space;
- Communal open space;
- Deep soil zones;
- Ceiling heights ;
- Dwelling sizes;
- Public domain interface; and
- Noise and pollution.

The Design Criteria must be checked to ensure they are coordinated and that the desired built form outcome is achievable. The Design Criteria should also ensure the optimal density and massing can be accommodated within the building height and setback controls.



Figure 3-1 Landscaping softens the interface between the private and public domain

3A Building Envelopes - Heights and Setbacks

Related Design Principles

Design Principle 1. Context and Neighbourhood Character

Design Principle 2. Built Form and Scale

A building envelope is measured by the length, width and height of a building, and sets the maximum building mass and volume. A building envelope will also be defined by site setbacks and other on-site considerations.

Building envelopes set the appropriate scale for future development in terms of bulk and height relative to the streetscape, public and private open spaces, and block and lot sizes in a particular location. Building envelopes help to:

- Define the three dimensional form of buildings and wider neighbourhoods;
- Inform decisions about appropriate density for a site and its context;
- Define open spaces and landscape areas;
- Provide appropriate building sizes in relation to internal habitable spaces and configuration to take advantage of solar access, daylight and natural ventilation requirements;
- Test the other development controls to ensure they are coordinated and achieve the desired outcome; and
- Demonstrate the mass, scale and location of future development.

Building Height

There are two measures used to determine building height:

- height in storeys; and
- height in distance above ground level.

Height in storeys is useful to guide the character of an area, whereas height in distance can more effectively guide impacts such as solar access.

Building height is an important component of the building envelope. It helps shape the desired future character of a place relative to its setting and topography. It defines the proportion and scale of streets and public spaces, and has a relationship to the physical and visual amenity of the public and private spaces.

Calculating building height - distance

Building height is defined by the *Standard Instrument Local Environmental Plan (SILEP)*, the vertical distance measured from existing ground level to the highest part of the building immediately above that point. It includes plant and lift overruns, but excludes flues, communication devices and the like.

As the existing ground level can change across a site, the maximum height will also vary with this change in ground level.

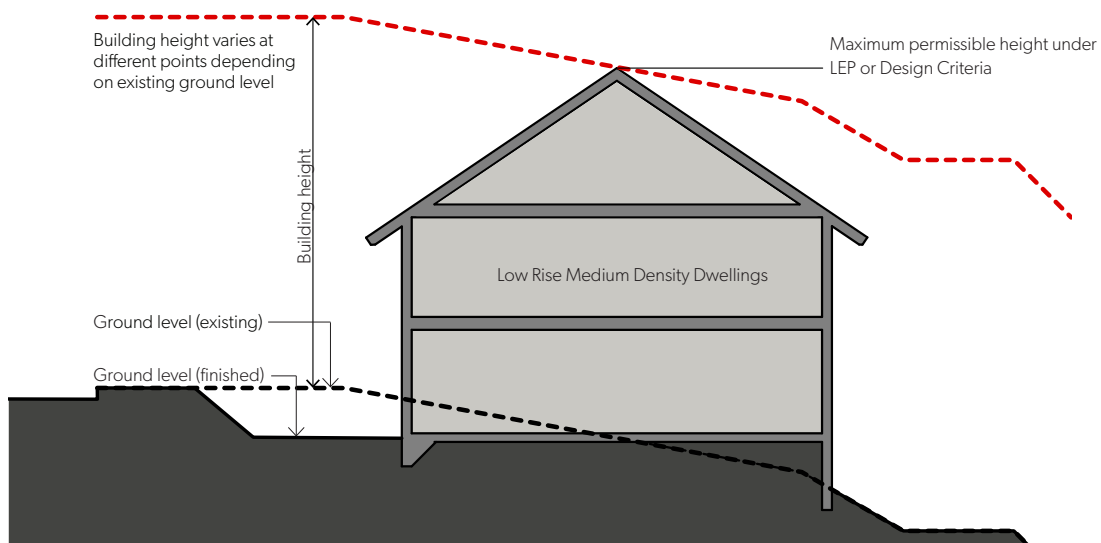


Figure 3-2 Measuring building height

Determining existing ground level

Ground level (existing) is the existing level of a site at any point.

When the site is covered by existing structures a survey plan should be prepared by a registered surveyor.

Calculating the number of storeys

Storey is defined under the SI LEP as the space in a building that is situated between one floor level and the floor level above, or if there is no level above, the ceiling or roof above but does not include a lift shaft, stairway, meter room, mezzanine or attic.

On a sloping site, a house may have a building form that is “stepped”, with separate storeys stepping up with the slope of the land. This is acceptable provided the development does not exceed two storeys at any point along the slope.

In calculating the number of storeys permitted for the development types in this Design Guide, a basement is a storey unless it does not contain habitable rooms and contains only car parking and storage.

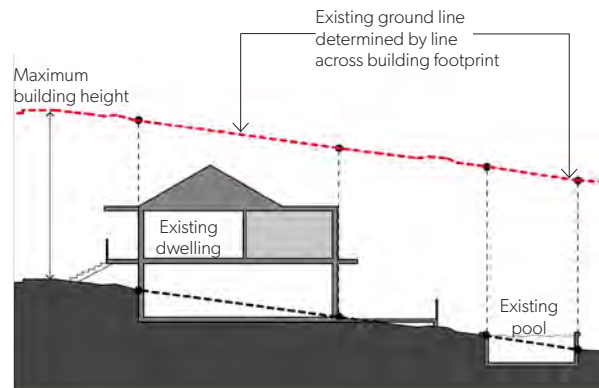


Figure 3-4 Determining existing ground level under existing structures

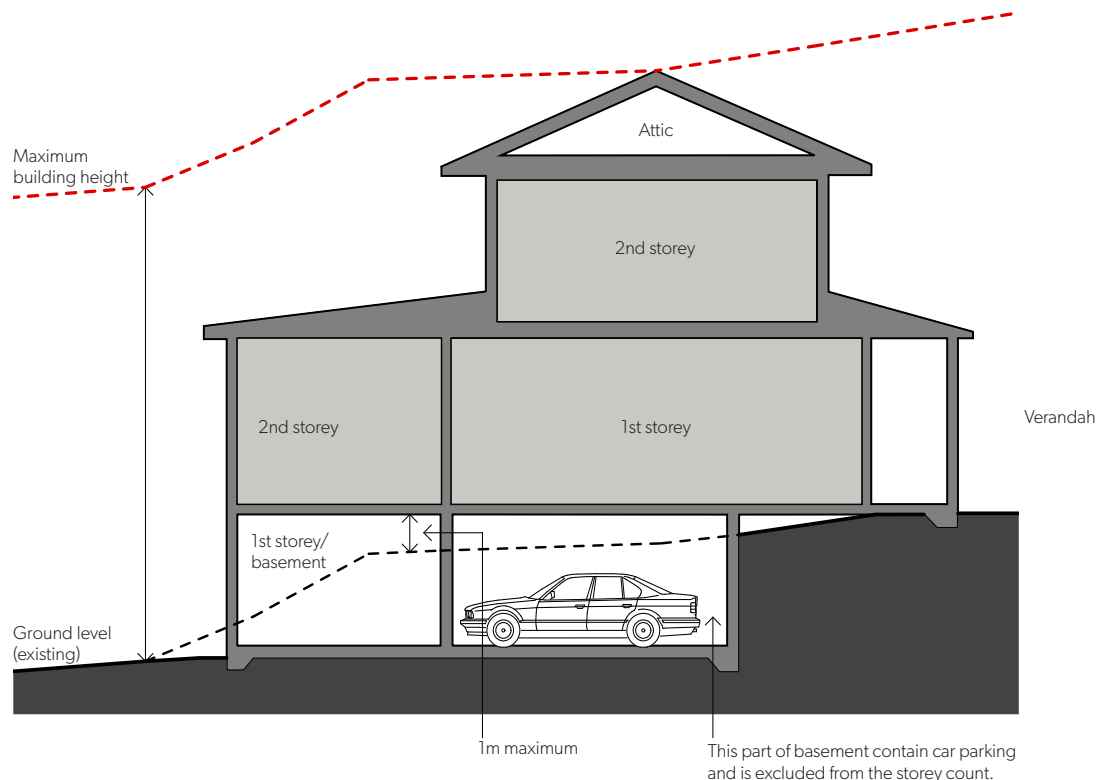


Figure 3-3 Calculating number of storeys

Setbacks

Setbacks govern space between buildings and other elements in the environment. Usually setbacks are expressed as the distance of a building from property boundaries. However, setbacks can also refer to the separation between buildings on a site. This is known as building separation.

Setbacks are usually scaled in relation to the building height and lot width, and can provide scale and character to streetscapes. Setbacks can also reduce a building's envelope and form through good articulation and building design.

Setbacks are important to ensure good amenity and reduce overshadowing and privacy concerns to adjoining lots.

Side and rear setbacks can also be used to create usable landscape space, preserving part of the site for tree planting, landscaping or outdoor recreation.

Street Setbacks

Street setbacks establish the alignment of buildings along a street frontage, spatially defining the width of the street. Combined with building height and road reservation, street setbacks define the proportion and scale of the street and contribute to the character of the public domain.

Street setbacks provide space for building entries, ground floor dwelling courtyards and entries, landscape areas and deep soil zones.

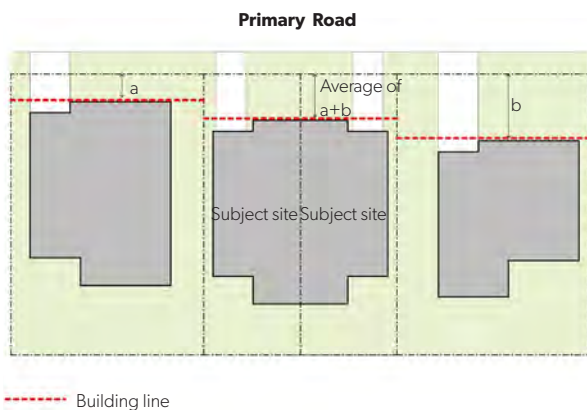


Figure 3-5 Primary road setback

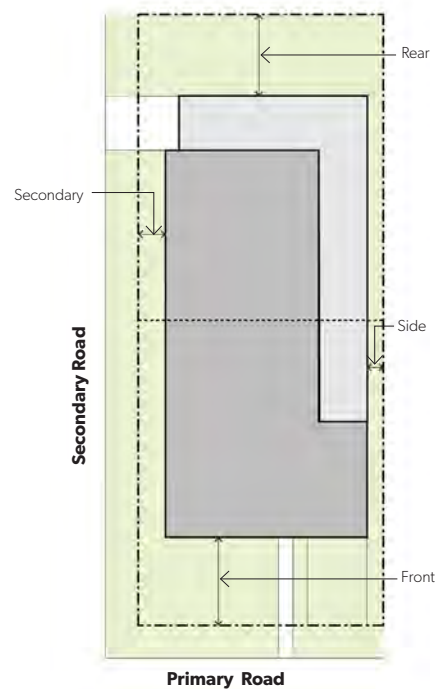
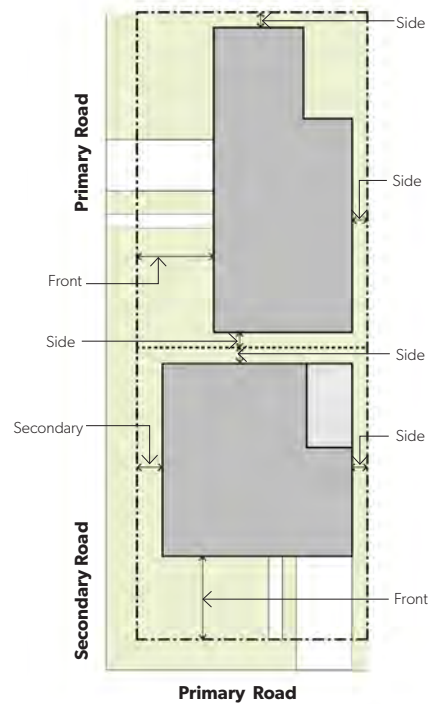


Figure 3-6 Nomination of setbacks for a corner dual occupancy

How are setbacks calculated

Setbacks to the primary road are most commonly calculated using the average of the dwellings within 40m of the site being developed. The houses must be on the same side of the road.

The measurement of the setback does not take into account garages, car ports or minor development at the front of the dwelling.

Setbacks are the horizontal distance (measured at 90°) from a lot boundary to a development.

Corner lot setbacks

A detached dual occupancy on a corner lot is required to address both street frontages. Each dwelling will have a frontage to a "nominated" primary road. Setbacks to the other boundaries on the site will be side boundary setbacks.

An attached dual occupancy development will be treated in a similar way to a single dwelling house where the shorter frontage is the 'primary road' and longer frontage is the 'secondary road'.

Side Boundary Setbacks

Side setbacks are determined by the width of the lot measured at the building line and by the building height.

When calculating the side setback, the development controls provide incremental setbacks. The height of the building is taken at the point closest to the boundary, as opposed to the overall height of the building, which creates a stepped setback along the side boundary.

The setbacks along with the building height create the building envelope. The envelope tapers at the top to reduce impacts on adjoining properties. Refer to Figures 3-8 and 3-9.

The side setbacks only apply to the boundaries of the development site - not any new lot boundaries resulting from subdivision of the land as part of the consent.

Development can be 'built to the boundary' on the proposed internal lot boundaries.

Rear Setbacks

Rear setbacks are traditionally larger to allow for landscaping, tree planting and private recreation. Where a rear lane is provided, buildings can be built to the rear boundary. However, the building separation requirements ensure that open space is provided at the rear.

Exceptions to Setbacks

The setbacks do not apply to eaves, awnings gutters, sunblinds, fences, services and unroofed terraces or decks.

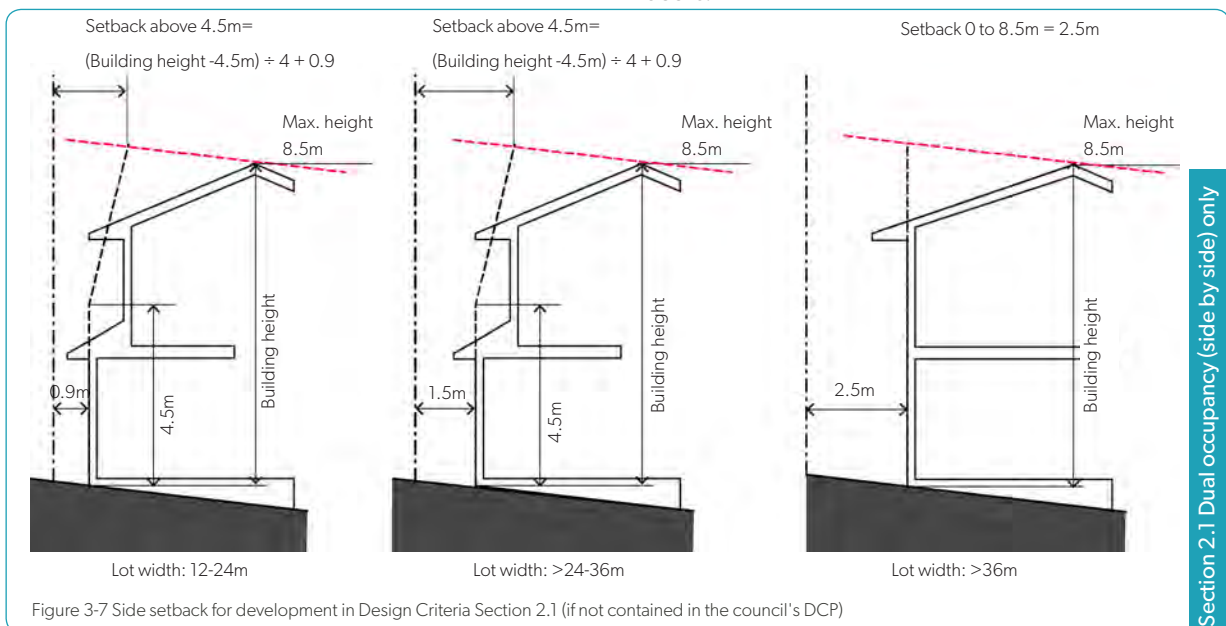


Figure 3-7 Side setback for development in Design Criteria Section 2.1 (if not contained in the council's DCP)

Design guidance

1. The height should respond to the desired future scale and character of the street and local area. This will depend on the potential for redevelopment which may include existing and/or proposed future development.
2. The height of existing buildings which are unlikely to change (such as a heritage item or strata subdivided building) should be considered when determining the height of a building.
3. Building heights should respond to the landform.
4. It may be appropriate to determine heights by relating them to site-specific features such as cliff lines or heritage items. This may involve:
 - Defining an overall height or street wall heights to key datum lines, such as eaves, parapets, cornices or spires; and
 - Aligning floor to floor heights of new development with the existing built form.
5. Building heights and setbacks should work together to allow for good daylight and solar access to key public open spaces, private living rooms and private open space.
6. Adequate setbacks between the building envelope and neighbouring properties can allow for improved privacy, avoiding the need for privacy screens.
7. The spaces between buildings should create a rhythm and form part of the character of the streetscape.
8. Setback areas should be used to maximise deep soil areas, retain existing landscaping and support consolidation of mature vegetation across sites.
9. Access around buildings for maintenance need to be considered in the building design.
10. Building height, street wall height and street setbacks help to define the scale and enclosure of the street.

11. A step down in building height at the boundary may be appropriate to create a transition between two height zones.
12. Setbacks should vary according to the building's context and type. Larger setbacks are usually in suburban contexts compared to higher density urban settings.

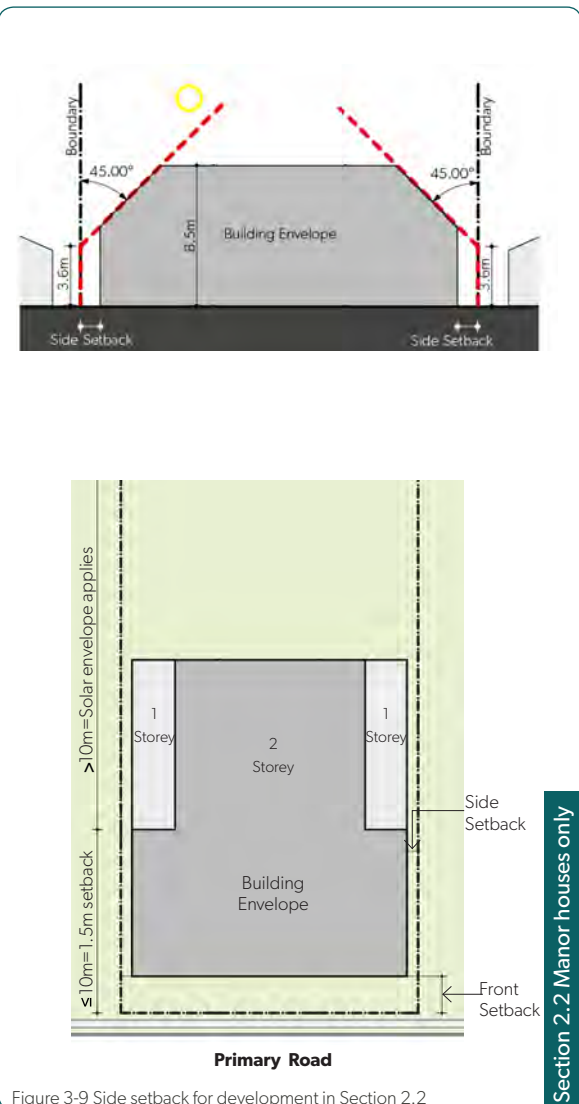


Figure 3-9 Side setback for development in Section 2.2

3B Gross Floor Area / Floor Space Ratio

Related Design Principles

Design Principle 3. Density

Gross floor area (GFA) or floor space ratio provides a limit to the floor space on a site, indicating the intended physical floor space density and way of managing the development potential of a site.

It can be expressed in terms of area (GFA) or as a floor space ratio (FSR). FSR is the relationship between the total GFA of a building relative to the total area of the site being developed.

GFA or FSR is not a measure of the maximum capacity of the building envelope. The envelope provides an overall guide for the location of the development of the site - the GFA or FSR indicates the extent to which this envelope can be filled.

GFA and FSR controls determine only the theoretical maximum capacity. It may not be possible to reach the maximum allowable floor space due to other development controls or constraints specific to the site such as individual lot size or shape, existing landscape features, neighbouring properties or heritage considerations.

Vehicle circulation and parking have a significant influence on the GFA achievable on a site.

Councils should consider in new urban areas or where an existing neighbourhood is undergoing change, building envelopes should be tested before setting FSR controls.

Calculating gross floor area

Gross floor area is defined in the *SILEP*.

Common vertical circulation including stairs and lifts are excluded from the gross floor area. Private vertical circulation used by only one tenant is included in the gross floor area calculation.

Gross floor area is used when determining a floor space ratio (FSR). To calculate the FSR for a development the Gross Floor area is divided by the site area to give a ratio

For example: $200\text{m GFA} / 500\text{m}^2 \text{ site area} = 0.4:1 \text{ FSR}$

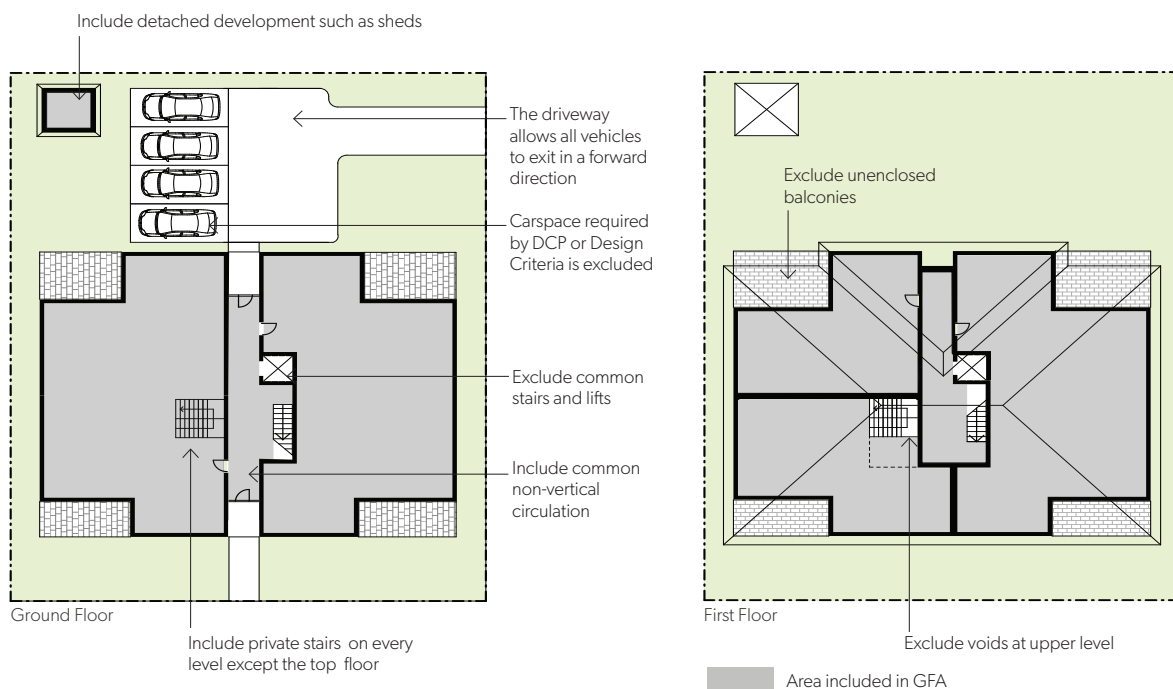


Figure 3-10 Calculating gross floor area.

3C Landscaped Area

Related Design Principles

Design Principle 5. Landscape

Landscaped area refers to the area of a site which is not built upon and contains deep soil for tree planting.

Landscaping of low rise medium density developments plays an important role in their integration into the surrounding streetscape and context, which greatly increases the amenity for neighbours and future residents.

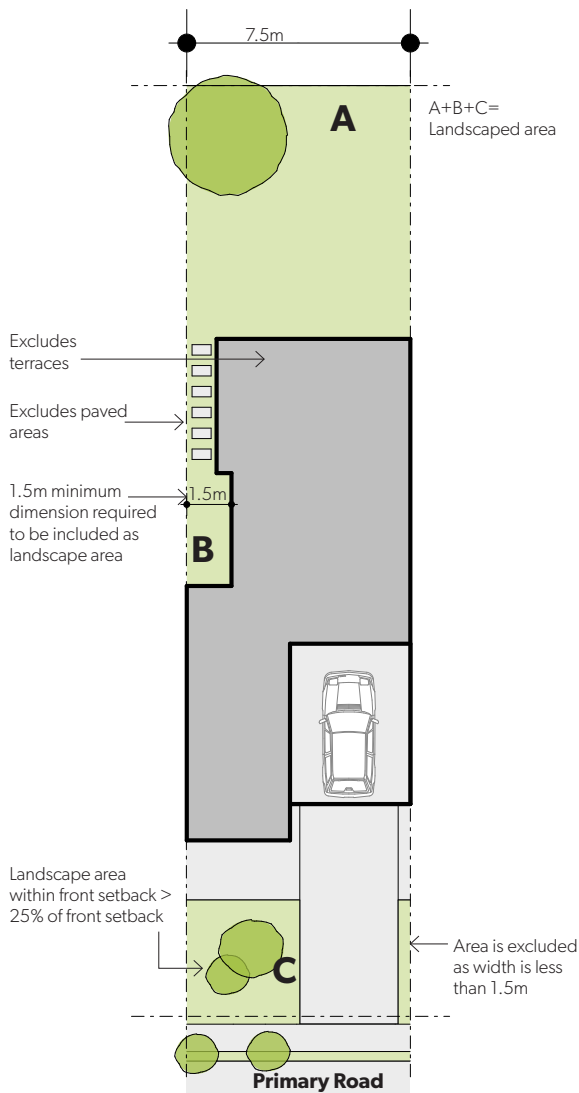


Figure 3-11 Landscaped areas distributed around the site. The minimum dimension ensures the space is sustainable for substantial planting (A+B+C = total landscape required).

Landscape design involves the planning, design, construction and maintenance of all external spaces. Successful landscape design complements the existing natural and cultural features of a site and contributes to the building's setting.

Landscaping, in particular tree planting, helps to clean the air, reduces urban heat, offers shade, provides habitat for wildlife and adds aesthetic appeal to the urban landscape. It can also assist the infiltration of rain water to the water table and reduce storm-water runoff.

Landscaped areas can retain existing significant vegetation and enhance vegetation corridors. In larger developments, landscaped areas can provide shade and amenity for residents in communal open spaces.

The extent of landscaping can vary according to the typology and intended density. In areas where there is greater density on private land, more tree planting can be provided in the public domain.

Incorporating landscape design early in the design process provides optimal outcomes for residential dwellings. Landscaping needs to be coordinated with other disciplines to ensure building design and service locations complement landscape and public domain.

Strategic planning and design notes:

- Landscaped area is best controlled in the LEP where it can effectively preserve the landscaped character; and
- The area for landscaping is often constrained by the size of the lot and the type of development. Refer to Appendix 5 for guidance on standards for particular development types.

Calculating landscaped area

Landscaped area means a part of a site used for growing plants, grasses and trees, but does not include any building, structure or hard paved area.

Although landscape above podiums and roof gardens have a valuable contribution they do not count towards the landscaped area.

Planting on Structures

Planting on structures refers to landscaping atop built structures such as basement car parks, podiums, roofs and walls. Planting on structures can provide amenity, improve air quality and microclimate, while reducing direct energy use and storm water runoff. It can also supplement deep soil planting on sites where opportunities for this are limited or restricted, for example in high density areas.

Common methods of planting on structures include:

- Green roofs
- Green walls
- Raised planters
- Roof gardens

Plants grown in these situations are subject to a range of environmental stresses which affect both their health and vigour. Designing soil profiles, irrigation and systems to provide adequate oxygen, water and nutrients is crucial for plant survival.

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

Table 3 Recommended tree planting in landscaped areas

Site area	Recommended tree planting
Up to 850m ²	1 medium tree per 50m ² of landscaped area
Between 850 - 1,500m ²	1 large tree or 2 medium trees per 90m ² of landscaped area
Greater than 1,500m ²	1 large tree or 2 medium trees per 80m ² of landscaped area

Table 1 Minimum soil standards for plant types and sizes

Plant type	Definition	Minimum soil volume	Minimum soil depth	Minimum soil area
Large trees	12-18m high, up to 16m crown spread at maturity	150m ³	1,200mm	10m x 10m or equivalent
Medium trees	8-12m high, up to 8m crown spread at maturity	35m ³	1,000mm	6m x 6m or equivalent
Small trees	6-8m high, up to 4m crown spread at maturity	9m ³	800mm	3.5m x 3.5m or equivalent
Shrubs	-	n/a	500-600mm	n/a
Ground cover	-	n/a	300-450mm	n/a
Turf	-	n/a	200mm	n/a

Note: The above has been calculated assuming fortnightly irrigation. Any sub-surface drainage requirements are additional to the above minimum soil depths



Figure 3-12 Extensive landscape planting within private open spaces provides greater visual amenity and an enjoyable environment for occupants



Figure 3-13 Green roof on terraces

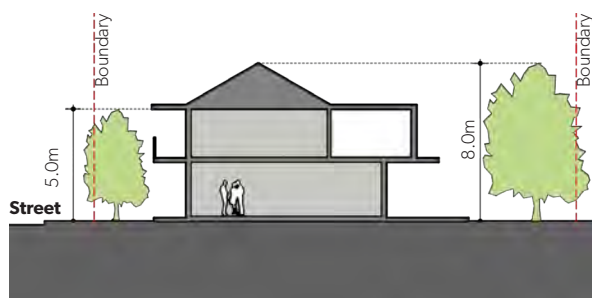


Figure 3-14 Front and rear setbacks provide opportunities for tree planting. Trees should be in scale with the development proposed

Design guidance

1. Existing trees for retention should be identified, particularly in rear setbacks.
2. Landscaped areas are best proposed in large areas at both the front and rear of the development site. For large sites, a mid-block landscaped area may also be appropriate.
3. Tree species and size should respond to the orientation of the site. For example, deciduous trees should be selected in front of north facing living spaces.
4. Tree species should be selected which will be suitable in size and scale with the development.
5. Landscaped areas should take advantage of existing site conditions when responding to features such as:
 - Changes of level;
 - Views; and
 - Significant landscape features including trees and rock outcrops.
6. Significant landscape features should be protected by:
 - Tree protection zones; and
 - Appropriate signage and fencing during construction.
7. To reinforce local character, a successful landscape design should blend local indigenous plants with the cultural planting of the area.
8. Landscaped areas should be located to retain existing significant trees and maintain the development of healthy root systems, providing anchorage and stability for mature trees. Design solutions may include:
 - Basement and sub-basement car park design consolidated beneath building footprints;
 - Use of increased front and side setbacks;
 - Adequate clearance around trees to ensure long term health; and
 - Co-locating landscaping with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil.

9. Landscape design should be environmentally sustainable. It can enhance environmental performance by incorporating:
- Diverse and appropriate planting;
 - Bio-filtration gardens;
 - Appropriately planted shading trees;
 - Areas for residents to plant vegetables and herbs;
 - Composting; and
 - Green roofs or walls.

10. Microclimate is enhanced by:
- Appropriately scaled trees near the eastern and western elevations for shade;
 - A balance of evergreen and deciduous trees to provide shade in summer and sunlight access in winter; and
 - Shade structures such as pergolas for balconies, landscaped areas and courtyards.

11. Structures in a landscaped area need to be reinforced for additional saturated soil weight, as appropriate.

12. Soil volume is appropriate for plant growth. The following design solutions could be considered:
- Modifying depths and widths according to the planting mix and irrigation frequency;
 - Free draining and long soil life span; and
 - Tree anchorage.

13. Minimum soil standards for plant sizes should be provided in accordance with Table 1 on page 124 (Minimum soil standards for plant types and sites).

14. Plant species should be selected in accordance with site conditions. Considerations include:
- Drought and wind tolerance;
 - Seasonal changes in solar access;
 - Modified substrate depths for a diverse range of plants; and
 - Plant longevity.

15. Selected irrigation and drainage systems chosen should consider:

- Changing site conditions;
- Soil profile and the planting regime; and
- Whether rainwater, stormwater or recycled grey water is used.

16. Building design incorporates opportunities for planting on structures. To achieve this, the following design solutions may include:

- green walls with specialised lighting for indoor green walls;
- wall design that incorporates planting;
- green roofs, particularly when visible from the public domain; and
- planter boxes.

Note: structures designed to accommodate green walls should be integrated into the building façade and consider the ability of the façade to change over time.

17. A landscape maintenance plan ensures the landscape is properly established and remains in good health.



Figure 3-15 Front and rear setbacks provide opportunities for tree planting. Trees should be in scale with the development proposed.

3D Local Character and Context

Related Design Principles

Design Principle 1. Context and Neighbourhood Character

A detailed understanding of the overall site context is the starting point for designing a uniquely distinct and memorable place. Context is the character and setting of the area within which a development will sit. This character and setting is influenced by environmental, physical, economic and social factors.

By understanding factors such as the place history, how it developed, the people who live there and how it functions, developments can be more effectively and appropriately positioned.

A well-designed scheme will respond to the context of the area appropriately and sensitively, forming positive contribution to the predominant character of the existing area.

The key priorities to consider when responding to character and context are:

- To understand that these elements are inter-related and rely on each other to make a well-designed sustainable place which responds to an areas' context.
- To understand the context with respect to the past, present and desired future character of an area.

Understanding the Existing Context

Strategic and site specific planning both start with an understanding of the physical, historical and cultural context of an area.

A detailed site analysis should be undertaken at the beginning of the process.

This analysis should identify the opportunities and constraints of the site and the wider area. A site analysis provides the opportunity to design a dwelling that optimises site layout, configuration and contributes to its surroundings.

Typically, low rise medium density housing is proposed in areas that are undergoing a transition from lower density single dwelling homes, to a higher density. Where planning controls anticipate a change of character for an area, compatibility with the desired future character of the area should be regarded as more relevant than compatibility with the existing character.

Local Character

Determining the character of an area involves an objective assessment of the physical aspects in addition to a subjective assessment of the proposal's ability to be in harmony with its surrounding context. Local character can be determined by:

- The relationship of the built form to the surrounding space created by building height, separation and setbacks;
- Building uses and types;
- The architectural style and materials, particularly in conservation and heritage areas; and
- The topography and landscape character; including significant tree plantings and other significant natural features contributing to the character of the area.

The local character of an area is generally considered to be within the visual catchment of a site or precinct. In most instances, this relates to the area within 100m of the site.

Desired Future Character

The desired future character varies from preservation of the existing look and feel of an area to establishing a completely new character based on different uses, street and subdivision patterns, densities and typologies.

Councils establishes the desired future character of an area through consultation with the community, industry and other key stakeholders.

Understanding the Influence of Existing Subdivision Patterns

Subdivision and street patterns have significant influences on urban fabric and potential for future development.

The size, shape and form of the existing subdivision and street patterns may restrict certain development types. Often existing low density areas have large blocks and street networks that do not encourage walkability nor easily facilitate low rise medium density housing.

Some lot shapes and sizes are more suitable for intensification while others will require amalgamation.

Requirements for Design Verification Statement

The Design Criteria requires a description in the Design Verification Statement as to how the built form of the development contributes to the local character. The template for the Design Verification Statement categorises the character into:

- Local Scale
- Neighbourhood Scale and Streetscape
- Site Scale.

The design guidance provides additional information on how to satisfy the requirements of the Design Criteria.



Figure 3-16 New development responds to scale, setback and form of adjoining development.

Design guidance

Local Scale

1. The infrastructure, amenities and services should support the proposed development. This includes:
 - Shops
 - Transport (private vehicles, buses and bicycles)
 - Community facilities
 - Schools and health facilities
 - Parks, open space and natural features

Neighbourhood & Streetscape Scale

Built Form

2. The adjoining land uses should be compatible with the proposed development.
3. The height and scale of the proposed development is consistent with the existing or desired built form.
4. The proposed development should incorporate setbacks, spacing and rhythm that is consistent with existing streetscape.
5. The proposal should relate to any items of notable character or heritage value that are within close vicinity.
6. The proportion of the proposed development should relate, or take cues from, the proportion of surrounding buildings and streets.
7. The new development should use materials that relate to, or take inspiration from, the surrounding built and natural environment.

Landscape

8. The proposal should incorporate the patterns of landscaping in the neighbourhood, including landscaping in front and rear setbacks, and the public domain.

Blocks and Lots

9. The proposed development should identify the predominant block and lot patterns, sizes and orientation which relate to the existing subdivision pattern.

Street Hierarchy

10. The built form should relate to different street types (e.g. corner blocks, parallel roads, laneways).

Note: In areas with deeper lots, consider how new streets and lanes could be introduced to increase permeability.

11. The development should accommodate the principles of view sharing including any views available from the site or adjoining sites to landmark features.

Site Scale

12. The site scale should involve detailed consideration of the subject site relative to neighbouring properties, both directly adjacent, opposite, and to the rear of the site. It also includes consideration of:
 - Relationship to the public domain
 - Existing vegetation and trees
 - Boundary treatments
 - Retaining walls, overshadowing impacts and privacy considerations
 - Orientation, taking advantage of solar access
 - Slope
 - Contamination
 - Service and utility requirements
 - Easements
 - Stormwater management

Responding to these elements contributes to the identity of a place and impacts the form and function of existing and future development.

13. The topography, shape and possible constraints should inform the development.
14. The proposed development should enhance natural features such as water courses, view corridors, vistas and open spaces.
15. The significant trees and landscapes in the neighbourhood should be identified and retained.



Figure 3-17 LOCAL SCALE: Understanding the scale of the local area scale is relevant for strategic planning, precinct planning, and designing larger developments. This broader scale includes the urban structure, landscape setting and the land use patterns of the wider context and identifies the site's proximity to centres, transport and major public open spaces.

As a guide, consideration of the local area should extend to a radius of 0.5-1 kilometres around the development site - dependant on the area and scale of the project.



Figure 3-18 NEIGHBOURHOOD AND STREETSCAPE SCALE: The streetscape scale responds to the character of the streets, surrounding the site, and considers any surrounding buildings or landscape elements.

It is appropriate to address this scale when planning for individual or small groups of dwellings. A radius of 20-100 metres should be considered when considering the neighbourhood scale.

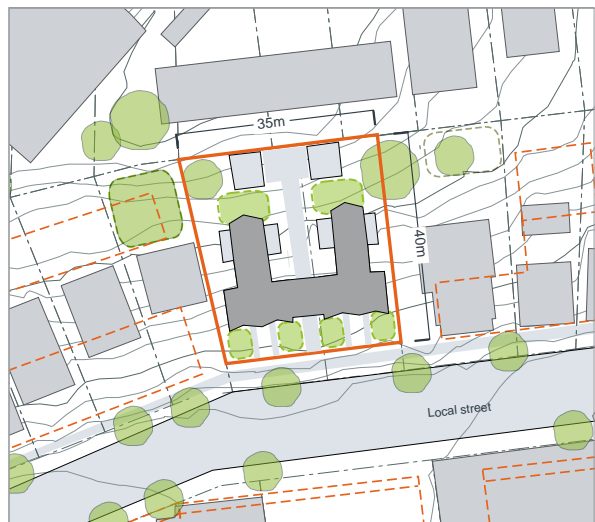


Figure 3-19 SITE SCALE: The site scale is a detailed analysis of the developments immediate context and should include the site itself, the street it addresses and surrounding properties.

3E Public Domain Interface

Related Design Principles

- Design Principle 1. Context and Neighbourhood Character
- Design Principle 2. Built Form and Scale
- Design Principle 5. Landscape

The public domain interface is the transitional area between a dwelling, its private or communal space at the street edge and the public domain. The built form defines the spatial proportions of the street and the street edge.

This interface contributes to the quality and character of the street. Subtle variations through planting and boundary treatments, such as walls and fencing can create an attractive and active public domain. Long, high blank walls or fences can detract from the appearance of the public domain and impact on pedestrians and resident safety.

Direct access from the street to ground floor dwellings, 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 and utility locations; and
- Planting.



Figure 3-20 Retention of existing trees and generous planting in front setbacks makes a positive contribution to the streetscape.

The design of these elements can influence the real or perceived safety and security of residents, opportunities for social interaction, and how the development looks when viewed from the public domain.

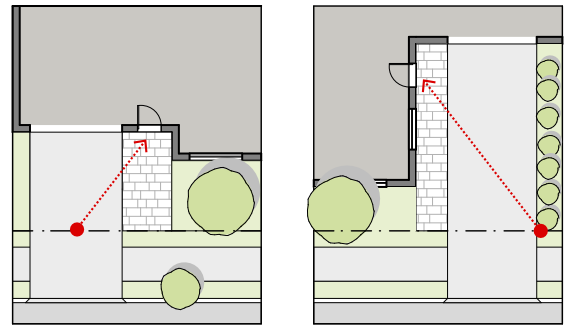


Figure 3-23 Examples of front doors that are visible from the street. A line can be drawn from the street boundary to front door unobstructed

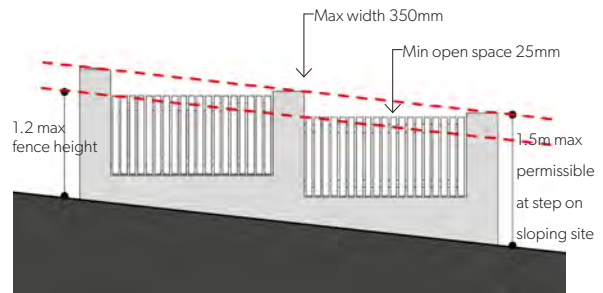


Figure 3-21 On sloping sites fences and walls should be stepped so that no part of the fence is higher than 1.5m above natural ground level

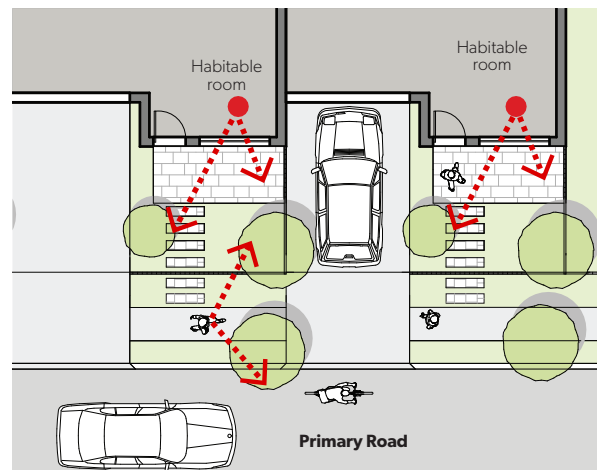


Figure 3-22 New buildings should contribute to and improve the existing streetscape. Windows and porches should be included in the street elevation to increase passive surveillance.

Design guidance

1. A threshold should be created to provide a clear transition between the public and private domains.
2. In manor houses, common building entries, common open space and, private open space should be clearly defined.
3. Where private courtyards and terraces are provided in the front setback, they should be within the articulation zone and have semi-transparent fencing. This provides opportunity for passive surveillance and avoids negatively impacting the aesthetic and spatial quality of the street.
4. A change in level of 0.5-1.2m between private terraces, the street and communal spaces should be provided to enable surveillance, while improving visual privacy for ground level dwellings.
5. Ground and upper level windows and balconies should provide passive surveillance opportunities, as well as, visual interest to the streetscape.
6. Hedges to a height of 1.2m may be provided as soft boundary edges.
7. Where solid walls are provided within the street frontage to provide an acoustic buffer, they should be softened with landscaping.
8. 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.
9. Rear courtyards facing a secondary road should have similar treatment to the primary road.
10. Areas where people can be hidden or concealed should be avoided.
11. The visual prominence of an underground car park should be minimised. Where it is more than 1m above ground level, ventilation should be integrated with the overall façade design by using 'hit and miss' brickwork or providing ventilation openings that consider the full composition of the facade.
12. Substations, pump rooms, garbage storage areas and other service requirements should be located in basement car parks. If there is no basement, these services should be located in an area concealed from public view.
13. Building entry locations and ground floor levels should consider accessibility requirements from the footpath.
14. Development adjoining public parks, open space or bushland should address this interface with:
 - Clearly defined street access, pedestrian paths and building entries; and
 - Paths, low fences and planting which delineate communal and private open space from adjoining public open space.
15. Existing trees should be retained with generous planting provided in the front setback to contribute positively to the streetscape.

3F Pedestrian and Vehicle Access

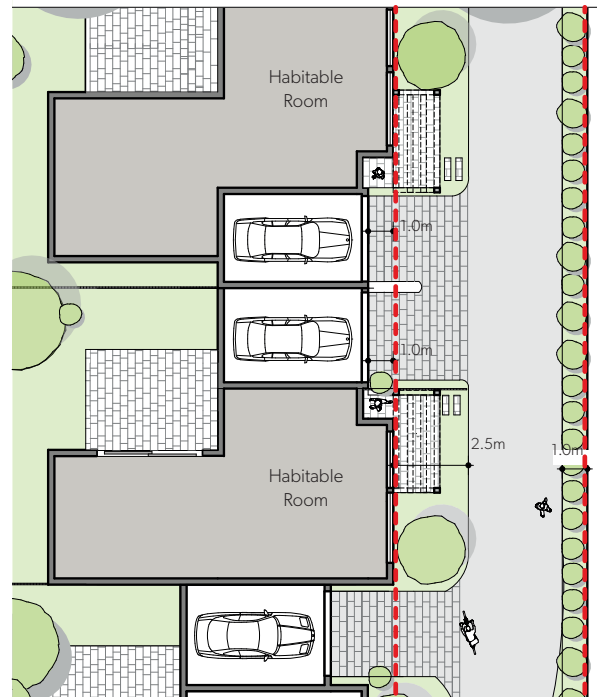
Related Design Principles

- Design Principle 2. Built Form and Scale
- Design Principle 5. Landscape
- Design Principle 8. Housing Diversity and Social Interaction
- Design Principle 7. Safety

The location, type and design of vehicle access points have significant impact on streetscape, site layout and building façade design. The circulation networks should be clear and legible. Internal streets in the form of mews and low traffic streets are to prioritise pedestrians with shared surfaces and the use of different surface materials, landscaping and bollards.

For larger sites and lots with large depths, sites are best accessed from new streets and lanes, rather than by long driveways.

Dwellings should address internal streets and lanes in the same way they address a public street.



Internal Street Zone

Figure 3-24 New internal lane providing access to dwellings behind street frontage and encouraging shared vehicle access arrangements

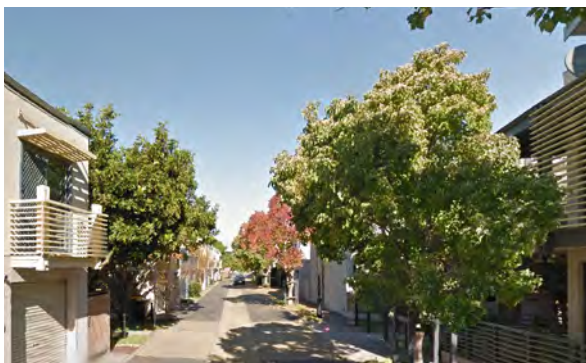


Figure 3-26 Shared street

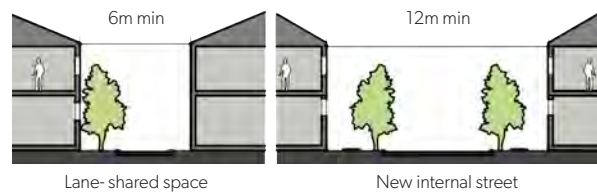


Figure 3-28 Minimum widths for shared lanes and internal streets



Figure 3-27 Internal pedestrian network

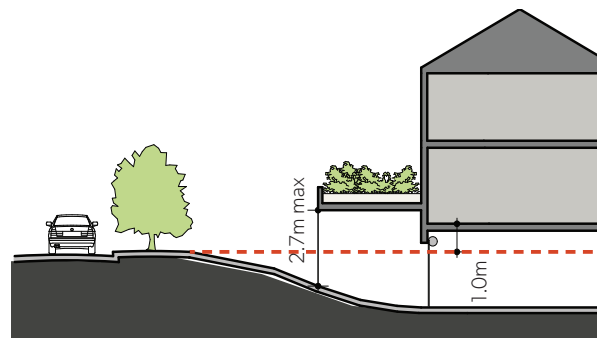


Figure 3-25 Reduce visual impact of basement entries by reducing the scale of the garage opening

Creating a new street network

Multi dwelling housing generally requires a much finer grained street and lane network than lower density single dwelling housing. The increased number of dwellings require additional frontage length, and above ground car parking requires new lanes or shallow depth lots.

Successful transition of an area from single low density character to one that contains multiple dwellings in a low or medium density context will require additional access networks. These can take the form of

- new streets,
- laneways,
- shared streets or
- pedestrian only areas.

Creating a new street network is best done on a block by block basis as part of a local area strategy. In this way new streets and lanes can be identified in a development control plan.

The location and size of the streets will determine the form of the development that can be carried out on the land. All new streets are to be either dedicated to council or to have a public positive covenant to allow use by the public and enable future connections to adjoining property - or through streets.

The existing subdivision pattern will play a major role in the form of development possible on the site. The following provide a few examples.

Design guidance

Internal Streets

1. A hierarchy of streets and lanes should be created. This can be achieved by having:
 - Streets: width of the roadway including landscaping - minimum 12 metres.
 - Lanes: width of shared or pedestrian area including landscaping - minimum 6 metres wide.
2. Streets should not have dead ends and should connect to other streets or lanes. The roadway should be at least 5.5 metres wide, and streets will have a footpath on at least one side, including tree planting at regular intervals.
3. Lanes should be shared zones or pedestrian only areas with a maximum dead end of 40 metres to ensure safety. All parts of the lane are to be visible from a street.
4. Vehicle access points should be located to prevent headlight glare into habitable rooms of buildings.
5. Vehicle entries and street intersections should provide adequate separations distances.
6. To enhance crime prevention through reducing places where people can hide.
7. Turning circles should be provided for services vehicles.
8. Pedestrian and vehicle crossing should provide clear sight lines.
9. Where appropriate, streets should use traffic calming devices such as changes in paving material or textures.
10. Pedestrian and vehicle accesses should be separated and differentiated. This can be achieved through the following design solutions:
 - Changes in surface materials;
 - Changes of level; and
 - Landscaped barriers.

11. Garages should be set back behind the predominant building line to reduce their visibility from the street.
12. Vistas should be terminated through the use of trees, vegetation, open space or the window of a dwelling rather than garages or parking.
13. Trees should be used to provide structure and rhythm to internal streets and landscaping should be used to soften edges.
14. Trees should be used to provide shade to the road pavement and footpath to reduce glare and heat in parked cars.
15. In smaller developments, street widths should be limited to a single carriage width with passing points.
16. Pedestrian and vehicle circulation should be separated for user safety.
17. Surface treatments should favour pedestrians. In low traffic areas, there is no need for a separate footpath.
18. Surface material should be integrated with landscape design.
19. Different surface treatments should be used to mark entrances. Textured surfaces enhance the pavement while serving as a traffic calming device.

Basement Entries

20. Car park entries should be located behind the building line.
21. Basement entries should be integrated with the building's overall façade. This can be achieved by using the following design solutions:
 - Choose materials and colour palettes to minimise visibility from the street;
 - Adjust floor levels over garages to minimise the void size and recess in the façade;
 - Choose security doors or gates at entries which minimise voids in the façade; and
 - Where doors are not provided, ensure the visible interior reflects the façade design and all building services, pipes and ducts are concealed.
22. Where possible, the width of a garage door should be reduced to a single vehicle.
23. Where possible, the driveway entry should be located to one side at the lowest point on the site to reduce visual prominence.

3G Orientation, Siting and Subdivision

Related Design Principles

Design Principle 1. Context and Neighbourhood Character

Design Principle 2. Built Form and Scale

Design Principle 7. Safety

A site analysis is an important part of the design process, ensuring appropriate orientation of the building. The site analysis will identify features of the site and their relationship to the surrounding context such as vegetation, topography, the location of buildings and adjoining land uses.

Orientation refers to the position of a building and its internal spaces in relation to the site, the street, the subdivision layout, neighbouring buildings and vistas. It also refers to the siting of a building in relation to weather factors such as sun and wind. Building orientation influences the urban form of the street and building address, and directly affects residential amenity. This includes impacts to solar access, and visual and acoustic privacy to neighbouring sites.

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

- responding to the desired streetscape character;
- capturing views and existing landform features;
- promoting amenity for the proposed development and neighbouring properties;
- providing for the enjoyment of significant views;
- retaining trees and the location of open spaces;
- responding to the topography of the site; and
- responding to acoustic, sunlight and overshadowing impacts.

The topography and existing land form of the site are important to the character of an area. The dwelling design, layout and subdivision pattern should respond to such features. Where the site has a sloped topography, dwelling design is often characterised by a split level approach where floor levels are stepped to follow the topography of the land.



Figure 3-30 Reduce visual impact of basement entries by reducing the scale of the opening

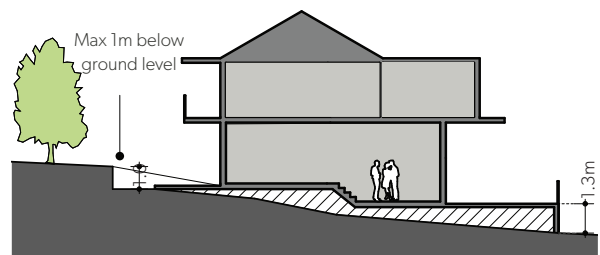


Figure 3-29 Reduce visual impact of basement entries by reducing the scale of the opening

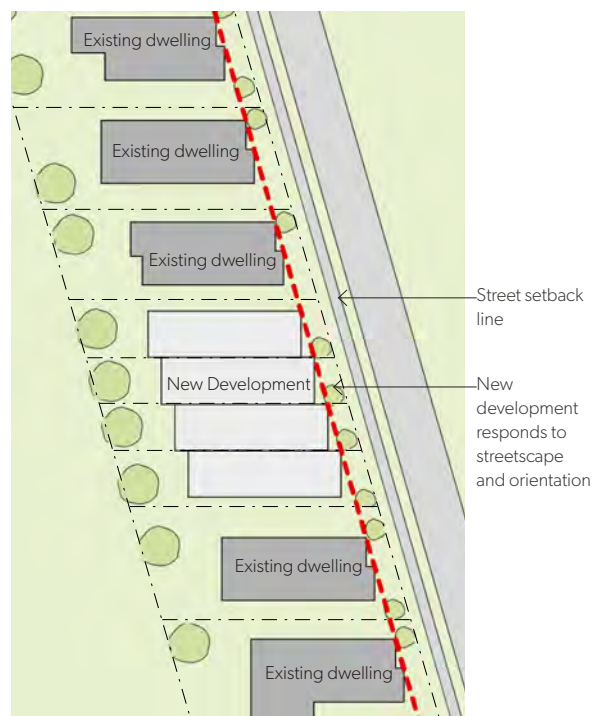


Figure 3-31 Built form responds to and complements surrounding streetscape and setbacks

Subdivision

In most instances, land can be subdivided with development consent. The council's LEP will set out if subdivision is permitted

Each lot resulting from the subdivision will need to meet both the minimum lot size requirements. The development on that lot will need to meet the floor space ratio and landscaped area development standards for each new lot.

The relevant minimum lot size requirements can be found in the LEP that applies to the land.

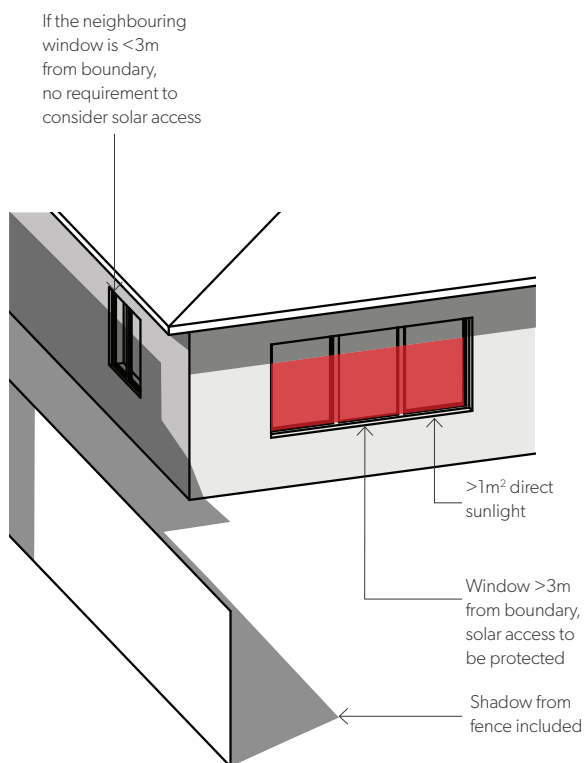


Figure 3-32 Protection of solar access to neighbouring properties (refer to Design Criteria in Section 2 - Orientation, Siting and Subdivision)

Design guidance

1. The street frontage should ensure buildings are orientated towards the street and provide direct access from the street.
2. For developments with multiple buildings with a street frontage to the east or west, buildings should be orientated to the north, where possible.
3. The orientation of dwellings should balance the following to ensure that:
 - The front door, house number and letter-box are clearly visible from the street; and
 - Solar access and daylight is maximised to living rooms
4. The upper level setback of the proposed development should be increased to avoid overshadowing to the south or downhill properties.
5. Buildings should be 'stepped' to follow the fall of the land. Large areas of cut and fill should be avoided so that the finished ground floor level can be close to existing ground level.
6. Garages should be accommodated under the dwelling footprint on sloping sites.
7. When providing internal streets, cut and fill should be minimised by following existing ground levels.
8. Buildings should be orientated at 90 degrees to the site boundary with neighbouring properties to minimise overshadowing and privacy impacts at the rear of deep sites.
9. Underground car parking should use split levels on sloping sites to minimise the protrusion of car parking above ground levels.
10. Siting of buildings should consider the proportion of space between the buildings - both in terms of its function for providing amenity (daylight, solar access, privacy and landscape) and also the spatial qualities.

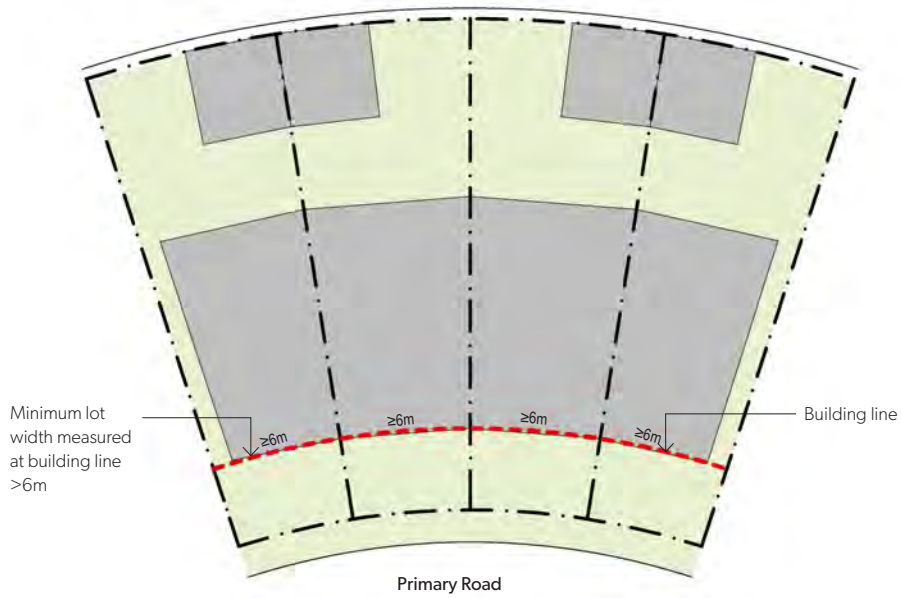


Figure 3-33 Street frontage width is measured at the building line for multi dwelling housing (terraces)

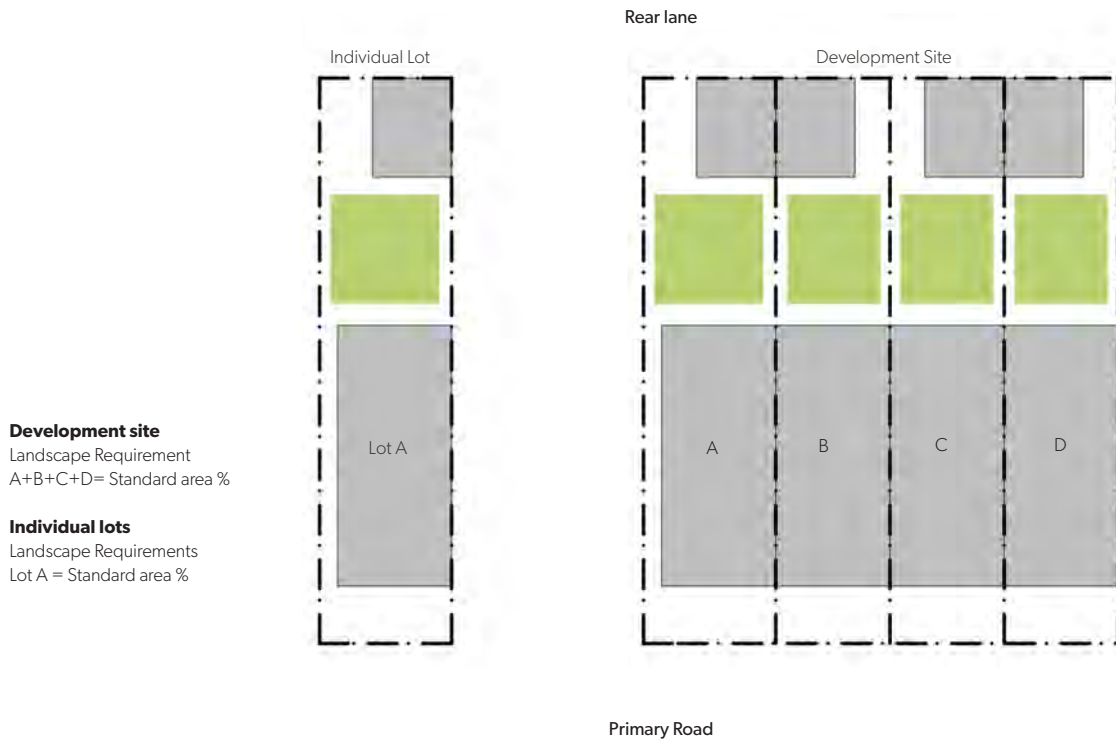


Figure 3-34 Subdivision of dual occupancy or terrace - each lot complies with minimum landscaped area and gross floor area

3H Solar and Daylight Access

Related Design Principles

- Design Principle 4. Sustainability
- Design Principle 6. Amenity

Solar and daylight access is important for dwellings as it reduces the reliance on artificial lighting and heating, improves energy efficiency and creates residential amenity through enjoyable conditions in which to live and work.

Solar access occurs when rooms or private open space receive direct sunlight without obstruction from other buildings and natural features, excluding trees. Daylight consists of sunlight and diffused light from the sky. Daylight and solar access changes with the time of day, season and weather conditions.

Access to sunlight for habitable rooms and private open space is measured during the winter solstice (June 21st) as this is when the sun is lowest in the sky, representing the 'worst case' scenario for solar access.

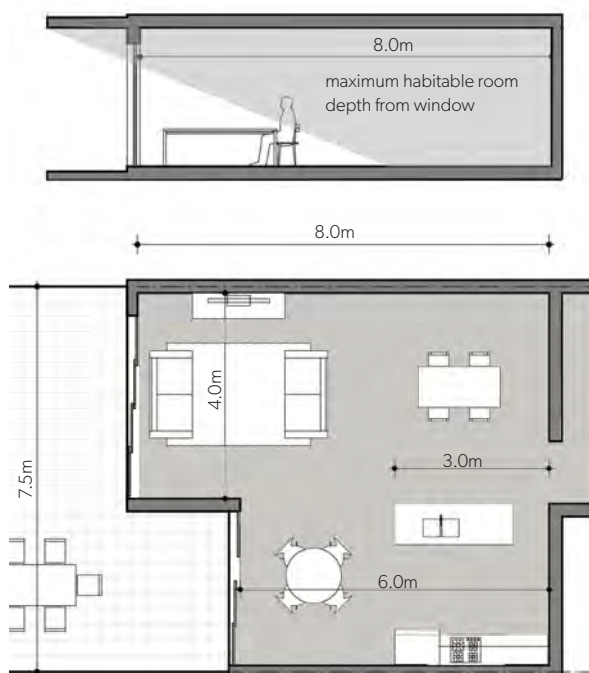


Figure 3-36 The depth of a single aspect dwelling relative to the ceiling height directly influences the quality of natural ventilation and daylight access. The maximum depth of open plan layouts combining living, dining and kitchen spaces is 8 metres.



Figure 3-35 The hours of sunlight that can be expected in mid-winter are directly related to the orientation of the façade. This diagram shows the optimal orientation for habitable rooms and balconies
Note: An additional design and assessment tool is provided at Appendix 5 to ascertain the level of sunlight access to dwellings.

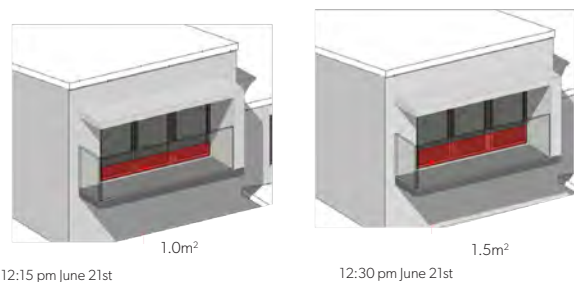


Figure 3-37 For solar access to be included, at least 1m² of sunlight must remain in a window for a 15 minute period

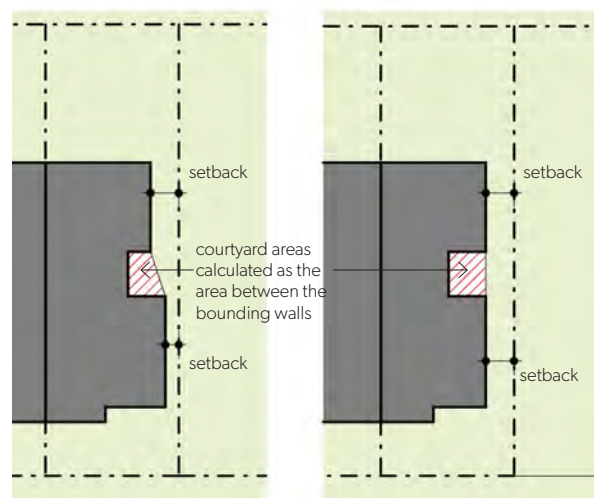


Figure 3-38 Courtyard used to increase daylight access are calculated by the areas between bounding walls

Design guidance

1. Dwellings should maximise northerly aspects. The number of single aspect south facing dwellings should be minimised.
2. Single aspect, single storey dwellings should have a northerly or easterly aspect.
3. In dwellings, living areas should be located to the north and service areas should be located to the south and west.
4. Dwellings which have a street to the north side are best designed with dual living spaces - one fronting the street and the other opening to the rear garden.
5. Habitable rooms and private open space should be designed to optimise daylight. This can be achieved by using the following design features:
 - Dual aspect dwellings
 - Shallow dwelling layouts
 - Two storey and mezzanine level dwellings
 - Bay windows
6. Windows and skylights in habitable rooms, including kitchens, should be located to provide sufficient daylight, to ensure artificial lighting is not needed during the day (typically around 200lux).



Figure 3-39 A window is visible from 75% of the floor area of a habitable room

7. In areas of higher density, it is not reasonable to expect that windows close to the side boundary will receive solar access.
8. Achieving the Design Criteria may not be possible on some sites. For example:
 - Where greater residential amenity can be achieved along a busy road or rail line by orientating the living rooms away from the noise source;
 - On south facing sloping sites; and
 - Where significant views are oriented away from the desired aspect for direct sunlight.
9. To demonstrate the development has met solar and daylight access provide:
 - use 3-dimensional views as these show the influence of vertical and horizontal shading elements;
 - Use survey information to calculate shadows cast from existing structures such as neighbouring buildings and sheds;
 - Include the shadow cast by fences;
 - Exclude trees and other vegetation;
 - Measure solar access for private open space on the ground; and
 - Measure solar access to windows on the glass surface. If relying on the minimum 1m² the area must be a consecutive area.
10. Daylight access can be improved by incorporating courtyards that are fully open to the sky.
11. Generally, the following design features can assist in managing solar access.
 - The provision of balconies or sun shading that extends far enough to shade summer sun but allows winter sun to penetrate living areas;
 - The provision of shading devices such as eaves, awnings, balconies, pergolas, external louvres and planting;
 - The provision of horizontal shading to north facing windows;
 - The provision of vertical shading to east and particularly west facing windows;
 - The provision of operable shading to allow adjustment and choice.

31 Natural Ventilation

Related Design Principles

- Design Principle 4. Sustainability
- Design Principle 6. Amenity

Natural ventilation is the movement of sufficient volumes of fresh air through a dwelling to create a comfortable indoor environment. Sustainable design practice incorporates natural ventilation by responding to the local climate, reducing the need for mechanical ventilation and air conditioning. To achieve adequate natural ventilation, dwelling design must address the building orientation, configuration of dwellings and the external building envelope.

Rather than relying on purely wind driven air, natural cross ventilation is achieved when dwellings have more than one aspect with direct exposure to the prevailing winds.

The dwelling layout and building depth will determine the ability of a dwelling to be naturally ventilated. Generally, as a building gets deeper, effective airflow reduces.

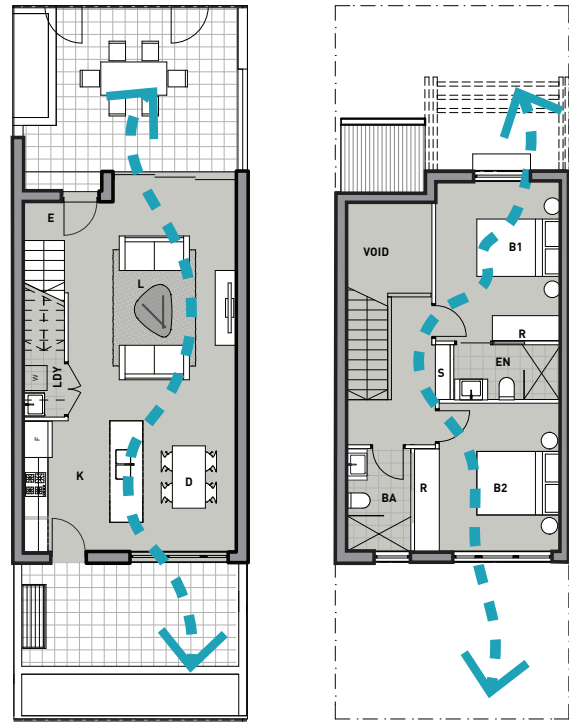


Figure 3-41 Cross ventilated dwelling

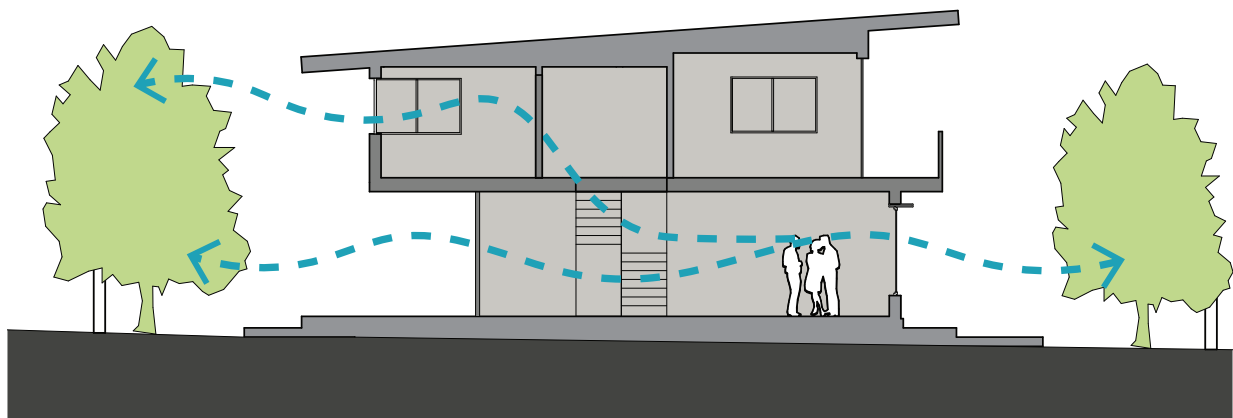


Figure 3-40 Effective cross ventilation is achieved when the inlet and outlet have approximately the same area, allowing air to be drawn through the dwelling using opposite air pressures on each side of the building

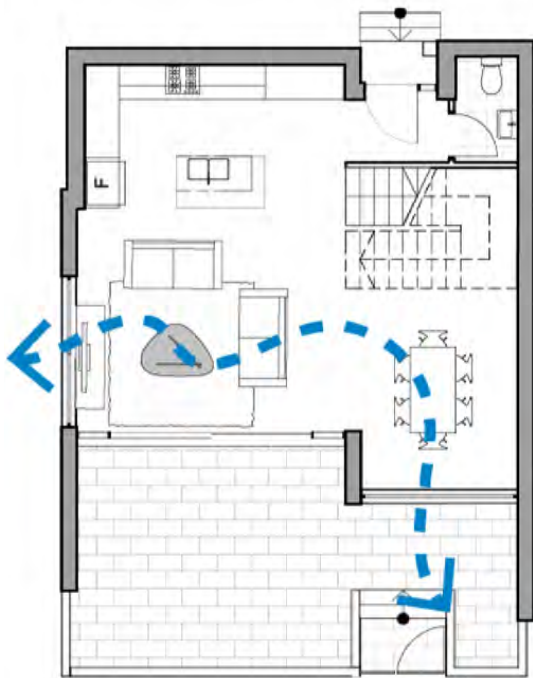


Figure 3-42 Corner cross ventilated dwelling



Figure 3-43 Operable louvres allow residents to regulate natural ventilation

Design guidance

1. A building's orientation should maximise and capture the use of prevailing breezes for natural ventilation of habitable rooms.
2. For deeper buildings, ceiling heights should increase to assist with cross ventilation.
3. Large window openings are not required to achieve good ventilation. A building should include window with an openable area equal to at least 5% of the floor area to achieve sufficient ventilation.
4. Doors and openable windows should maximise natural ventilation opportunities. This can be achieved using the following design solutions:
 - Adjustable windows with large effective openable areas;
 - A variety of window types, such as awnings and louvres, to provide safety and flexibility; and
 - Windows which the occupants can reconfigure to funnel breezes into the dwelling, such as vertical louvres, casement windows and externally opening doors.
5. Dwelling depths should be limited to maximise ventilation and airflow.
6. Single aspect dwellings should maximise natural ventilation. This can be achieved through the following design solutions:
 - A shallow dwelling depth of less than 5 metres;
 - Installation of ceiling fans to help with air movement;
 - Optimise the extent of operable windows.
7. The building should include dual aspect dwellings, cross-through dwellings, corner dwellings and limited dwelling depths.
8. In cross-through dwellings, external window and door opening sizes/areas on one side of a dwelling (inlet side) should be approximately equal to the external window and door opening sizes/areas on the other side of the dwelling (outlet side).
9. Ceiling fans should be installed to help create air movement.

3J Ceiling Height

Related Design Principles

Design Principle 6. Amenity

Defining Ceiling Height

Ceiling height is measured from the finished floor level to the finished ceiling level.

The height of a ceiling affects the amenity of a dwelling and the perception of space. Well designed and appropriately defined ceilings can create spatial interest.

Ceiling height is directly linked to receiving sufficient natural ventilation and daylight access to habitable rooms.

Although the Building Code of Australia requires a minimum ceiling height of 2.4m, solar access, day lighting, ventilation and spatial quality are improved by higher ceiling heights.



Figure 3-45 Raked ceilings add visual and spatial interest and make a room feel larger

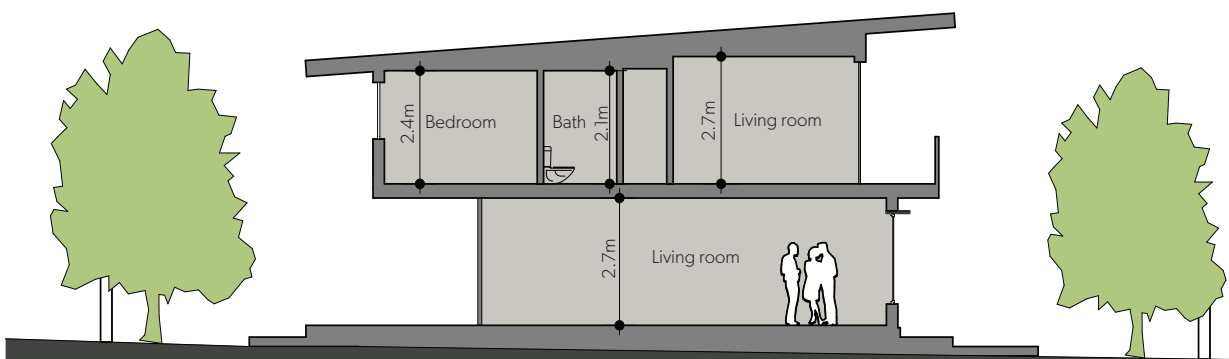


Figure 3-44 Different ceiling heights in different spaces



Figure 3-46 Mezzanine spaces can overlook double height spaces. The change in ceiling height and define different functions



Figure 3-47 Skylights and vaulted ceilings can add space and enhance daylight

Design guidance

1. Ceiling heights should allow for sufficient daylight penetration into the room. Where room depth exceeds ceiling height by 2.5 times, increases in ceiling height and window height can increase daylight access.
2. Ceiling heights should be proportional to room size. Smaller rooms can feel more spacious with higher ceilings.
3. To avoid injury, where ceiling fans are installed, a ceiling height of 2.7 metres is recommended in living rooms. Where ceiling fans are installed in bedrooms with and the fan is located over the bed, a reduced ceiling height of 2.4 metres is acceptable.
4. Where wet areas are located over living areas, floor to floor heights should be increased (to allow for plumbing) and ensure sufficient ceiling heights can be achieved.
5. In attic spaces or rooms with sloping ceilings, full ceiling heights should be achieved for at least 75% of the room.
6. If bulkheads are required they can be located over kitchens, to create a minimum ceiling height of 2.4m.
7. Bulkheads in other rooms should be avoided. Wardrobes, bookshelves and other fixed storage should be located to conceal plumbing and ventilation.
8. Where bulkheads are unavoidable, they should not occupy more than 10% of the floor area, nor reduce the ceiling height by more than 0.3 metres. The bulkheads should be designed to relate to other elements in the room.
9. Floor to floor heights should allow for carpet and ceiling finishes. Typical floor finish allowances include:
 - Carpet : 10 - 15mm;
 - Timber: 15 - 50mm;
 - Tiles: 10 - 30mm; and
 - Linoleum: 5mm.

3K Dwelling Size and Layout

Related Design Principles

Design Principle 6. Amenity

Defining Floor Area

Floor area is the area of the room measured within the finished surfaces of the walls. However, it excludes any area occupied by wardrobes, kitchens or fixed storage, and any area where the ceiling height is less than 1.4 metre. Minimum dimensions are measured at the smallest part of the room.

The layout of a dwelling establishes the function, arrangement, location and size of rooms, as well as, circulation between rooms and degree of privacy in each space.

Room shapes and window designs can deliver daylight and sunlight access, and natural ventilation, along with providing acoustic and visual privacy. The dwelling layout should provide for private open space and conveniently located storage.



Figure 3-48 This living area has a combined kitchen-dining area which opens directly on to the balcony

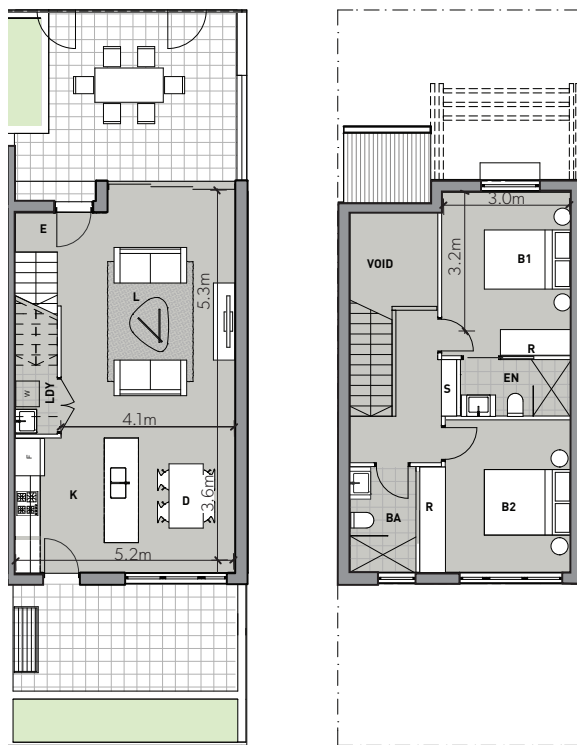


Figure 3-49 Calculation of minimum room areas and dimension

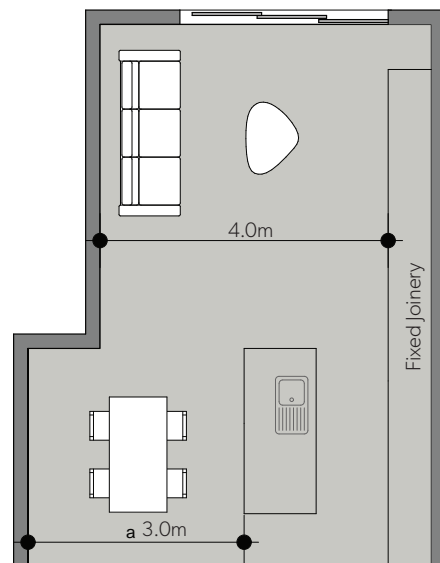
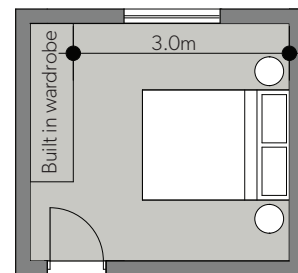
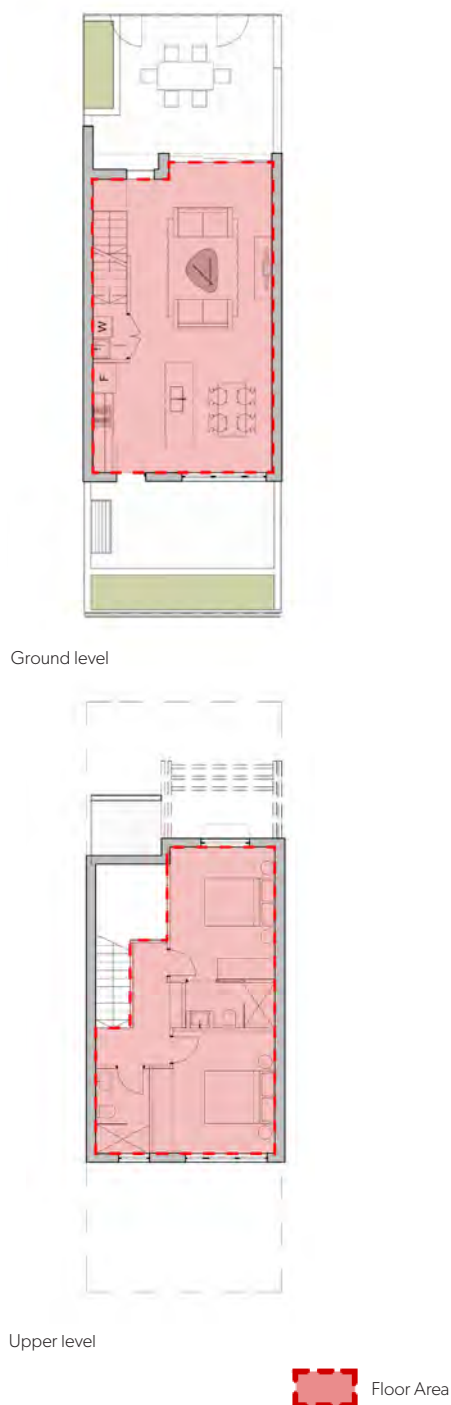


Figure 3-50 The minimum room dimension is the smallest dimension measured in any direction



Design guidance

1. The dwelling should allow for sufficient space for the function of contemporary living. Layouts which have long corridors and circulation spaces may need a larger overall area so that other parts of the dwelling are not compromised.
2. Dwelling sizes should respond to dwelling types. In areas of lower density, dwellings are expected to have a larger floor area.
3. A window should be visible from any point in the main part of a habitable room, providing a vista and maximising daylight access.
4. Where the minimum dimensions are not met, dwellings must be shown to be well designed, usable and functional with realistically scaled furniture layouts and circulation areas. This criteria is assessed on its merits.
5. All living areas and bedrooms should be located on the external perimeter of the building.
6. Where possible:
 - Bathrooms and laundries should have an external openable window; and
 - Main living spaces should be oriented toward the primary outlook and aspect, and away from noise sources.
7. Kitchens should be located in areas of good natural daylight.
8. Designing for older persons or those with a disability will require increased rooms sizes and increased circulation spaces around furniture.
9. Spaces should be provided for study or work. This could be an alcove or a flexible use room.

Note: Refer to 3H Solar and Daylight Access and 3X Universal Design for further guidance closely related to room configuration.

Figure 3-51 Area to include in floor area calculations

3L Principal Private Open Spaces

Related Design Principles

Design Principle 6. Amenity

Private open spaces are outdoor areas, including balconies, courtyards and terraces for private use. These spaces enhance the amenity and indoor/outdoor lifestyle for residents. In NSW, outdoor spaces benefit from the temperate climate and can maximise the use of these spaces by accommodating areas for external activities and extended indoor living spaces.

Balconies that are safe and appropriately designed can provide space for children to play outdoors and the opportunity for pet ownership.

Private open spaces are also important architectural features. Fences, balustrades and screens can contribute to the form and articulation of the building.



Figure 3-55 Space partially sheltered from weather and directly accessible from living rooms



Figure 3-54 North facing space - room for plants and a sitting area

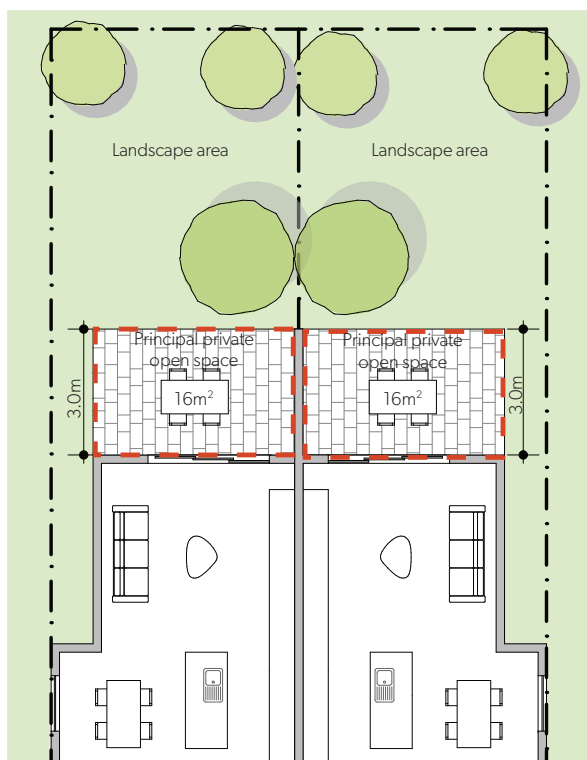


Figure 3-52 This combined kitchen-dining-living room opens directly on to the balcony. Private open space must meet the required minimum dimensions.

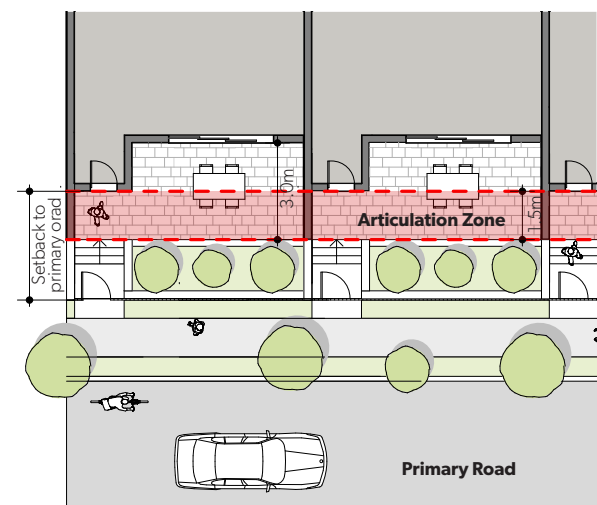


Figure 3-53 Private open space facing the street sits within the articulation zone or behind the front building line. It is separated from the street by landscaping and may include low fences.

Design guidance

1. The size of private open space should be proportional to the size of the dwelling and allow all members of the household to sit around a table.
2. Principal private open space and balconies should be located adjacent to the living room, dining room or kitchen to extend the living space.
3. Private open spaces and balconies should face predominantly north, east or west.
4. Private open space should not be located in the primary road setback where it has a negative impact on the streetscape (Refer to 3E Public Domain Interface).
5. Private open space which faces the street should be within the articulation zone.
6. Changes of level and landscaping can provide privacy.
7. High fences are not permitted.
8. A large proportion of the principal private open space should be covered to provide shade and protection from rain.
9. Private open space and balconies should be orientated with the longer side facing outwards or be open to the sky to optimise daylight access into adjacent rooms.
10. Balconies should be integrated into the building design, with the design of soffits considered.
11. When located close to dwellings, increased communal open space can compensate for smaller private open spaces.
12. Operable screens, shutters, hoods and pergolas can be used to control sunlight and wind.
13. Balustrades must be set back from the building line or balcony edge if overlooking adjoining properties or due to safety concerns.

14. Downpipes and balcony drainage should be integrated into the overall façade and building design.
15. Air-conditioning units and other equipment should be located on roofs, in basements or fully integrated into the building design so as not to detract from private open space.
16. Ceilings within a dwelling below a terrace or balcony should be insulated to avoid heat loss.
17. Water and gas outlets can be provided for balconies and private open space.



Figure 3-56 Private open space directly accessible from living rooms

3M Storage

Related Design Principles

Design Principle 6. Amenity

Adequate storage is an important component of dwelling design. Calculated by volume, rather than floor area, storage should be provided proportionally to the size of the dwelling.

Storage is required for small and large items including those used regularly. This typically includes: coat cupboards near entrances, linen cupboards near sleeping areas, and spaces to store camping gear, suitcases and sporting equipment.

Providing built-in storage increases the functionality of a dwelling and reduces the need for additional furnishings. This ensures that uninhabitable spaces, such as under staircases, are maximised.



Figure 3-59 Storage space under stairs



Figure 3-57 Storage integrated into living room design



Figure 3-58 Wardrobe space in bedrooms



Figure 3-60 Useful size linen storage

Design guidance

1. Storage should be accessible from either circulation spaces or living areas.
2. Storage on balconies, courtyards and rear gardens is additional to the minimum private open space. This storage should be integrated into the design of the building, be weather-proof and be screened from view from the street.
3. The space under the stairs should be utilised as storage.
4. Any storage which is not located in a dwelling must be secure and clearly allocated to specific dwellings.
5. Storage should be provided in attics or garages for larger and less frequently used items, such as camping gear, bikes and sporting equipment.
6. Storage space in garages or basement car parks should be provided at the rear or side of car spaces or in cages, so that allocated car parking remains accessible.
7. If communal storage rooms are provided, these areas should be accessible from common circulation spaces of the building.
8. Storage not located in a dwelling must be integrated into the overall building design and not be visible from the public domain.
9. The layout of a dwelling should consider different storage purposes, including:
 - Coat cupboards near the entry;
 - Laundry and linen cupboards near sleeping areas;
 - Larger spaces for storing bulky items such as suitcases or sporty equipment; and
 - Spaces for dirty items such as garden equipment.

3N Car and Bicycle Parking

Related Design Principles

Design Principle 4. Sustainability

Design Principle 6. Amenity

Design Principle 7. Safety

In order to provide a diverse and attractive streetscape, the building façade should be the dominant built form feature with garages as a recessive element.

The provision of car parking and garages is particularly challenging in low rise medium density housing, as it often requires a large proportion of the building footprint.

Integrating car parking within buildings has a significant impact to a building's layout and design, along with landscaping.

On-site parking may be located:

- Underground in basement parking;
- At-grade fronting a primary road or secondary road;
- At-grade fronting a rear lane;
- At-grade fronting a private street; and
- At-grade at the rear of a building.

Parking requirements should be determined in relation to the availability, frequency and convenience of public transport, or in regional areas in close proximity to a centre.

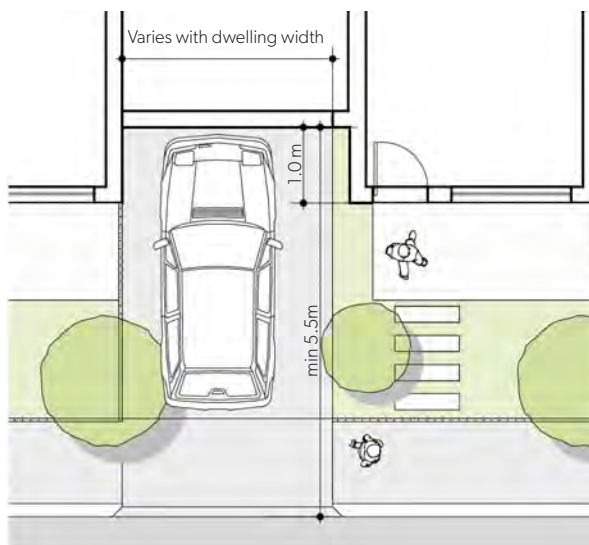


Figure 3-61 Bicycle parking for residents should be secure and easy to access from common areas

Car parking requirements are typically contained in a council's Development Control Plan. The car parking requirements reflect the demand for parking and availability of public transport in an area. Local transport strategies may also include policies for reducing car use to encourage public transport.

In larger developments, the provision of parking for alternative forms of transport, such as car share vehicles, and secure, covered spaces for motorcycles and bicycles, could be considered.



Figure 3-63 Bicycle parking for residents should be secure and easy to access from common areas



Figure 3-62 Garages are recessed elements in the streetscape

Design guidance

Car parking location

1. Car parking should be located away from the primary street frontage to reduce its visual impact. This can be achieved through the use of the following design solutions:
 - Provide access from a rear lane;
 - Provide access from a secondary frontage; or
 - Provide basement parking, where feasible.
2. To facilitate passive surveillance of a lane, parking from a rear lane can be combined with detached studios above garages.
3. To avoid parking dominating the streetscape, garages and carports should be located behind the building line. Windows and other elements of the dwelling design should dominate the streetscape.
4. Driveways should be located and spaced to maximise on-street parking. Typically, one on-street parking space should be available in front of each dwelling.
5. On steeply sloping sites where car parking can be located in a basement, first floor living rooms can overlook the street and remain the dominant design element.
6. Building entry points should provide safe and direct access.

Design of car parking spaces

7. External car parking spaces should use light coloured paving materials or permeable paving systems. Shade trees should be planted between every 4-5 parking spaces to reduce increased surface temperatures from large areas of paving.
8. Secure undercover bicycle parking should be provided and should be easily accessible from both the public domain and common areas.
9. Where basement car parking provides facilities such as garbage areas, plant rooms and switch rooms, they should be accessed without walking across car parking spaces.

10. Car parking spaces should incorporate semi-permeable materials and plantings. Low level landscaping should be used on two to three sides to soften and screen.

11. The public domain can be designed to attractively accommodate parking by including trees and landscaping. Angled parking can also increase on-street car parking provision. This should be considered in areas transitioning from low to medium density housing.

12. For larger car parks, safe pedestrian access should be clearly defined. Circulation areas should have good lighting, clear colours, line markings and/or bollards.

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

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

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

16. Natural ventilation must be provided to basement and sub basement car parking areas.

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

Bicycle Parking

18. Sufficient space is provided in garages for bicycle parking for all members of a household.

30 Visual Privacy

Related Design Principles

Design Principle 6. Amenity

Visual privacy allows residents within low rise medium density development and on adjacent properties to occupy their internal private spaces without being overlooked. It must balance the need for views and outlook with the need for privacy.

Visual privacy provides site and context specific design solutions for views, outlook, ventilation and solar access. Visual privacy must be provided to private open space and habitable rooms such as living rooms and bedrooms. To ensure this, designers should consider context, site configuration, topography, scale of development and dwelling layout.

Degrees of privacy are influenced by other factors including:

- The activities in each of the spaces where overlooking may occur;
- The times and frequency these spaces are being used; and
- The expectations of occupants for privacy.

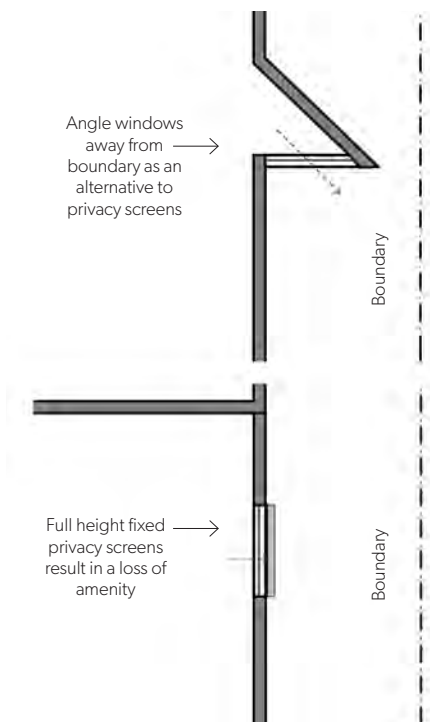


Figure 3-64 Privacy screens can be used to add visual interest to a development



Figure 3-67 Privacy screens are integrated into the facade and provide part of the architectural expression

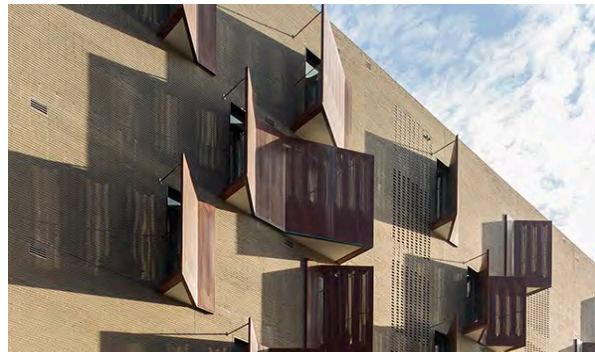


Figure 3-66 Angled privacy screens direct views away from the side boundary. They could also include bay windows



Figure 3-65 Poorly executed privacy screens. These block outlook, sunlight and daylight to windows and reduce amenity of room.

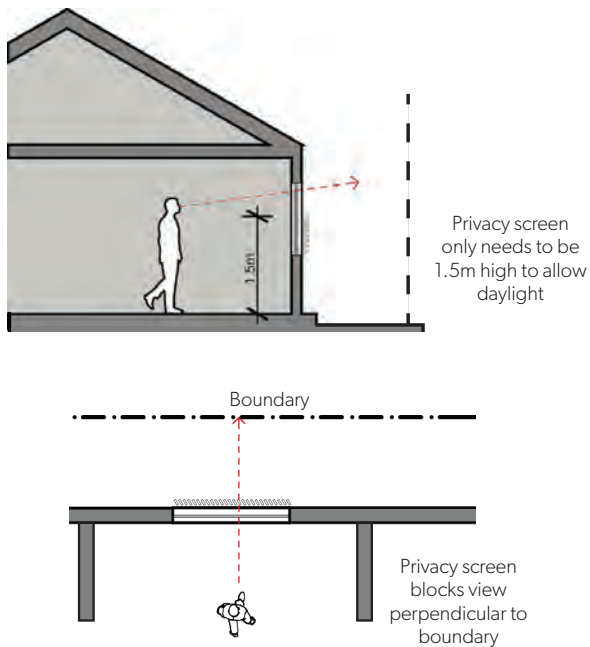


Figure 3-68 Privacy screens do not always need to cover the whole window

Privacy Screens

Privacy and amenity should be designed into the layout and orientation of the dwelling through the location and placement of windows to avoid privacy screens. Privacy screens can be used as a mitigation measure where visual privacy to adjacent or surrounding uses cannot not be avoided.

A privacy screen is a structure which provides a screen or visual barrier between a window of a habitable room or outdoor area on a lot with an adjoining lot that:

- has a total area of all openings that is no more than 30% of the surface area of the screen or barrier, or
- a window, the whole of which has translucent fixed glass which cannot be opened.



Figure 3-69 Pop out windows angled away from the boundary provides privacy



Figure 3-70 Fixed privacy screens can be used on balconies where there may be privacy concerns. Consideration should be given to how the screen is integrated into the facade

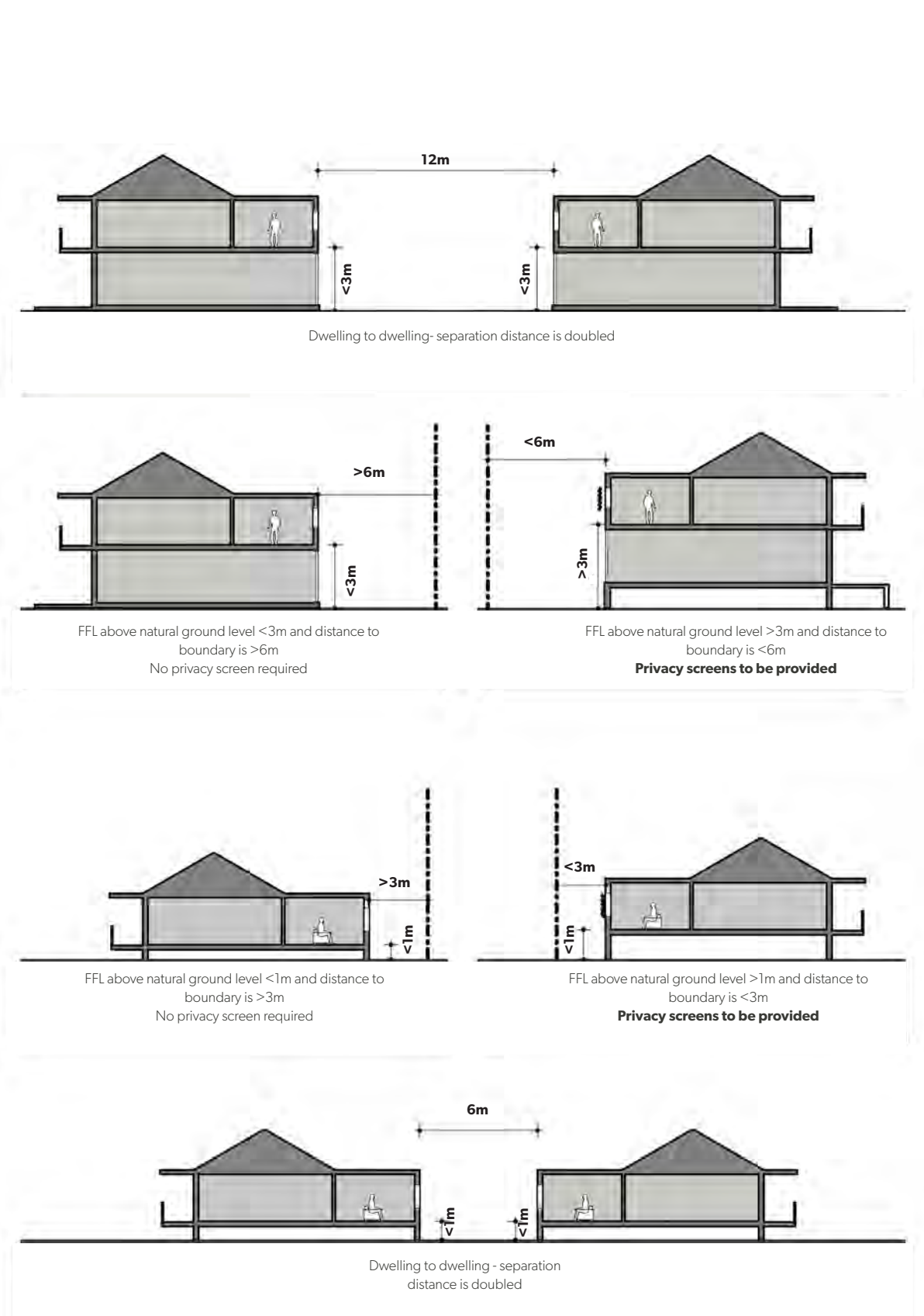


Figure 3-71 Diagrams showing different privacy interface conditions



Figure 3-72 Privacy screens can be decorative



Figure 3-73 Privacy screens can be an integral part of the articulation. Changing the pattern and direction of the screen adds visual interest and asymmetry to the facade.

Design guidance

1. New development should be located and orientated to maximise visual privacy between buildings on-site and with neighbouring buildings. The following design solutions can be used to achieve visual privacy:
 - Suitable building orientation and site layout to minimise privacy impacts to neighbouring properties (see Section 3G Orientation and Siting); and
 - On sloping sites, dwellings on different levels have appropriate visual separations.
2. Direct lines of sight should be avoided from windows to neighbouring properties. Off-setting windows to those in adjacent dwellings can enhance visual privacy.
3. Balconies and private terraces should be located in front of living rooms to increase internal privacy as well as amenity.
4. Recessed balconies and/or vertical fins should be used between adjacent balconies.
5. Living rooms that are more than 1.5 metres above ground or the finished surface level should be orientated towards the public domain or internal streets where views to other habitable rooms or private open space could be impacted.
6. Communal open space, common areas and access paths should be separated from private open space and windows to dwellings, particularly habitable room windows. To achieve this, the following design solutions can be used:
 - Appropriate setbacks;
 - Solid or partially solid balustrades on balconies at lower levels;
 - Fencing and/or trees and vegetation to separate spaces;
 - Bay windows or pop-out windows to provide privacy in one direction and an outlook in another; and
 - Planter boxes incorporated into walls and balustrades to increase visual separation.

3P Acoustic Privacy

Related Design Principles

Design Principle 6. Amenity

Acoustic privacy involves reducing sound transmission between external and internal spaces, between dwellings and communal areas and between dwellings within a building.

Designing for acoustic privacy considers the site context, surrounding uses, building separation, the location of public and private open spaces, and the arrangement of internal spaces in a building.

This Section outlines the typical considerations for acoustic privacy. For constrained sites, such as sites near a rail corridor, major roads or underneath flight paths, refer to Section 3Q Noise and Pollution.



Figure 3-74 A poor acoustic outcome is achieved when driveways are in close proximity to bedrooms and living rooms, and driveways are hard paved reverberating sound.



Figure 3-75 Living rooms setback from main circulation spaces by large landscape setback provides privacy

Design guidance

1. Adequate building separation should be provided within the development and from neighbouring buildings and/or adjacent uses (see Section 3H Building Separation and 3P Visual Privacy).
2. Window and door openings should be orientated away from noise sources.
3. Noisy areas within buildings, including building entries and circulation spaces, should be located next to or above each other and other quieter areas next to or above quieter areas.
4. Storage, circulation spaces and non-habitable rooms should be located within a building to provide a buffer to noise from external sources.
5. The number of party walls (walls shared with other dwellings) should be limited and insulated.
6. Noise sources, such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces and circulation areas, should be located at least 3 metres from bedrooms.
7. The internal dwelling layout should be designed to separate noisy spaces from quiet spaces. This can be achieved by using the following design solutions:
 - Grouping rooms with similar noise requirements together;
 - Using doors to separate different use zones; and
 - Providing wardrobes in bedrooms to act as sound buffers.
8. Where physical separation cannot be achieved, noise conflicts are resolved using the following design solutions:
 - Double or acoustic glazing;
 - Acoustic seals;
 - Using materials with low noise penetration properties; and
 - Providing continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements.

3Q Noise and Pollution

Related Design Principles

Design Principle 6. Amenity

Properties located near major roads and rail lines, and beneath flight paths are likely to be subject to noise and poor air quality. Other hostile and noisy environments such as industrial areas, substations or sports stadiums may have impact on residential amenity. Careful design solutions can help to improve quality of life in affected dwellings by minimising potential noise and pollution impacts.

This Section addresses design responses to sites affected by significant noise and pollution sources. Section 3P Acoustic Privacy deals with more typical residential developments that do not face such challenges.

Development near rail corridors and busy roads

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) applies to certain development adjacent to busy roads and rail corridors.

The Infrastructure SEPP requires that for development adjacent to a road with an annual daily traffic volume exceeding 40,000 vehicles per day, or near a rail corridor, the impact of noise and vibration must be taken into consideration.

The NSW Government's *Development Near Rail Corridors and Busy Roads - Interim Guideline* assists in the planning, design and assessment of development in, or adjacent to, rail corridors and busy roads. Development in these locations must have regard to this Interim Guideline.

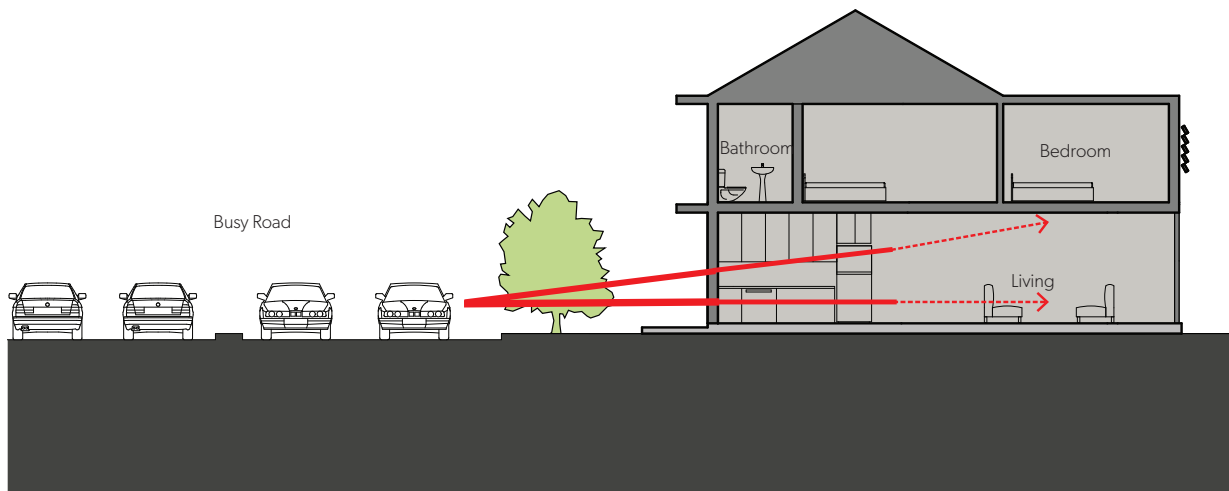


Figure 3-76 Locate noise sensitive rooms away from road noise



Figure 3-77 Landscaping in front of solid dark coloured fence reduces impact of sound walls

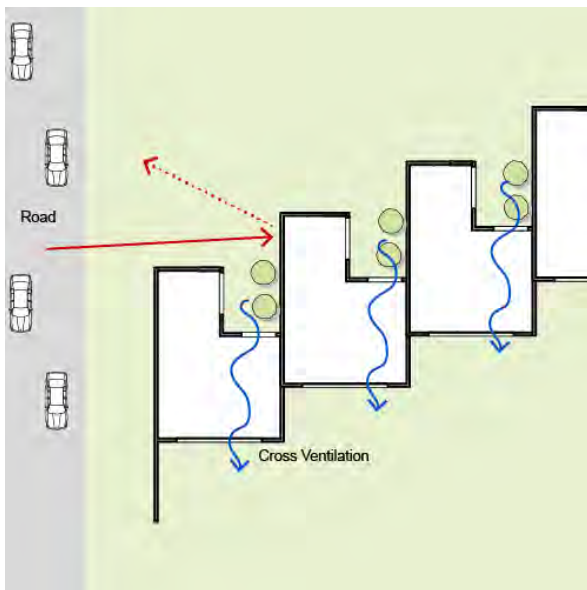


Figure 3-78 Staggered terrace houses can be arranged to shield windows from excessive traffic noise and still allow for cross ventilation

Design guidance

1. To minimise the impacts from noise pollution in low rise medium density developments the following design solutions may be applied:
 - Create physical separation between buildings and the noise or pollution source;
 - Orientate dwellings perpendicular to the noise source and where possible buffer the dwelling with other uses;
 - Provide buildings that respond to both solar access and noise. Where solar access is away from the noise source, non-habitable rooms can provide a buffer;
 - Where solar access is in the same direction as the noise source, dual aspect dwellings with shallow building depths are preferable; and
 - Provide landscaping to reduce the perception of noise and act as a filter for air pollution generated by traffic and industry.
2. The following design solutions can be used to mitigate noise:
 - Limiting the number and size of openings facing noise sources;
 - Providing seals to prevent noise transfer through gaps;
 - Using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens); and
 - Using materials with mass and/or sound insulation with absorption properties e.g. solid balcony balustrades and soffits.
3. Buildings should be designed and constructed to include acoustic attenuation to reduce noise levels from any off-site noise sources to:
 - Below 35dB(A) for bedrooms, assessed as an LAeq over 9 hours (from 10pm to 7am); and
 - Below 40dB(A) for living areas, assessed as an LAeq over 15 hrs (from 7am to 10pm).

3R Architectural Form and Roof Design

Related Design Principles

Design Principle 1. Context and Local Character

Design Principle 2. Built form and Scale

Design Principle 9. Visual Appearance

Architectural form of building design is one of the most important elements and defines the building as viewed from a distance. A suitable built form and proportion makes a strong contribution to the local character of an area.

The following building characteristics describe the architectural form:

- Mass;
- Stepping elements;
- Solid and void relationships; and
- Silhouette created by the roof form.

The architectural form includes the patterns and proportion of the building and considers all dimensions of the building mass, not just articulation of the facades.

The roof form can provide a sense of individual identity. Roof forms can be pitched, flat or a combination. The roof is an important element in the overall composition and design of a building. Quality roof design provides a positive addition to the character of an area and can form an important part of the skyline. Roofs also provide opportunities for open space where appropriate and can add to the sustainability of a building's performance.

The finer details of a building's architectural form include articulation and facade design. These elements provide additional visual interest and reinforce architectural form.



Figure 3-79 Dwellings address public space



Figure 3-80 Interesting roof forms and integration of privacy and sun control devices to overall building design



Figure 3-81 Silhouette created by parapet



Figure 3-83 Variety in design of streetscape with consistent palette - incorporates sun control devices



Figure 3-82 Roof form expressed



Figure 3-84 Slight variations between similar terraces add visual interest - good use of solid and void to balance streetscape

Design guidance

1. A building's design should reflect the characteristics of good design, including rhythm, proportion and aesthetics. To achieve good architectural form and roof design the following design solutions can be used:
 - Roof features and strong corners;
 - Skillion or very low pitch hipped roofs;
 - Massing of the roof by using smaller elements to avoid bulk;
 - Materials or a pitched form complementary to adjacent buildings;
 - Flat roof and parapet forms;
 - Stepped buildings to identify different dwellings; and
 - Articulating the roof form and/or integrating this with the mass of the building.
2. Building forms and footprints should respond to patterns in the local area - in particular with respect to proportion and scale.
3. The top of a building should be defined by setting back upper levels behind the front building facade or expressing the shadow of an overhanging roof.
4. The bulk and visual impact of a building should be reduced by breaking down the roof into small roof elements.
5. Roof treatments should be integrated with the building design. This can be achieved through the use of the following design solutions:
 - Using roof design that is proportionate to the overall building size, scale and form (e.g. eaves should increase with height);
 - Using roof materials that complement building materials; and
 - Integrating service elements into the roof.
6. Good roof design should ensure that solar access to dwellings is maximised during winter and provides shade during summer. This can be achieved through the use of the following design solutions:
 - Placing the roof rises to the north; and
 - Providing eaves and overhangs to shade walls and windows from summer sun.
7. Providing a built form which balances the composition of solid and void.
8. Providing a building that has a simple architectural form. This architectural form often needs a higher level of articulation, one that has a complex or more sculpted architectural form which can have simple detailing.

3S Visual Appearance and Articulation

Related Design Principles

Design Principle 1. Context and Local Character

Design Principle 9. Visual Appearance

The design of facades contributes greatly to the visual interest of the building and the character of the local area. While facades that face the street have an impact on the public domain, side and rear facades often influence the amenity of neighbouring buildings, and communal and private open spaces.

The aesthetics and articulation of a building add further detail and complement the architectural form. A building's articulation can assist in refining the form and enhancing a building's scale and proportion.

High quality facades are a balanced composition of building elements, textures, materials and colour. Well-designed facades also reflect the use, internal layout and structure of a dwelling.

The composition and detailing of a facade is not only important to the appearance of the building, they also influence the perceived building scale. The pattern and repetition of elements in the facade, the proportions and articulation of external walls and the detailed design of facade elements, are all important considerations.

The quality of the streetscape impacts on local amenity and identity, as it results from the inter-relationship between buildings, landscape and open spaces. To contribute to the character of the local area, development should recognise predominant streetscape qualities, such as building form, scale, materials and colours.

Careful design and material selection can reduce the long term maintenance obligations of low rise medium density development. In addition, effective maintenance of the development ensures the longevity of buildings.



Figure 3-86 Varied building forms and a mixed palette of materials adds interest to the streetscape

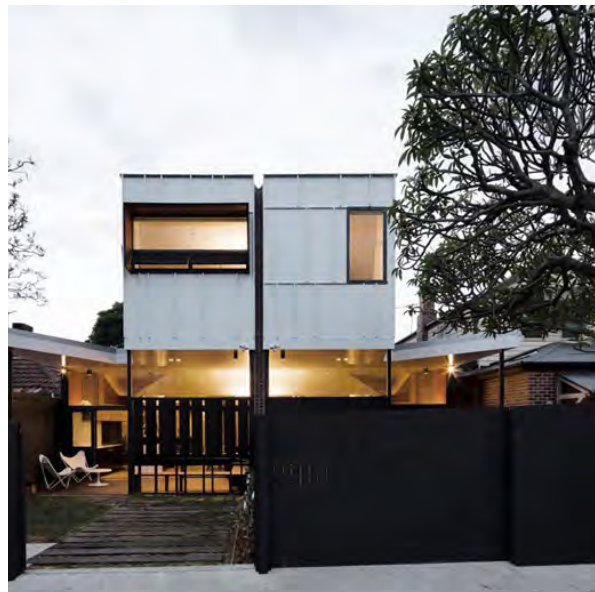


Figure 3-85 Asymmetrical design for dual occupancies adds interest to the streetscape



Figure 3-87 Example of transparent fencing landscaping in front setback and asymmetrical facade design



Figure 3-88 A combination of bold concrete and fine timber fencing create an interesting balance and contrast to the facade

Design guidance

1. The facade of a building should provide a balanced composition of elements, including a mix of solid and void.
2. Building facades are a composition of various elements, including:
 - Balconies;
 - Windows and bay windows;
 - Porches;
 - Front doors; and
 - Fences and walls.
3. Facade elements should have a consistent design throughout the development and be integral to the architectural intent.
4. To achieve high quality front building facades, the following design solutions can be used:
 - A composition of varied building elements;
 - A defined base, middle and top of buildings;
 - Revealing and concealing certain elements; and
 - Changes in texture, material, detail and colour to modify the prominence of elements.
5. Other design solutions that can be used to enhance a building facade include:
 - Providing roof overhangs to protect walls;
 - Providing hoods over windows and doors to protect openings;
 - Detailing horizontal edges with drip lines to avoid staining of surfaces;
 - Detailing to eliminate or reduce planter box leaching; and
 - Selecting appropriate design and materials for hostile locations.
6. Variation in materials, colours and key elements, such as doors, windows and balconies, should be used to order building facades with the scale and proportion which responds to a local area's character.
7. Building articulation, balconies and deeper window reveals should be used to create shadows on the facade throughout the day.



Figure 3-89 Awnings provide shelter and add articulation



Figure 3-92 Brick patterns create visual interest and add detail and texture. Consider how facade and landscape treatments integrate into the overall design of the development



Figure 3-90 Contrast texture with sharply defined openings and fine steel balustrades



Figure 3-91 The use of screens provides privacy to balconies



Figure 3-93 Eaves, awnings and shutters provide screening from the sun

Design guidance

8. Service elements should be integrated into the overall façade.
9. Colour should be used to provide accent and texture changes for visual interest.
10. Building facades should have an appropriate scale and proportion to the streetscape and human scale. This can be achieved by using the following design solutions:
 - Well composed horizontal and vertical elements;
 - Variation in floor heights to enhance the human scale;
 - Elements that are proportional and arranged in patterns;
 - Artwork or treatments to exterior blank walls; and
 - Grouping of floors or elements, such as balconies and windows, on taller buildings.
11. Building facades should relate to the key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights.
12. All building elements, including shading devices and awnings, should be coordinated and integrated into the overall facade design.
13. For lots located on the northern, eastern and western side of a street, the articulation zone should be designed to incorporate private open space, including principal private open space.
14. The facade composition and articulation can provide a response to the context of the local area through:
 - Material selection;
 - Proportion of openings;
 - Datum lines;
 - Pitch and form of roof; and
 - In some instances it is more appropriate to be sympathetic to the context, whilst in others, a well designed contrast is appropriate.
15. The front of the dwelling is layered to provide visual interest to the public domain and amenity and privacy to the dwelling.
16. Building entries should be clearly defined. This could include a covered porch area to define the front entry and to provide weather protection. This building feature could be a recessed or projecting element.
17. Important street corners should be given visual prominence through a change in articulation, materials or colour, roof expression or changes in height.
18. Long term maintenance in the selection of external materials should be considered in the construction of a building. The use of painted and rendered surfaces should be minimised.
19. The environmental impacts of material selection should be considered. This includes the use of timber from sustainable sources.
20. Where the development consists of a number of dwellings, some variation in colour, stepping with the topography or variation in external treatment, should be used to provide visual interest.
21. The facilitation of maintenance should reduce the need for external scaffolding access.
22. Building maintenance systems should be incorporated and integrated into the design of the building form, roof and facade.
23. For larger developments, centralised maintenance, services and storage areas should be provided in communal spaces within the building.

3T Pools and Detached Development

Related Design Principles

Design Principle 6. Amenity

Detached development consists of structures that are detached and independent of the main building. It include structures such as garden sheds, detached studios, cabanas, swimming pools and cubby houses.

Detached development for low rise medium density housing must be more than 900mm from the dwelling house.

These structures are generally low in scale, typically located in a rear yard and support the uses of the dwelling by adding amenity and functionality.

In larger developments, communal facilities can include pools, spas and other recreational facilities.

These detached structures need to be located with care to avoid noise impacts on dwellings and adjacent properties and should be integrated into the landscape design.

Most detached development is exempt development. Details of exempt development can be found in Part 2 of the Codes SEPP.



Figure 3-94 Swimming pools and spas should be integrated with the landscape design



Figure 3-95 Swimming pools and spas can also be integrated to complement the architecture of the dwelling



Figure 3-96 Pool fencing should be integrated with the landscape design



Figure 3-97 Rear outbuildings such as studios should be orientated to the lane to allow for passive surveillance and security

Design guidance

1. To ensure that the noise generated by the pool pump complies with the requirements of Protection of the Environment Operations (Noise Control) Regulation 2008, pool equipment should be contained in a sound proof enclosure (if required).
2. To provide passive surveillance to the lane, studios should be located on rear laneways adjacent or over garages.
3. The privacy and solar access impacts of studios over garages should be considered for the studio, surrounding buildings and adjacent uses.
4. Spas, pools and garden sheds should be located only in the rear garden to avoid visual impact on the street.
5. Garden sheds in the rear garden can provide useful storage for garden equipment, bike storage, toys and furniture, as well as bins. Garden sheds should be designed to match the dwelling.
6. A swimming pool and/or spa should be integrated with the landscape design and consider the topography of the site.
7. To minimise noise and visual impacts, decking around pools should be located away from property boundaries.
8. To avoid privacy and noise conflicts, communal spas, pools and recreational facilities should be located away from the bedrooms and private outdoor spaces of the dwelling.
9. To avoid noise impacts, pool and spa equipment should be located away from the dwelling house and neighbouring properties .

3U Energy Efficiency

Related Design Principles

Design Principle 9. Sustainability

Energy efficient design is about the ability of a dwelling to manage thermal performance (thermal comfort), reduce energy consumption and provide for sustainable energy sources. It can provide increased amenity to occupants and reduce energy costs.

Passive solar design relates to the orientation and layout of the dwelling, materials in the external skin providing insulation, and the size, location and protection of the windows.

Provision of alternate sources of energy, such as solar hot water, photovoltaics for energy generation and batteries for storage, will reduce overall energy consumption of the dwelling.

This Section offers guidance on meeting BASIX sustainability requirements and other rating systems through better design practice. For additional design practice linked to passive environmental design and energy efficiency see Section 3H Solar and Daylight Access, Section 3I Natural Ventilation and Section 3K Dwelling Size and Layout.



Figure 3-99 Light shelves can reflect sunlight deeper into rooms and provide shade from summer sun



Figure 3-98 Roof mounted photovoltaics should be integrated into the design of the dwelling



Figure 3-101 Adjustable screens allow control of sunlight



Figure 3-100 Battery storage saves energy generated during the day for use in the evening

Design guidance

1. Preferably natural light and ventilation should be provided to habitable and non-habitable rooms.
2. Well located, screened outdoor areas should be provided for clothes drying.
3. Living areas should be orientated to the north.
4. Eaves and awnings should be designed to provide shade for windows during summer.
5. The size of windows should be reduced or adjustable shading should be provided to east and west facing windows.
6. Substantial insulation should be provided in walls, ceilings, floor (for timber framed construction) and roof spaces.
7. Mid to light coloured roofs should be selected which absorb less heat in summer.
8. Ceiling fans should be provided in bedrooms and living rooms to assist with cooling and to increase comfort.
9. The following design solutions can be used to maximise the energy efficiency of a development:
 - Using smart glass or other technologies on north and west elevations;
 - Maximising thermal mass in the floors and walls of north facing rooms;
 - Providing polished concrete floors, tiles or timber rather than carpet in living areas;
 - Insulating roofs, walls and floors and providing seals on window and door openings; and
 - Providing overhangs and shading devices such as awnings, blinds and screens.
10. Photovoltaics may be installed on roofs to generate electricity for common or individual use. Batteries can be used to store energy for use in the evenings.

3V Water Management and Conservation

Related Design Principles

Design Principle 4. Sustainability

Water sensitive urban design includes the integrated management of water in urban areas. It takes into account all of the elements of the urban water cycle including potable (drinking quality) water, rainwater, wastewater, stormwater and groundwater.

Best practice water management considers water measures at all stages of a project, from initial site planning measures that maximise deep soil areas for water infiltration, to detailed building design that captures and recycles stormwater and wastewater for building services.

The Building Sustainability Index (BASIX) ensures all new dwellings are designed to minimise potable water use and reduce greenhouse gas emissions. There are a number of planning and design considerations that are relevant to low rise medium density developments to support BASIX.



Figure 3-103 Rain gardens integrated into the landscape can filter stormwater



Figure 3-104 Swales can be attractive, and are able to filter and collect the stormwater



Figure 3-102 Integrate rainwater tanks into the landscape

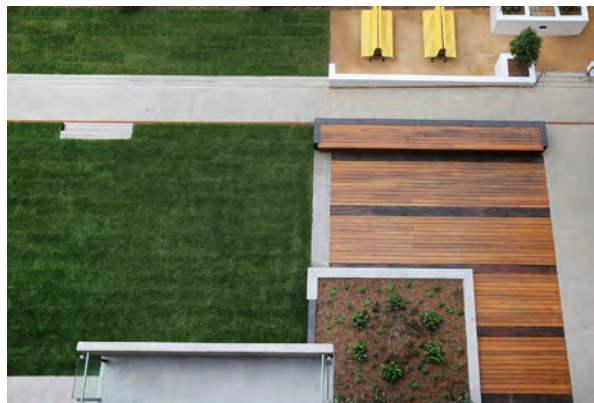


Figure 3-105 Tanks can be hidden under decks in private and communal open spaces

Design guidance

1. Potable water reduction is achieved by installing water efficient fittings, appliances, individual metering and rainwater reuse.
2. Drought tolerant, low water use plants should be provided in landscaped areas.
3. Water sensitive urban drainage systems should be designed by a suitably qualified professional.
4. To achieve water management and conservation measures, the following design solutions are recommended to be used in developments:
 - Ensure runoff is collected from roofs and balconies in water tanks and plumbed into toilets, laundry and irrigation;
 - Maximise the use of porous and open paving materials;
 - Provide on-site stormwater and infiltration systems, including bio-retention systems such as rain gardens or street tree pits; and
 - Ensure rainwater is reused for landscaped areas and pools.
5. Detention tanks should be located under paved areas, driveways or in basement car parks.
6. On large sites, parks or open spaces should be designed to provide temporary on-site detention basins. Temporary on-site detention basins in active open space areas should have a maximum depth of 300mm to avoid fencing.
7. Rainwater is best used for outdoor watering and filling pools.
8. Filtered rainwater can be easily used for hot water or laundry use and result in significant reductions in water use. Rainwater can also be used for toilets but can require additional plumbing.
9. Rainwater tanks should be incorporated into the overall site design. Where rainwater tanks are located along a side boundary, the rainwater tanks should not obstruct access.

10. Rainwater tanks should be located under decks to allow for easy access while hiding the tank from view.

11. Stormwater quantity and quality should be controlled using bio-swales, rain gardens or on-site detention tanks, where appropriate.

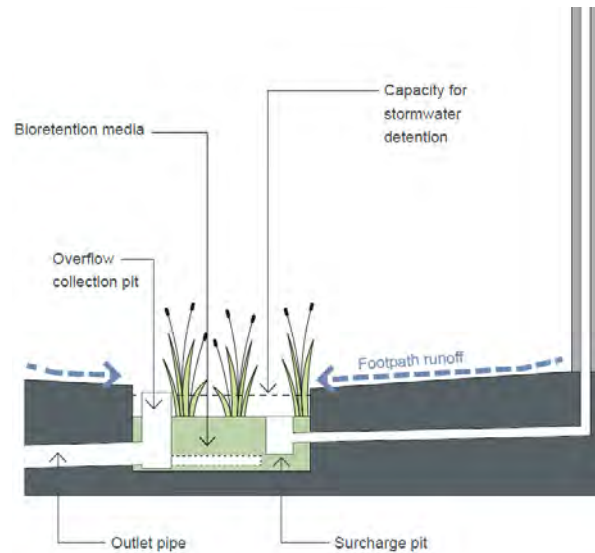


Figure 3-106 A bioretention garden improves water quality by using plants to treat roof and surface water runoff

3W Waste Management

Related Design Principles

Design Principle 4. Sustainability

The minimisation and effective management of domestic waste from dwellings contributes to the visual and physical amenity of the building while limiting potentially harmful impacts on the environment.

Minimising waste is relevant to all stages of the building's lifecycle and also includes the safe and convenient collection and storage of waste and recycling. Waste management should be considered early on in the design process.

The storage of waste can have significant visual impacts on the private and public domain, and should be located away from key areas such as entries and habitable room windows.

For larger developments, waste collection is often required to be on-site and space for vehicle access needs to be provided to the centralised collection point.



Figure 3-109 Bin areas fronting the street can be designed and incorporated into the building or landscape elements



Figure 3-107 Alternative waste disposal, such as composting, can be incorporated into the design of communal open space areas



Figure 3-108 Provide bin areas that are screened and incorporated into the landscape or building design



Figure 3-111 Well designed, easily accessible and clean waste and recycling rooms improve the collection and management of household waste

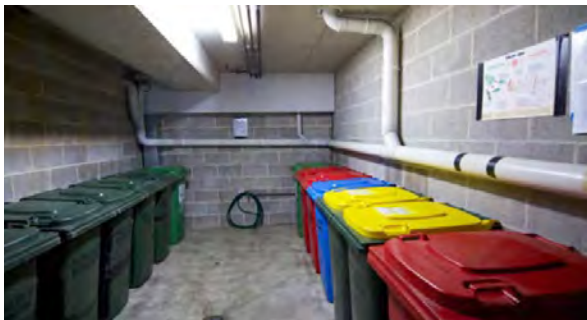


Figure 3-112 Waste and recycling areas should allow for sufficient space to manoeuvre bins and sort waste for recycling

Design guidance

1. Refer to the *Better Practice Guide for Waste Management in Multi-Unit Developments* published by the NSW Environment Protection Authority.
2. Space for all bins types available for a single dwelling should be provided including: recycling, general and garden waste. These areas should be located discreetly away from the front of the development or in the basement car park.
3. If rear lane access is available and is suitable for waste collection, this is preferable to collection from the street fronts.
4. Design bin enclosures should be integrated into the dwelling design.
5. Waste and recycling storage areas should be well ventilated.
6. Properly designed circulation spaces allow bins to be manoeuvred easily between storage and collection points.
7. Temporary storage for bulky items should be provided in an area that is not visible from the street.
8. Where access to a collection point is required on site, consider the use of a smaller collection vehicle to reduce space for circulation and head clearances in basements.
9. Bin storage areas should be away from habitable room windows.
10. Ensure communal waste and recycling rooms are in convenient and accessible locations and relate to each vertical core.
11. Garbage collection, loading and servicing areas should be screened behind structures which are integrated into the overall building design.
12. Space for green waste composting or worm farms should be provided in the rear garden.

3X Universal Design

Related Design Principles

Design Principle 8. Housing Diversity and Social Interaction

Universal design is an international design philosophy that enables people to continue living in the same home as they age or as their lifestyle and mobility changes. It ensures that dwellings are able to change and be adapted for the accessible needs and requirements of the occupants. Universally designed dwellings are safer and easier to enter, to move around and live in. Universally designed dwellings benefit all members of the community, from young families to older people, their visitors, and those with permanent or temporary disabilities.

Incorporating universal design principles into low rise medium density development is a step towards producing robust, flexible housing stock. It ensures that simple and practical design features are incorporated into new buildings that would be difficult and costly to retrofit at a later date.

Universal design is different to adaptable housing which is governed by *Australian Standard AS 4299-1995 Adaptable Housing*, and is specifically designed to allow for the future adaptation of a dwelling to accommodate the occupant's needs.

Flexible dwelling design is also desirable to allow buildings to accommodate a diverse range of lifestyle needs such as different household structures, live/work housing arrangements and future changes in use.

This Design Guide refers to Silver, Gold and Platinum ratings for universal design from the publication *Livable Housing Design*, prepared by Livable Housing Australia.

The publication can be found on the Livable Housing Australia website: www.livablehousingaustralia.org.au

Incentives are provided for housing for seniors and those with a disability through the *State Environmental Planning Policy (Seniors or People with a Disability) 2004*. Development which occurs under this SEPP is required to achieve a higher standard and requires all dwellings to achieve a range of housing standards.



Figure 3-113 Additional floor space is required to ensure circulation can be achieved once the dwelling is furnished



Figure 3-114 Clear space between bench tops makes it easier to use the kitchen



Figure 3-115 A universally designed dwelling provides step free door transitions and level flooring to reduce trip hazards

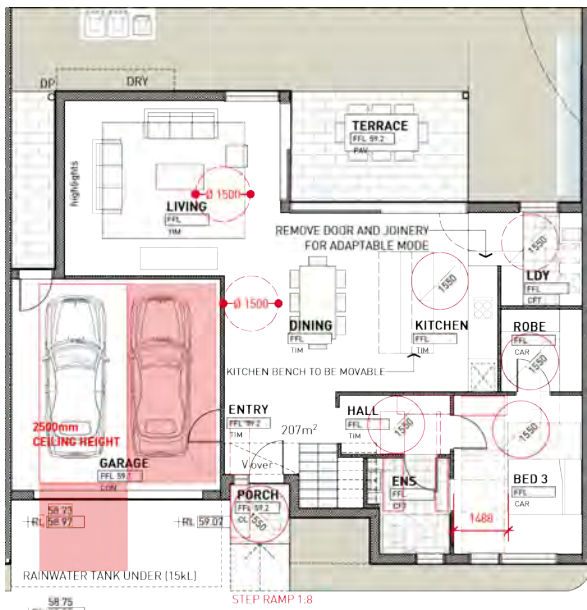


Figure 3-116 Accessible dwellings and universal designed dwellings require additional space for circulation. Locating a bedroom on the ground floor of a two storey dwelling allows flexibility in accommodating a diverse range of needs.

Design guidance

1. Prior to purchasing a property, the following implications of Universal Design should be considered:
 - Access to public transport.
 - The size of the dwelling. This is because often the spatial requirements of universal design mean that each dwelling needs to be larger than the minimum dwelling size noted in this Design Guide.
 - The slope of the site, as steeply sloping sites can be difficult to achieve an accessible travel path.
2. To cater for different and changing family circumstances, a good design strategy will incorporate flexible design solutions. This may include:
 - Rooms with multiple functions;
 - Dual master bedroom dwellings with separate bathrooms;
 - Larger dwellings with various living space options; and
 - The ability to adapt a ground floor room into a bedroom or a workspace.

3Y Communal Areas and Open Space

Related Design Principles

Design Principle 5. Landscape

Design Principle 6. Amenity

Design Principle 8. Housing Diversity and Social Interaction

Typically, larger low rise medium density developments will contain communal spaces. Communal space can be internal or external, and can be circulation or recreation areas.

Communal space is an important amenity resource that provides outdoor recreation opportunities for residents, connections to the natural environment and valuable 'breathing space' between dwellings in larger low rise medium density development.

Communal space also contributes to the appeal of a development and the wellbeing of residents. Larger communal spaces may be accessible and usable by the general public and to avoid confusion are best dedicated for public use.

Communal spaces provide opportunities for casual social interaction among residents and can assist with social integration. Important design considerations for communal spaces include safety, amenity and durability.

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

- Landscape character and design;
- Opportunities for group, individual recreation and activities;
- Opportunities for social interaction;
- Environmental and water cycle management;
- Opportunities to modify microclimate; and
- Amenity and outlook for residents.



Figure 3-117 Low walls in landscaped areas can be used for sitting



Figure 3-118 Usable grassed area for active play separated from dwellings by paths and planting



Figure 3-119 Communal areas provide a space for residents to sit and relax and socialise

Design guidance

1. Circulation spaces (internal and external) should provide direct clear access to dwellings and a clear line of sight from public spaces to provide opportunities for passive surveillance.
2. External circulation space should provide an accessible path of travel. Ramps and lifts should be integrated with building and landscape design.
3. Communal spaces should be consolidated into a well-designed, easily identified and usable area, and co-located with landscaped areas.
4. Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies.
5. Facilities should be provided within communal open spaces and common spaces for a range of age groups, incorporating some of the following elements:
 - Seating for individuals or groups;
 - Barbecue areas;
 - Play equipment or play areas; and
 - Swimming pools, gyms, tennis courts or common rooms.
6. Communal open spaces should be located in areas where they do not impact on the privacy of dwellings.
7. Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. To achieve this the following design solutions may be used:
 - Bay windows;
 - Corner windows; and
 - Balconies.
8. Communal space should be well lit.
9. Where communal open spaces/facilities are provided for children and young people, they should be enclosed and safe.
10. Circulation spaces, such as entry lobbies, outside lifts and at dwelling doors, need to accommodate space for comfortable movement and access for people with disabilities and furniture.
11. Daylight and natural ventilation should be provided to all common circulation spaces that are above ground.
12. Legible signage should be provided for dwelling numbers, common areas and directional guidance.
13. Incidental spaces, such as space for seating in a corridor or at a stair landing, should be provided throughout communal spaces.
14. Communal space could provide opportunities for artwork where appropriate. artwork creates a sense of place and links the built environment to the cultural fabric of the space.
 - Artwork can take the form of sculpture, architecture or landscape features, and is best integrated into the overall design for a development.
 - Artwork can link a site to past uses, significant people, cultural backgrounds, influences or future aspirations. It is a form of story-telling.
15. The design of all communal spaces will need to address equitable access for persons with disabilities and obligations under the *Access to Premises Standard and Disability Discrimination Act 1992*.

4

Delivery

This Section provides guidance on the delivery of low rise medium density housing across NSW, including information to assist with strategic planning, and preparing and assessing development applications.

4.1 Site Considerations

The Design Guide for DAs is intended to help councils and applicants:

- Provide guidance for site consideration for different development types; and
- Assist in the preparation and assessment of development applications.

Site Selection and Development Type

Selecting the development type

The topography, orientation and lot geometry all affect the ability to accommodate development. Different conditions tend to favour different types of low rise medium density housing.

Although the LEP specifies minimum lot sizes, in some instances larger lot sizes may be required to accommodate the selected development type.

The following provides some general guidance in site selection:

- Corner sites provide opportunities to create rear lanes.
- Sites with a depth of 28-40m are best for traditional terrace housing forms.
- Shallow sites with a depth of 20-30m are best for wide terrace housing with parking from the street frontage.
- The end of a block provides an opportunity to create a new lane that runs from primary road to primary road providing access to the rear of the new terraces and access to the rear of adjoining land
- Manor houses in the centre of a block may need a semi-basement or basement for car parking.
- Manor houses on corner site can have parking from both frontages.
- Sites that have north facing frontage will suit narrow deep lots so a pavilion design can provide sunlight into the rear of the site.
- Sites that have north to the side boundary often need to be wider to maximise solar access and reduce impacts on adjoining land.

Allow for housing diversity

When working in both existing and new subdivisions, it is important that dwelling types are not grouped together in one location but 'salt and peppered' in a variety of locations.

The term 'salt and pepper' refers to development which incorporates a number of housing types and sizes. It will provide a better outcome for housing diversity, provides interest and variety in housing forms and can respond to existing subdivision patterns.

A variety of tenure options will help meet people's changing needs at different stages of their lives. Housing diversity will help provide for renters, homeowners, investors and social housing tenants. It will also provide choice at different life stages.

Identify the Context and Local Character

An appreciation of the existing constraints and opportunities of the site and surrounding area.

Place

Understanding the existing qualities of place are important, including the regional identity, connections to surroundings, the local character, morphology of the place and natural features. It also includes an understanding of the socio-economic profile of the area.



Street Layout and Lot Types

Street layout

Low rise medium density housing generally requires a much finer grain street and lane network than lower density single dwelling housing. The increased number of dwellings require additional frontage length, and above ground car parking of required new lane or shallow depth lots. These lanes could also increase development potential for adjoining sites.

In new subdivision areas, a network of streets and lanes will be required. The length and depth of blocks should be tested using the guidance and Design Criteria in this guide to ensure optimal amenity in the completed development.

Local streets and lanes should be designed for traffic speeds of 40km/hr to encourage a safe pedestrian friendly environment.

Laneways, shared surfaces or mews should be integrated into the block design. This will allow car access and servicing from the rear, reducing block size, assist with

density, and restrict the number of driveways along the primary access road. Reducing the number of driveways improves the quality of streetscape by improving street planting.

The new lanes and streets are best managed if ownership is public, alternatively a community title or strata title with easement for public access should be provided. Council should make provision for dedication of new streets and lanes in their s7.11 Contributions Plan.

Lot design

Good subdivision design ensures that the key variables of aspect, size, shape and density are combined with site characteristics such as topography and slope to achieve a range of lot sizes and energy efficiencies. Efficient subdivision promotes and facilitates good pedestrian activity and bicycle use.

Block size should be kept to a minimum to enhance walkability, and the shape should allow for functionality, access and facilitate sunlight and daylight into rear gardens and habitable rooms.

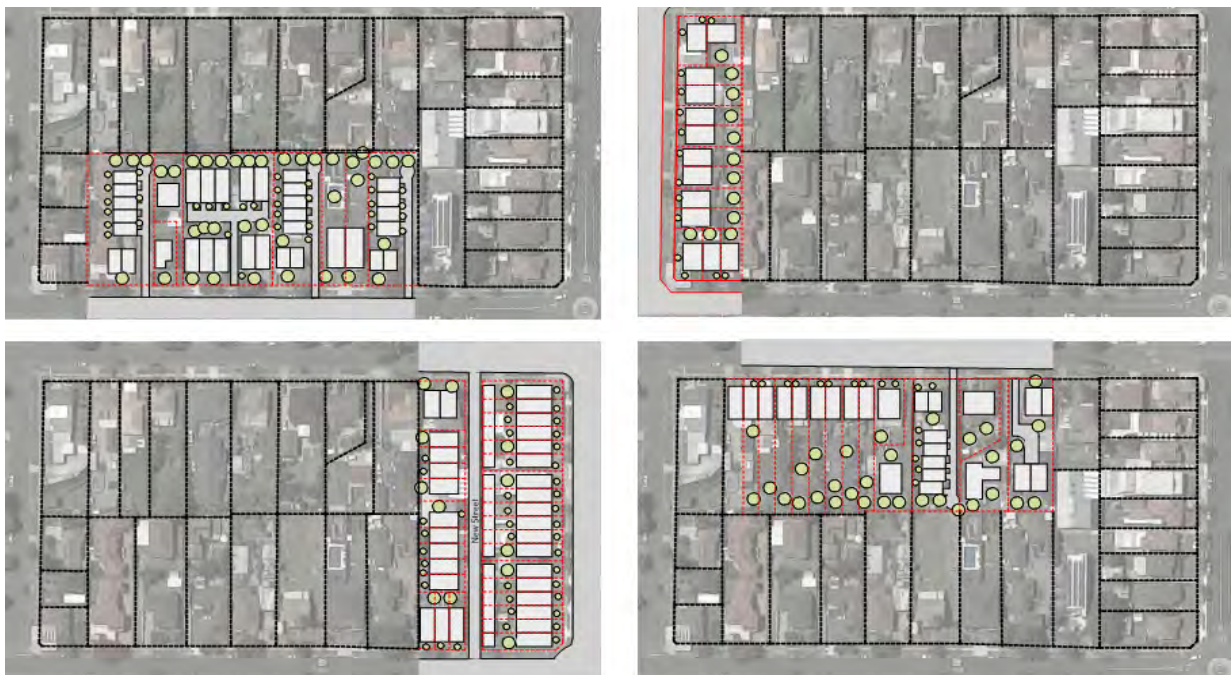


Figure 4-2 Different solutions are needed for lots of different sizes and orientation - rather than encourage one form of housing, the block size design based planning can select housing types and envelopes that suit the subdivision pattern - resulting in diversity. Consistency can be achieved by street setbacks and frontage

A solar-efficient subdivision will ensure that development is significantly more energy efficient than conventional development. Solar efficient arrangement results in the lots being correctly aligned and proportioned to maximise lighting and solar heating. Individual houses in general will perform better with comparatively less effort. Lots should be designed so that one axis is within 30 degrees east and 20 degrees west off true solar north.

Public Domain

With increased density, the demand on the public domain for the amenity of the residents and businesses in an area increases. This includes the creation of social spaces and distinctive places, such as the incorporation of footpaths, well-designed street furniture, signage and lighting.

In new subdivisions and existing areas undergoing transition, applicants and councils will need to re-think the structure of their public domain and consider the following opportunities:

- places for recreation - including pocket parks, closing off street ends to through traffic to create new public spaces;
- on street parking configuration - angle parking can assist in slowing traffic and provide opportunities for tree planting in the road corridor;
- landscape including tree canopy and understory vegetation;
- creating connections - walking cycling, public transport - this may required creating new streets to break down larger lots;
- how the streets can connect within the wider strategic objectives for landscape, open space and sustainability;
- opportunities for treatment of stormwater within the public domain; and
- public art.



Figure 4-3 Rain gardens treat stormwater from the streets



Figure 4-4 Incorporating cycleways and landscaping into the public domain



Figure 4-5 Angle parking and street closures provide a place for residents and additional parking

4.2 Pre-Application Meetings

It is important to receive good advice when preparing an application for consent. It is recommended that early in the design phase, a pre-application meeting be held to focus on achieving the best siting, built form and design outcomes. A meeting with council allows the concept design, site layout, relationship to context and relevant planning policies to be discussed.

This meeting should also include urban design or architectural advice.

The pre-application meeting provides opportunities for feedback on specific concept plans for the site. At the meeting relevant planning policies and site constraints can be discussed.

It is recommended that the meetings with council be documented and written advice be provided to the applicant and designer.

Working closely with a council may help avoid unnecessary delays with the application.

Often other specialised consultants will also need to provide information for the Pre-DA meeting such as engineers, arborists or landscape architects.

Any aspects of the proposal that may not comply with the controls can be discussed, and the council can provide advice on alternative solutions that achieve the Objectives.

To ensure design outcomes are integrated and balanced it is recommended that council provide urban design and architectural advice as well as planning, engineering and landscape comments on the proposal.

Often low rise medium density housing will need connections to Council's stormwater system, driveway crossings or tree removal. Advice on this from Council at an early stage will ensure that an appropriate design can be developed. Locations of existing services should also be assessed to determine any potential impact on the design.



Figure 4-6 Planning meeting

4.3 Development Application

This Design Guide applies to all development applications in the R1, R2, R3 and RU5 zone where medium density housing is permitted under the relevant LEP.

Development Standards

The LEP that applies to the land will contain the development standards.

Development Control Plans and Other Policies

The Development Control Plan that applies to the land (DCP) may also articulate desired future character and provide controls additional to those within this guide.

Design Controls

Section 2 of the Low Rise Medium Density Design Guide contains Objectives and Design criteria. The Design Criteria set a clear and measurable standard for how the Objective can be practically achieved. If it is not possible to satisfy the criteria other design responses can be used that achieve the Objectives.

Preparation of the Application

A well prepared application package assists the consent authority in making a quick determination. The documentation package should provide sufficient information in order to verify that:

- the proposal meets the relevant Objectives and development standards, and
- the impacts of the development on the surrounding environment are acceptable.

Plans, sections and elevations should be accompanied by 3-dimensional views of the development within its context.

Submission requirements for development applications are set within the *Environmental Planning and Assessment Regulation 2000*.

A Design Verification Statement supports the development application to ensure good design outcomes for medium density housing.

Design Verification Statement

The Design Verification Statement is to be prepared by the qualified designer or building designer accredited by the Building Designers Association of Australia who directed the design of the development.

The Statement must:

- explain how the design quality principles are achieved;
- illustrate how the development is suited to its context; and
- demonstrate how the Objectives have been achieved using the Design Criteria as a measure.

The Design Verification Statement must indicate where the documents illustrate how the proposal meets the Design Criteria.

Where the Design Criteria are not met, the Statement should describe how an alternate solution achieves the Objectives, in some instances this may require supporting reports or diagrams.

The Design Verification Statement will assist the assessment process by clarifying how the proposed development meets the Design Criteria and Objectives.

A template for the Statement is provided in the Appendices.

Assessment

The LEP contains development standards that the application that must comply with.

In assessing the application the consent authority:

- will consider the application on its merits; and
- if the development does not comply with the Design Criteria it is to be flexible in applying those provisions. It is to consider alternative solutions that achieve the Objectives of the criteria for dealing with that aspect of the development.

The consent authority should use the guidelines in Section 3 to help it apply the Design Criteria and Objectives.

Subdivision

Development under this guide can include land subdivision or strata subdivision of a building. This may be determined concurrently with the development application for the development itself. Consent for the subdivision can be part of the one application that includes consent for the dwelling construction and subdivision.

A draft plan of subdivision will need to be provided to the consent authority as part of the application and include any existing, amended or proposed easements or restrictions on the land.

Land cannot be subdivided until the structural elements of the building have been completed as required by the conditions of consent, and a subdivision certificate has been issued. This is to prevent speculative subdivision where developers demolish an existing development, subdivide the land and sell the vacant lots. For smaller lot sizes, it is preferable that the subdivision is informed by the dwelling design to obtain the best outcomes for amenity.

Subdivision Certificate (Torrens Title)

A plan of subdivision cannot be registered with NSW Land and Property Information (LPI) unless it has been endorsed by a subdivision certificate issued under Part 6 of the Environmental Planning and Assessment Act 1979. The plan of subdivision identifies each of the allotments approved under the original consent (if required) or each allotment subject to an exempt boundary adjustment. The plan of subdivision must be prepared by a registered surveyor.

The application for a subdivision certificate needs to be accompanied by the following documents:

- Plan of subdivision;
- Relevant development consent;
- Interim or final occupation certificate that indicates the development is completed to the stage identified in the conditions of consent;
- Subdivision engineering plans (if relevant);

- Services that form part of the consent which have been connected to the development;
- Certificate from the relevant water supply authority;
- Completed driveway crossings; and
- Evidence that the applicant has complied with all required conditions of consent before a subdivision certificate can be issued.

Strata Certificate (Strata Subdivision)

A plan of subdivision cannot be registered unless it has a subdivision certificate under Part 4 of the Strata Schemes Development Act 2015.

A subdivision certificate cannot be issued unless:

- Evidence that the applicant has complied with all required conditions of consent before a subdivision certificate can be issued;
- Services that form part of the consent have been connected to the development); and
- All other relevant matters discussed in Division 4 of the Strata Schemes (Freehold Development) Act 1973 (or Division 7 of the Strata Schemes (Leasehold Development) Act 1986) have been satisfied.

Steps for Preparing a Development Application





Figure 4-7 Example of low rise medium density terraces



Figure 4-8 Example of low rise medium density terraces

4.4 Design Review Panels

Design review panels are an important tool to improve and enhance the design quality of multi dwelling developments.

This Section of the Design Guide is a toolkit for the establishment and operation of design review panels. It includes details about:

- functions, membership and constitution;
- roles and responsibilities of councils and panel members; and
- operating procedures and guidelines.

General Function

Design review panels are advisory only, and do not have a decision making function. Their primary functions are to:

- provide independent expert design advice on applications and policy for multi dwelling buildings
- assist in improving the design quality of multi dwelling development.

The panel advises on the design quality of applications with reference to multiple dwelling's nine design quality principles and this Design Guide . The panel may identify and recommend improvements necessary to achieve consistency with the Design Quality Principles and the Design Guide for DAs.

The advice has legal weight and can be relied upon by the consent authority when determining a development application or modification for low rise medium density housing development.

Design review panels may also provide independent advice to consent authorities on local environmental plans, development control plans, precinct plans and other design related policies. This may include a review of design related controls, advice on methods to achieve design quality and local provisions related to multi dwelling development.

Pre-Development Application Discussions

This Design Guide encourages pre-development application discussions, including early input by a design review panel. Early panel advice on a schematic proposal can allow applicants to address issues early on, and save time later in the application process.

Membership

Ideally design review panel should consist of at least three members. However smaller projects could be reviewed by one expert. Panel members should have expertise in:

- architecture,
- landscape architecture, or
- urban design.

Councils should ensure that design review panels have a mix of expertise.

Funding and Remuneration

Design review panel members are entitled to remuneration and the payment of expenses. The Environmental Planning and Assessment Regulation 2000 allows councils with a design review panel to charge a maximum fee for the design review panel as part of development application fees. Councils are therefore responsible for the funding and remuneration of design review panels.

Core Selection Criteria for Panel Members

When selecting panel members the following selection criteria may assist:

Selection Criteria

1. Appropriate qualification and demonstrated experience in the design of multi dwelling developments in relation to architecture, landscape architecture or urban design.
2. Demonstrated highly developed skills and experience in urban analysis of local planning strategies and policies (e.g. local environmental plans, development control plans, precinct plans and town centre revitalisation) that contain provisions for apartment development.
3. Knowledge or understanding of local council policies and development controls.
4. Knowledge of the design issues of the local area.
5. Ability to analyse, evaluate and report on complex design quality issues for development applications and strategic planning.
6. Ability to develop design options and/or recommendations to ensure appropriate application of multiple dwelling design quality principles and the Low Rise Medium Density Design Guide.
7. Ability to work in a multi-disciplinary team.
8. Ability to liaise/negotiate with local government as well as the private sector.
9. Good written and verbal communication skills including the ability to translate technical information into plain English.
10. Knowledge, commitment and ability to implement council policies and standards, including those that relate to integrity, ethics, safety, antidiscrimination and equity.

Panel Coordinator

Councils are responsible for coordinating the operation of the design review panel. It is suggested that a specific council officer be the nominated coordinator or the role may be shared amongst several officers. In the case of design review panels formed for more than one local government area, the role could be shared on a rotational basis.

The nominated coordinator will need to:

- determine the annual meeting schedule and make it publicly available;
- be the central point of contact between the design review panel members and other council staff or stakeholders;
- arrange meeting venues which have appropriate display space and room for applicants and other observers;
- prepare and distribute meeting invites, application information and agendas, ensuring sufficient notice is provided to all parties;
- arrange site inspections;
- ensure in advance of each meeting that there will be a quorum;
- arrange for relevant council staff members to attend meetings;
- arrange minute taking and panel member endorsement of minutes;
- distribute minutes to relevant parties and make them publicly available on council's website within 14 days of the panel meeting;
- administer fee and member remuneration payments;
- arrange for a summary of council decisions on applications considered by the panel to be given to panel members, providing feedback on consideration of applications and awareness of any other relevant matters; and
- provide information about the design review panel and its operation to any interested party, including new panel members.

Panel Chairperson

The panel chair is responsible for:

- running design review meetings;
- ensuring that the meeting agenda is followed and that allocated time frames are adhered to;
- ensuring that discussion remains focused on the application or matter being considered and that advice relates to matters covered by multiple dwelling and the Design Guide;
- ensuring the advice and recommendations developed for each application is voted on by the panel. In the case of a tied vote, the chairperson has the casting vote;
- ensuring the panel endorses the minutes;
- liaising with council staff about the operation of the panel, where required;
- attending meetings to brief councillors on panel advice, where required; and
- ensuring new members have been inducted and are briefed about panel operation.

Panel Members

Panel members are required to:

- Treat all discussions and information about applications with sensitivity and confidentiality.
- Provide independent, fair and reasonable professional advice relative to the design quality principles of multiple dwelling and this Design Guide.
- Respond to and comment on material presented, providing constructive feedback to make amendments as required.

Pecuniary Interests

Under multiple dwelling design review panel members must disclose any pecuniary interests. Where a pecuniary interest exists, the member must:

- Disclose the interest to the chair as soon as practicable, and preferably before the meeting to ensure there is a quorum for all items.

- Not take part in the consideration or discussion of the matter.
- Not vote on any advice or recommendations relating to the matter.

Pecuniary interests should be recorded in panel meeting minutes.

Meeting Procedures

The following design review panel meeting procedures have been developed to ensure consistency in the process and to make expectations clear for all parties. A council may choose to include additional operating procedures to address local circumstances. If a council chooses to include additional operating procedures the panel chair should make recommendations to the council for their endorsement.

Meeting preparation and site inspection

Panel members should familiarise themselves with the agenda and documents prior to the meeting.

Panel members should visit each site on the agenda prior to the meeting. Joint inspections are arranged by the panel coordinator, and can be part of the overall agenda for the day. Specific arrangements for this can be determined by each panel.

Meeting format

The chairperson should run the meeting in accordance with the agenda. A suggested format for individual items includes:

- panel pre-discussion and application overview by council planning staff including site history, background, surrounding proposed/approved developments, compliance with planning controls, internal referral comments (e.g. heritage, stormwater, traffic/parking) and submissions/objections. Relevant state government agency comments should also be provided. Depending on the issue, a representative of the referral agency may also be invited to attend the meeting.

- Proponent presentation – short presentation explaining the project within the local context, background and how it addresses key Design Principles and the Low Rise Medium Density Design Guide.
- Panel questions/clarifications of the proponent – as required.
- Panel discussion – debate and drafting of advice and recommendations.
- Confirm agreed advice and recommendations – the chair convenes a vote by panel members on the advice and recommendations.

Where an application has been considered previously, a site inspection may not be necessary and the council planning staff briefing will update the design review panel about the compliance of the amended scheme.

Advice and Voting

Panel members should be aware of the following points when providing advice and finalising recommendations:

- Advice should be in plain English that is readily understood by the consent authority, the development proponent and the community.
- Advice should be consistent between scheme iterations. If significant changes are recommended that depart from previously issued advice they must be supported by full written justification.
- Either the design review panel or the council may require that additional expert assistance be sought in the assessment of a particular proposal or other matter.
- Panel members should vote on the recommendations for each proposal being considered. In the case of a tied vote, the chairperson has the casting vote.

Minutes and Reporting

Panel members should be aware of the following points when minutes are being drafted:

- The panel meeting minutes should include an accurate record of the key discussion points and panel recommendations.
- The minutes are to be endorsed by the design review panel and returned to Council within 14 days of the meeting. Ideally the minutes should be completed on the day of the meeting to streamline time frames.
- Report recommendations should assist Council's decision making, including suggested amendments, draft conditions of approval and if relevant, options for consideration.



Appendices

Design Verification Statement Template

This template is to be used as a guide to assist designers in preparing the Design Verification Statement, required as part of a development application.

Design Verification Statement

Project:

Project Address:

Applicant Name:

Applicant Address:

Building Designer / Architects Name:

Registration No.

I confirm that I was responsible for designing the development, and that the development is consistent with the relevant Design Criteria.

Signature of Designer

Development type

- 2.1 Dual Occupancy (side by side)
- 2.2 Manor House
- 2.2 Dual Occupancy (one above the other)
- 2.3 Terrace
- 2.4 Multi Dwelling Housing

Subdivision type

- Torrens title
- Strata

Local Character and Context

Completing this section satisfies the requirement of Design Criteria 1. Refer to 3D Local Character and Context for guidance.

Local Character

[Insert context analysis including: Aerial photo with development in a 200m radius]

[Indicate services available in the immediate context that support the development]

The context can be described as.....

- Building uses and types;
 - architectural style of surroundings;
 - economic and social factors; and / or
 - environment - natural features, topography, natural character etc.
-

Neighbourhood Scale & Streetscape

[Insert a panoramic streetscape photo that includes development within 20m on each side of the development site on both sides of the street]

Existing Character

The existing character of the streetscape can be described as:.....

- Architectural style, materials used;
- building separation and height;
- Landscape, significant trees, plantings or natural features

Desired Future Character

The intended future character of the area can be described as..... [Refer to local strategy often prepared by Council and contained within their DCP]. Where there is no planned change in the character of an area this section is not required to be completed.

Site Scale

[Insert an aerial photo of the site and development within 10m of the boundary, provide annotations that indicate:

- Vegetation
 - Access points
 - Neighbouring buildings and their uses
 - Potential areas that need protection
 - Natural features – waterfeatures, rock outcrops
 - Topography
 - Services
 - Views to and from the site
 - Front setback dimensions
-

Glossary

Acoustic privacy

a measure of sound insulation between dwellings, between dwellings and communal areas, and between external and internal spaces.

Adaptable housing

housing that is designed and built to accommodate future changes to suit occupants with mobility impairment or life cycle needs. Australian Standard 4299-1995 Adaptable Housing defines different levels of physical ability and adaptability.

Amenity

the 'livability', comfort or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in the public, communal and private domains and includes the enjoyment of sunlight, views, privacy and quiet. It also includes protection from pollution and odours.

Aircraft noise

aircraft noise is identified as contours on the Australian Noise Exposure Forecast (ANEF) Map. The higher the ANEF contour value, the greater the exposure to aircraft noise.

Articulation zone

as defined in the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Attic

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Battle-axe lot

as defined in the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Bay window

window element which projects a short way past the face of the building. It can have windows on the return walls and sometimes incorporates a seat.

BCA

Building Code of Australia.

Building line

as defined in the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Building height

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Busy road or rail line

as defined in *State Environmental Planning Policy (Infrastructure) 2007* and *Development Near Rail Corridors and Busy Roads – Interim Guideline*.

Communal open space

outdoor space located within the site at ground level or on a structure that is within common ownership and for the recreational use of residents of the development. Communal open space may be accessible to residents only, or to the public.

Courtyard

communal space at ground level or on a structure (podium or roof) that is open to the sky, formed by the building and enclosed on 3 or more sides.

Datum point or datum line

a significant point or line in space established by the existing or desired context, often defined as an Australian Height Datum. For example, the top of significant trees or the cornice of a heritage building.

Daylight

consists of both skylight (diffuse light from the sky) and sunlight (direct beam radiation from the sun). Daylight changes with the time of day, season and weather conditions.

Dual occupancy

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Facade

the external face of a building, generally the principal face, facing a public street or space.

Floor Area - room

is measured within the finished surfaces of the walls, but excludes any area occupied by wardrobes, kitchens or fixed storage.

Floor Area - dwelling

is measured within the finished surfaces of the walls, but excludes any area occupied by voids or stairs but includes area occupied by cupboards, wardrobes and fixtures.

Floor area - private open space

is measured within the finished surface of any bounding walls, balustrades or handrails or the edge of hard surface but excludes any fixed storage.

Floor Space Ratio

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Gallery access

an external corridor, generally single loaded, which provides access to individual dwellings along its length.

Guide to Traffic Generating Developments

Guide to Traffic Generating Developments, published by Roads and Maritime Services (formerly RTA) and available on its' website.

Green roof

a roof surface that supports the growth of vegetation, comprised of a waterproofing membrane, drainage layer, organic growing medium (soil) and vegetation. Green roofs can be classified as either extensive or intensive, depending on the depth of substrate used and the level of maintenance required. Intensive green roofs are generally greater than 300mm deep and are designed as accessible landscape spaces with pathways and other features. Extensive green roofs are generally less than 300mm deep and are generally not trafficable.

Green wall

a wall with fixtures to facilitate climbing plants. It can also be a cladding structure with growing medium to facilitate plant growth.

Habitable room

has the same meaning as in the Building Code of Australia. ie. a room used for normal domestic activities, and includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room and sunroom; but excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

Landscaped Area

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Livable Housing Design Guidelines

Livable Housing Design Guidelines, published by Livable Housing Australia and available on its' website.

Living room

Includes a living, lounge room, dining room, family room, rumpus or any combination of the above. It excludes the kitchen component of a combined living / dining / kitchen spaces.

Manor house

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Master bedroom

the main bedroom within the dwelling, often the largest with an ensuite bathroom.

Mid winter

is 21 June (winter solstice) when the sun is lowest in the sky.

Multi dwelling housing

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Multi dwelling housing (terrace)

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Natural cross ventilation

natural ventilation which allows air to flow between positive pressure on the windward side of the building to the negative pressure on the leeward side of the building providing a greater degree of comfort and amenity for occupants. The connection between these windows must provide a clear, unobstructed air flow path. For an dwelling to be considered cross ventilated, the majority of the primary living space and n-1 bedrooms (where n is the number of bedrooms) should be on a ventilation path.

Non-habitable room

a space of a specialised nature not occupied frequently or for extended periods, including a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom or clothes-drying room, as defined by the BCA.

Open plan

dwelling layouts where spaces are not divided into discrete rooms, but are open and connected to allow flexibility of use (typically living, dining, kitchen and study areas).

Operable screening device

sliding, folding or retractable elements on a building designed to provide shade, privacy, and protection from natural elements.

Potable water

water which conforms to Australian Standards for drinking quality.

Principal private open space

as defined in the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

Private open space

outdoor space located at ground level or on a structure that is within private ownership and provided for the recreational use of residents of the associated dwelling.

Privacy screen

as defined in the *State Environmental Planning Policy (exempt and Complying Development Codes) 2008*.

Public open space

public land for the purpose of open space and vested in or under the control of a public authority.

Residential flat building

as defined in the *Standard Instrument - Principal Local Environmental Plan*.

Silhouette

a building outline viewed against the sky.

Sloping site

a site with a slope of 15% or greater.

Soffit

the undersurface of a balcony or other projecting building element.

Solar access

is the ability of a building to continue to receive direct sunlight without obstruction from other buildings or impediments, not including trees.

Strata area

For the purposes of the Low Rise Medium Density Design Guide strata area is measured at ground floor level only and excludes common areas.

Studio

an apartment consisting of one habitable room that combines kitchen, living and sleeping space.

Sunlight

direct beam radiation from the sun.

Wintergarden

an enclosed balcony, typically glazed and can be used to minimise noise impacts along busy roads, railway lines and from aircraft noise.

Image Reference List

Cover Image Putney Hill, Architect: Cox Architects, developed by Frasers Property Australia
Photographer: Tom Ferguson Photography.

Section 1

Figure 1-4 Realm Townhouses, Architect: Rothe Lowman, Photographer: Jamie Diaz-Berrio

Figure 1-5/6 Missing Middle Competition entry, Architect: Enter Projects, Patrick Keane

Figure 1-7 Central Park Cheltenham, Architect: Conrad Architects.

Figure 1-9 Missing Middle Competition entry, Architect: Youssoufzay & Hart, David Hard

Figure 1-10/11 Missing Middle Competition entry, Architect: Platform Architects, Bridie Gough

Figure 1-113 Watts Drive Esplanade, Lendlease Communities, Architect: degenhartSHEDD, Photographer: Unknown

Figure 1-15 Missing Middle Competition entry, Architect: Olivia Van Dijk Architecture.

Figure 1-16 Hamilton Hill, Developer: Starfish Developments.

Figure 1-18 Gen y / step house, Architect: David Barr Architects, Photographer: Rob Firth

Figure 1-22 Manor house floor plan, Architect: Masqarchitecture, Architect: Ted Quinton

Section 2.1

Figure 2.1-2 Central Park Cheltenham, Architect: Conrad Architects

Section 2.2

Figure 2.2-1 Gen y / step house, Architect: David Barr Architects, Photographer: Rob Firth

Section 2.3

Figure 2.3-1 Realm Townhouses, Architect: Rothe Lowman, Photographer: Jamie Diaz-Berrio

Section 3

Figure 3-1 Burwood Townhouses, Photographer: Unknown

Figure 3-12 North Bondi House, Architects: MCK Architecture, Photographer: Douglas Frost

Figure 3-13 88 Angle Street, Architects: Steele Associates, Photographer: Oliver Steele

Figure 3-15 Alphington Townhouses, Architect Green Sheep Collective, Photographer: Unknown

Figure 3-16 Artisans Cottages, Architect: TKD, Photographer Unknown

Figure 3-26 Linwood Shores, Designer: Wincrest Homes, Photographer: Google Streetview

Figure 3-27 The Peninsula, Architect: Mirvac

Figure 3-29 Cedar Woods, Architect: Rothe Lowman.

Figure 3-46 House Bruce Alexander, Architect: Tribe Studio, Photographer: Katherine Lu

Figure 3-53 Heller Townhouses, Architect: Six Degrees, Photographer: Patrick Rodriguez

Figure 3-54 Unfurled House, Architect: Christopher Polly

Figure 3-55 Green House, Architect: Carterwilliamson, Photographer: Brett Boardman

Figure 3-65 10 Wylde Street, Architect: SJB, Photographer: Unknown

Figure 3-66 Fairbairn House, Architect: Inglis Architects, Photographer: Derek Swalwell

Figure 3-68 Stillman Street Townhouses, Architect: Rothe Lowman, Photographer: Unknown

Figure 3-71 Park Road Terrace, Architect: Matt Gibson Architecture+Design, Photographer: John Wheatley

Figure 3-72 Portland Street Duplex, Architect: MPR Design Group, Photographer: Unknown

Figure 3-74 Hamilton Corner, Architect: Bates Smart, Photographer: Brett Boardman

Figure 3-78 Glebe Harbour, Architect: SJB, Photographer: Unknown

- Figure 3-79 Bell Romero Houses, Architect: Chenchow Little, Photographer: John Gollings
- Figure 3-80 Catherine Booth College, Architect: SJB, Photographer: Peter Clarke
- Figure 3-81 Townhouses, Architect: EJE Architects, Photographer: Unknown
- Figure 3-82 AE2 Ermington, Architect: DKO, Photographer: Rory Gardiner
- Figure 3-83 Realm Townhouses, Architect: Rothe Lowman, Photographer: Jamie Diaz-Berrio
- Figure 3-85 Alphington Townhouses, Architect Green Sheep Collective, Photographer: Unknown
- Figure 3-86 2 Semi's Camperdown, Architect: David Boyle, Photographer: Unknown
- Figure 3-86 100 Albert Street, Architect: DKO, Photographer: Dan Hocking
- Figure 3-87 Beach Road Townhouses, Architect: CBG Architects, Photographer: Unknown
- Figure 3-88 South Coast House, Architect: Clare Design, Photographer: Unknown
- Figure 3-89 CL House, Architect: ADI Architectura, Photographer: Unknown.
- Figure 3-90 AE2, Architect: DKO, Photographer: Rory Gardiner.
- Figure 3-91 Four Room cottage, Architect: Vokes and Peters, Photographer: Jon Linkins.
- Figure 3-92 Double courtyard house, Architect: Vokes and Peters, Photographer: Christopher Frederick Jones.
- Figure 3-93 Randwick Garden, Landscape Architect: Secret Garden Landscape, Photographer: Unknown
- Figure 3-94 Spiegel House, Architect: Carterwilliamson, Photographer: Brett Boardman
- Figure 3-95 Kew II House, Architect: Kennedy Nolan, Photographer: Unknown
- Figure 3-96 Spiegel House, Architect: Carterwilliamson, Photographer: Brett Boardman
- Figure 3-98 Brise Soleil, Architect: Carterwilliamson, Photographer: Brett Boardman
- Figure 3-97 Roxbury E Townhouses, Architect: Urbanica Design, Photographer: Unknown
- Figure 3-100 Green House, Architect: Carterwilliamson, Photographer: Brett Boardman
- Figure 3-103 The Platform-North Everleigh Affordable Housing, Landscape Architect: Arcadia Landscape Architecture, Photographer Unknown.
- Figure 3-108 Putney Hill, Architect: Cox Architects, developed by Frasers Property Australia, Photographer: Tom Ferguson photography.
- Figure 3-112 Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property
- Figure 3-113 Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property
- Figure 3-114 Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property
- Figure 3-116 South Beach Townhouses, Architect: Fox Johnston, Photographer: Simon Whitbread
- Figure 3-117 Spectrum, Architect: Stanistic, Photographer: Peter Smith
- Figure 3-118 Landscape Architect: Oculus

Section 4

- Figure 4-1 Orion Braybrook Masterplan for Stockland, Architect: DKO
- Figure 4-4 Bicycle Path, Untapped Cities, Photographer: William Feuerman
- Figure 4-7 Glebe Harbour, Architect: SJB, Photographer: Unknown
- Figure 4-9 Fairwater, Frasers Property Photographer Unknown

