

Low Rise Medium Density

Design Guide

**Tools for improving the
design of low rise medium
density residential
development as
complying development**

To view an electronic version in PDF format, visit www.planning.nsw.gov.au

© Crown Copyright, State of NSW through its Department of Planning and Environment 2017

Disclaimer

While every reasonable effort has been made to ensure this document is correct at time of printing, the State of NSW, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance or upon the whole or any part of this document.

Copyright notice

In keeping with the NSW Government's commitment to encourage the availability of information, you are welcome to reproduce the material that appears in The Low Rise Medium Density Design Guide. This material is licensed under the <https://creativecommons.org/licenses/by/4.0/deed.en> Creative Commons Attribution 4.0 International (CC BY 4.0).

You are required to comply with the terms of CC BY 4.0 and the requirements of the Department of Planning and Environment. More information can be found at: <http://www.planning.nsw.gov.au/Copyright-and-Disclaimer>.

Low Rise Medium Density



Design Guide

**Tools for improving the
design of low rise medium
density residential
development as
complying development**

Contents

| | | | | |
|--|-----|--|------------------------------------|-----|
| Minister's Foreword | 1 | S | Visual Appearance and Articulation | 134 |
| Section 1 Introduction | | T | Pools and Detached Development | 138 |
| 1.1 About this Guide | 4 | U | Energy Efficiency | 140 |
| 1.2 How to use this Guide | 6 | V | Water Management and Conservation | 142 |
| 1.3 Obtaining Approval | 8 | W | Waste Management | 144 |
| 1.4 Design Principles | 9 | X | Universal Design | 146 |
| 1.5 Examples of Low Rise Medium Density Housing | 12 | Y | Communal Areas and Open Spaces | 148 |
| Section 2 Design Criteria | | Section 4 Delivery | | |
| 2.1 Dual Occupancy (side by side) | 33 | 4.1 Site Considerations | 151 | |
| 2.2 Manor house and dual occupancy (one above the other) | 51 | 4.2 Pre-application Meetings | 154 | |
| 2.3 Terraces | 69 | 4.3 Complying Development | 155 | |
| Section 3 Explanatory Guidance | | Appendices | | |
| 3.1 Design Principles and Design Criteria Relationship | 86 | Project Overview Template | 162 | |
| 3.2 Using this Section | 87 | Design Verification Statement Template | 163 | |
| A Building Envelopes - Heights and Setbacks | 89 | Design Criteria Consistency Template | 166 | |
| B Gross Floor Area | 94 | Glossary | 187 | |
| C Landscaped Area | 95 | Image Reference List | 190 | |
| D Local Character and Context | 99 | | | |
| E Public Domain Interface | 103 | | | |
| F Pedestrian and Vehicle Access | 105 | | | |
| G Orientation, Siting and Subdivision | 107 | | | |
| H Solar and Daylight Access | 110 | | | |
| I Natural Ventilation | 112 | | | |
| J Ceiling Heights | 114 | | | |
| K Dwelling Size and Layout | 116 | | | |
| L Principle Private Open Spaces | 118 | | | |
| M Storage | 120 | | | |
| N Car and Bicycle Parking | 122 | | | |
| O Visual Privacy | 124 | | | |
| P Acoustic Privacy | 128 | | | |
| Q Noise and Pollution | 130 | | | |
| R Architectural Form and Roof Design | 132 | | | |

Minister's foreword



A key component to addressing housing affordability and supply is delivering more housing diversity. The low rise Medium Density Housing Code and the Low Rise Medium Density Design Guide address a lack of housing choice by encouraging more variety in the form of terraces, manor houses or dual occupancies to generate more affordable options.

NSW's strong economy and our iconic capital city mean an increasing number of people want to call this state home. We need a greater variety of houses, to suit the range of needs and lifestyles including growing families, empty nesters or the ageing.

Currently, most new homes built in NSW tend to fall into two categories: traditional free-standing houses and apartments. Medium density housing provides an alternative as a more affordable housing choice.

One of the ways the NSW Government can help encourage the market to provide more diverse housing options is make it easier to build well-designed, quality medium density housing where it respects existing neighbourhoods. The new Medium Density Design Guide and Medium Density Housing Code have been developed to ensure a consistent approach to the design and delivery of quality housing of this type in communities right across NSW.

We want more people to be able to access medium sized housing, which typically requires less land area, is more sustainable and can provide precious private outdoor space for growing families. This Design Guide will help make it easier to build high-quality low-rise, medium density homes that respect the local character of existing communities and streetscapes, have good built form and scale, as well as provide good amenity for both residents and neighbours. Good building design results in great spaces that people want to live in because it caters to their lifestyle needs.

We received strong support from councils, industry and the community during the public consultation of the draft guide. Medium density focuses on good design, and with the growing and ageing population it allows for a range of lifestyle needs.

Thank you for your input into this Design Guide.

Anthony Roberts MP
Minister for Planning

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 in the Low Rise Medium Density Housing Code (Medium Density Housing Code) and this Low Rise Medium Density Design Guide (Medium Density Design Guide) means:

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

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

| Type | Definition |
|-----------------------------------|---|
| Dual occupancy | dual occupancy (attached) means 2 dwellings on one lot of land that are attached to each other, but does not include a secondary dwelling. dual occupancy (detached) means 2 detached dwellings on one lot of land, but does not include a secondary dwelling. |
| Manor House | A building containing 3 or 4 dwellings, where: <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 (terraces) | Attached multi dwelling housing where all dwellings face and generally follow the alignment of one or more public roads. |

The subdivision of low rise medium density housing may also be carried out as complying development, if certain development standards in the Medium Density Housing Code and Medium Density Design Guide are met.

Development under the Medium Density Housing Code and the Medium Density Design Guide does not include development on battle-axe lots or the creation of new battle-axe lots. Each new dual occupancy or terrace house must have a frontage to a public road.

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

What is the Low Rise Medium Density Design Guide?

The Medium Density Design Guide provides consistent planning and design standards for low rise medium density residential dwellings across NSW.

When does the Medium Density Design Guide apply?

The Medium Density Design Guide is referenced in *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (Codes SEPP). The Low Rise Medium Density Design Guide contains the Design Criteria that must be met in order to obtain a complying development certificate (CDC) under Part 3B of the Medium Density Housing Code.

Aims of the Guide

The Medium Density Design Guide is intended to help achieve better design and planning for low rise medium density housing, by providing the requirements for designing and assessing these developments as complying developments.

The Medium Density Design Guide 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;
- 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 CDC.

Relationship to State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

The Codes SEPP contains the majority of exempt and complying development types and their development standards. The Low Rise Medium Density Housing Code in Part 3B of the Codes SEPP contains the development standards for manor houses, multi dwelling housing (terraces) and dual occupancies.

Part 1 of the Codes SEPP contains the general requirements and specifies land on which complying development cannot be carried out.

Part 6 of the Codes SEPP contains development standards for subdivision.

Web content that explains complying development, land based exclusions and notification can be found on the Department's website.

Relationship to other legislation

Under the Low Rise Medium Density Housing Code, the type of development must be permissible under the Council's Local Environmental Plan (LEP) or the relevant Environmental Planning Instrument (EPI) that applies to the land.

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
- Local Environmental Plan
- Roads Act 1993
- Swimming Pools Act 1992
- Conveyancing Act 1919
- Local Government Act 1993

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.

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

1.2 How to use this Guide

Who is the Medium Density Design Guide intended for?

The Low Rise Medium Density Design Guide has been prepared to:

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

Structure of the Guide

The Low Rise Medium Density Design Guide has four Sections:

Section 1 – Introduction

An introduction to how and when to apply the Low Rise Medium Density Design Guide. It also sets out overarching design principles that enable good design for low rise medium density housing.

Section 2 - 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)

The Design Criteria provide a straightforward means for development to comply with the objectives and overarching design principles.

To obtain a CDC, a proposed development must satisfy each of the Design Criteria for the relevant development type.

The format of Section 2 is explained in Figure 1-3.

Objectives

Set out the desired outcomes.

| 2.1C: Landscaped Area | | |
|---|---|-------------------------------------|
| Complying Development: Refer to Medium Density Housing Code and summary table below for minimum area. | | |
| The extent of landscaping required in dual occupancy development will vary according to its lot size. The following table sets out the minimum requirements proposed for landscaped areas in dual occupancy developments: | | |
| Summary Development Standard Codes SEPP, clause 3B.# | | |
| Minimum Landscaped Area for each lot | LOT AREA(m ²) | LANDSCAPED AREA |
| | 200 - 300m ² | 15% of lot area |
| | >300m ² | 50% of lot area - 100m ² |
| Minimum dimension of landscaped area | 1.5m | |
| Landscaped area forward of the building line | 25% minimum | |
| Tree planting | Front: 1 tree with mature height of 5m if primary road setback is greater than 3m. Rear: 1 tree with mature height of 8m. | |
| Objectives | Design criteria | |
| Objective 2.1C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. An ongoing maintenance plan is provided as part of the landscaped plan. | |
| Objective 2.1C-2 Retain existing natural features of the site that contribute to neighbourhood character, and reduce visual and privacy impacts on existing neighbouring dwellings | 2. Minimum soil standards for plant sizes are provided in accordance with Table 1 in Section 3C. | |
| Objective 2.1C-5 Landscape design contributes to a local sense of place and creates a micro climate | 3. Mature trees are retained, particularly those along the boundary, (except those where approval is granted under a CDC, or a permit granted by Council). | |
| | 4. Landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback. | |
| | 5. The landscape plan is to provide for a combination of tree planting - for shade, mid height shrubs, lawn and ground covers. | |
| | 6. The landscape plan indicates that at least 50% of the overall number of trees and shrubs should be species native to the region. | |

A CDC must comply with all development standards and Design Criteria within the grey boxes.

Development standards

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

A summary of the standard is provided at the beginning of each Section.

Design criteria

Design Criteria are located in Section 2 of the Medium Density Design Guide. The Design Criteria are the measurable standards that are deemed to meet the objective.

Each relevant Design Criteria must be satisfied to obtain a CDC.

Figure 1-2 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.

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 1-4.

Section 4 - Delivery

This Section includes information to assist in the preparation and assessment of an application for a CDC.

Appendices

The appendices provide a template for the Design Verification Statement that must submitted with an application for a CDC and a glossary of commonly used terms.

Terms used in the Low Rise Medium Density Design Guide

Only architectural terms used in the Low Rise Medium Density Design Guide are defined in the appendix. Any other definitions have the same meaning as those within the EP&A Act, EP&A Regulation, Standard Instrument - Principal Local Environmental Plan and the Codes SEPP.

Guidance Notes
Explains the intent of each Design Criteria.

Diagrams explain the meaning of the Design Criteria.

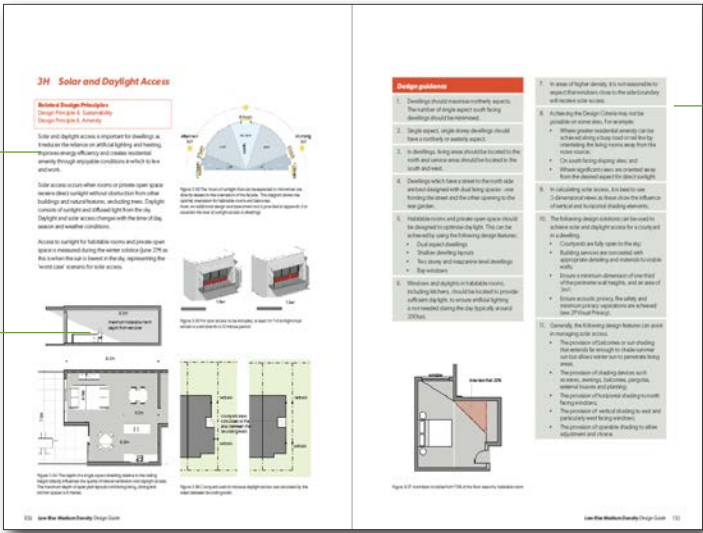


Figure 1-3 Explanation of terms used in Section 3 of this guide

Design Guidance
Provide advice on how the objectives and Design Criteria must be met.

1.3 Obtaining Approval

Complying development assessment process

Complying development is a fast track approval process for straightforward residential, commercial and industrial development. It combines the planning and building approval into one application. Providing the application meets specific criteria, it can be determined by an accredited council or private certifier without the need for a development application (DA).

Approval for development types covered by Part 3B of the Codes SEPP and the Low Rise Medium Density Design Guide can be obtained by applying for a Complying Development Certificate (CDC).

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

The following low rise medium density development can be assessed as complying development under the Low Rise Medium Density Housing Code contained within Part 3B of the Codes SEPP:

- Dual occupancies (side by side),

- Manor houses and dual occupancies (one above the other), and
- Multi dwelling housing (terraces).

Development standards

The proposed development must comply with the development standards contained within Part 3B of the Codes SEPP.

Design Criteria

The Codes SEPP requires that the proposed development satisfies the relevant Design Criteria contained in Section 2 of the Medium Density Design Guide.

Submission requirements for complying developments are set within Schedule 1 of the EP&A Regulation.

The EP&A Regulation requires that an architect or an accredited building designer has designed or immediately directed the design of the development. A prepared Design Verification Statement is required to illustrate how the Design Criteria in Section 2 of the Medium Density Design Guide has been achieved.



Figure 1-4 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 the Low Rise Medium Density Design Guide. 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 used when:

- 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 1-5 Example of a dual occupancy with two detached dwellings

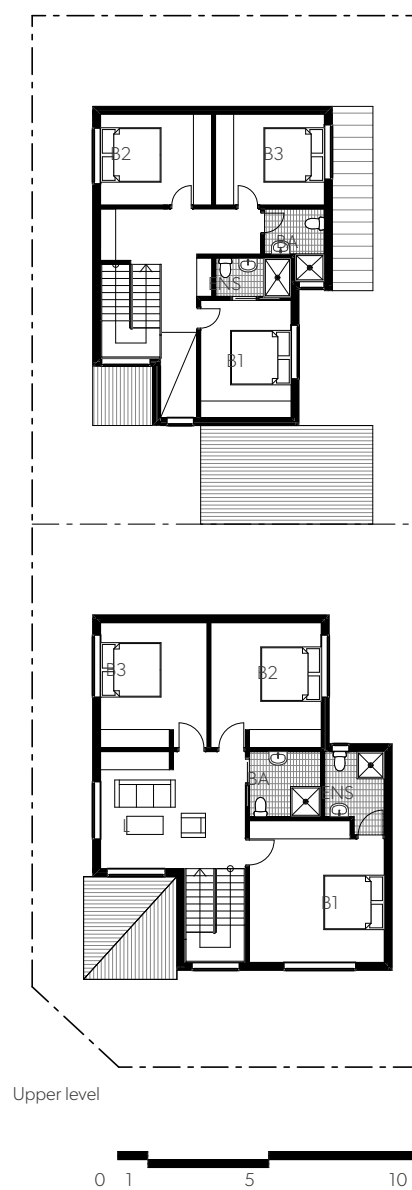
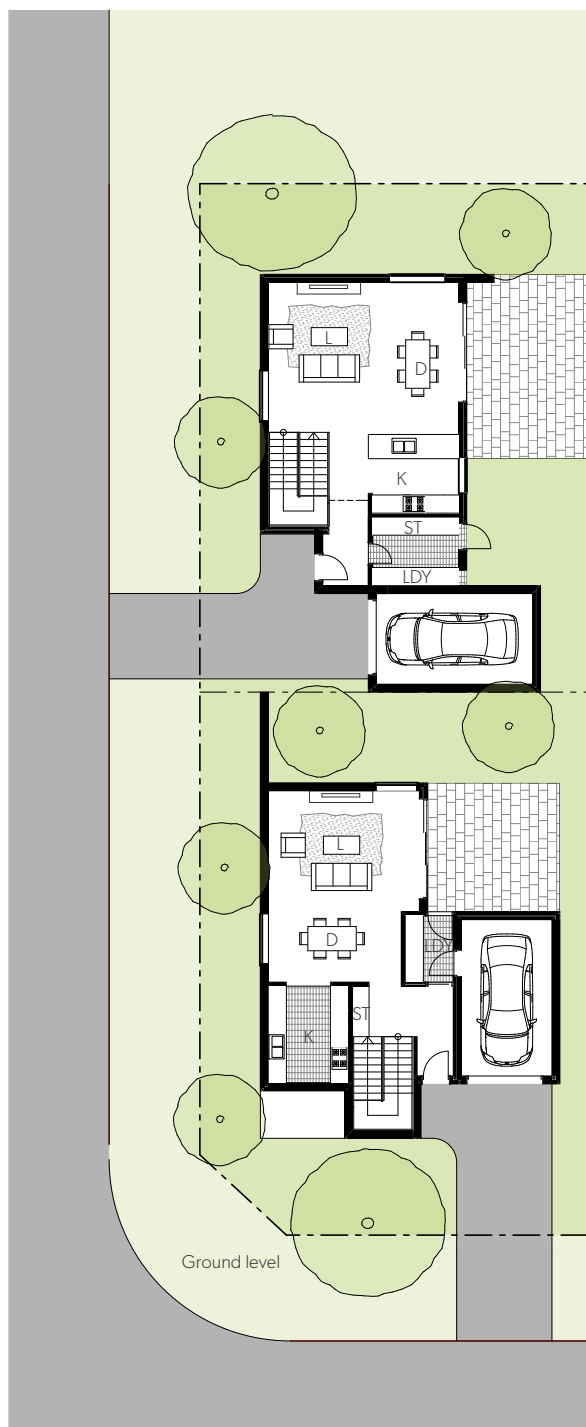


Figure 1-6 Example plan of a dual occupancy with two detached dwellings

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.

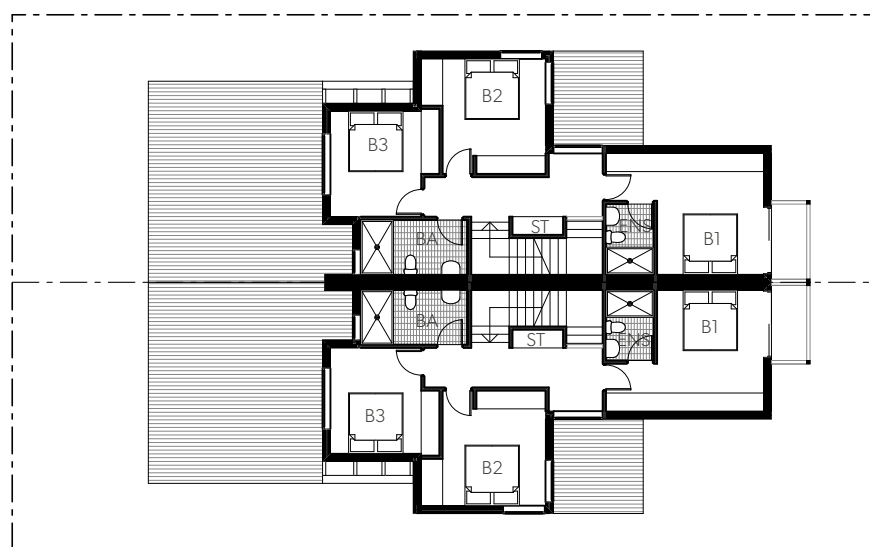
Basement parking can be provided but is rare except on steep terrain.

Context and subdivision

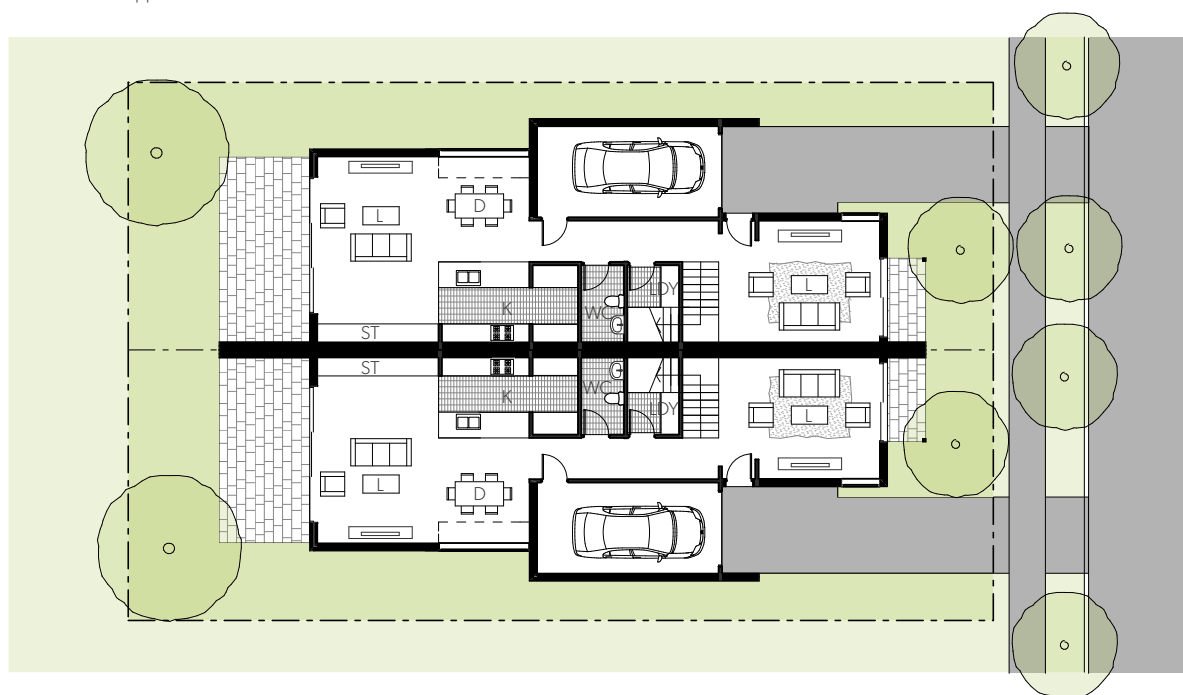
- The building type is best suited to lots with a minimum width of at least 15 metres.
- This building type is most commonly carried out as Torrens title subdivision due to the small scale nature of this development. However, it can be carried out as strata title subdivision when individual lots do not 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 1-7 Example of a dual occupancy - two dwellings side by side (attached)



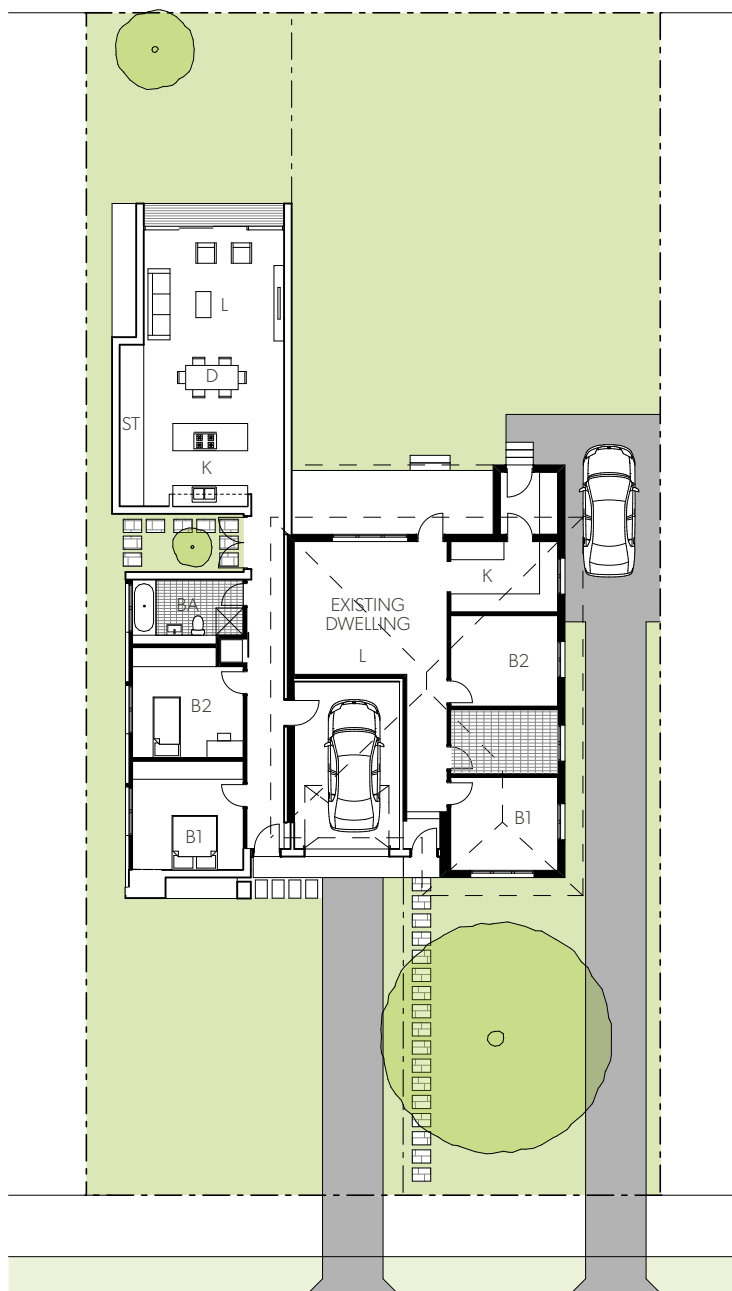
Upper level



Ground level



Figure 1-8 Sample plan of a dual occupancy - two dwellings side by side (attached)



Ground level

0 1 5 10

Figure 1-9 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.

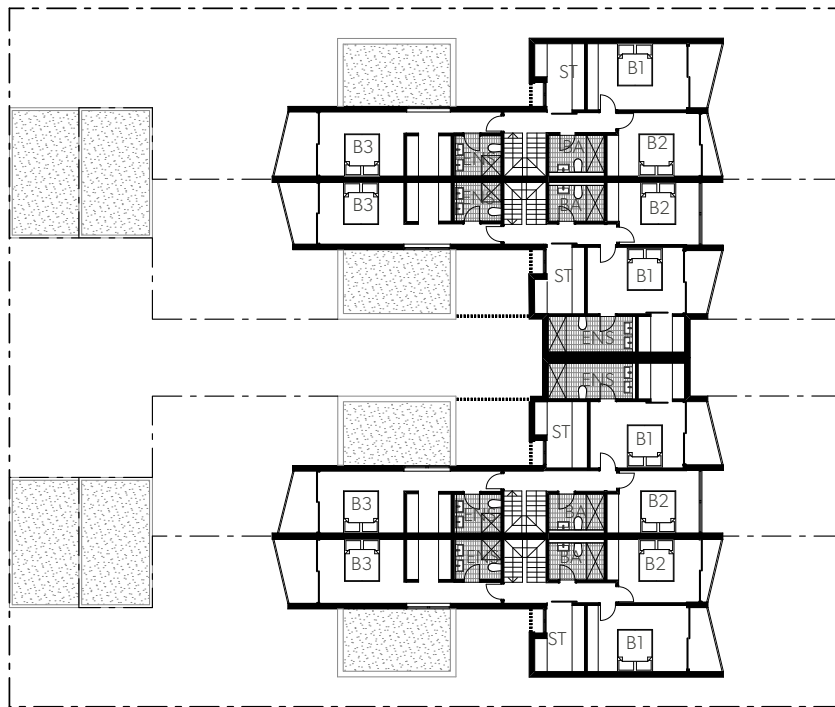
The use of courtyards can provide solar access and natural daylight into the middle of the dwelling.

Context and subdivision

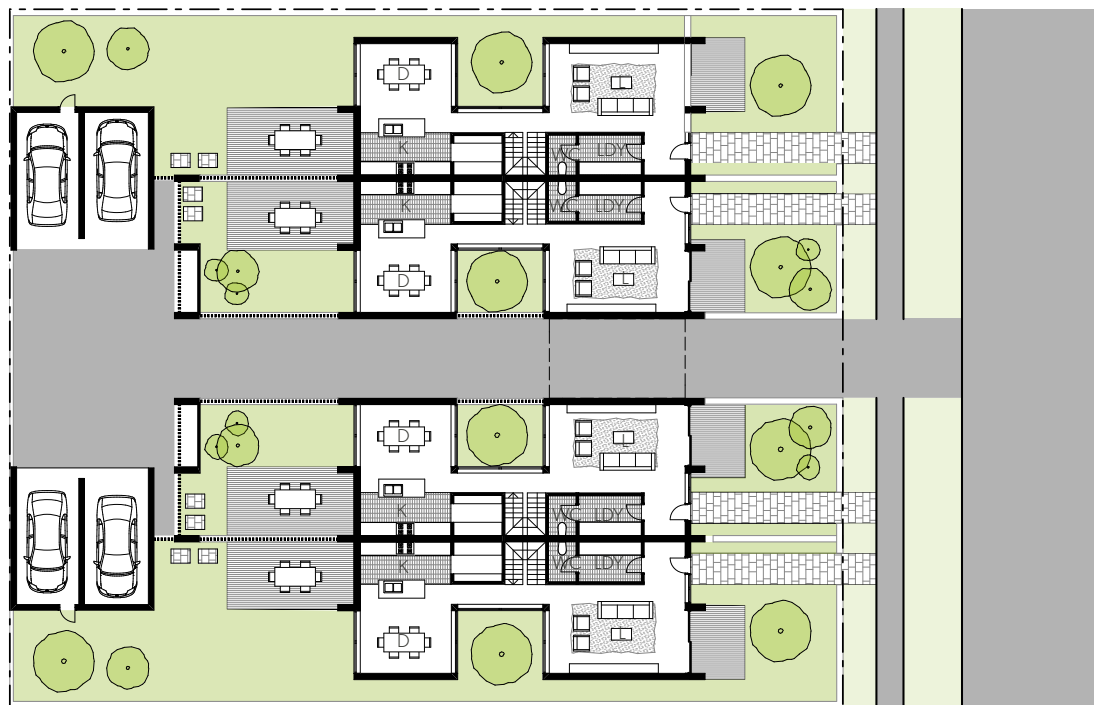
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape or in urban infill areas.
- This building type is best suited to wide shallow lots and amalgamated sites which on deep lots will result in larger rear gardens and 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 1-10 Example of terrace house with car parking fronting a primary road



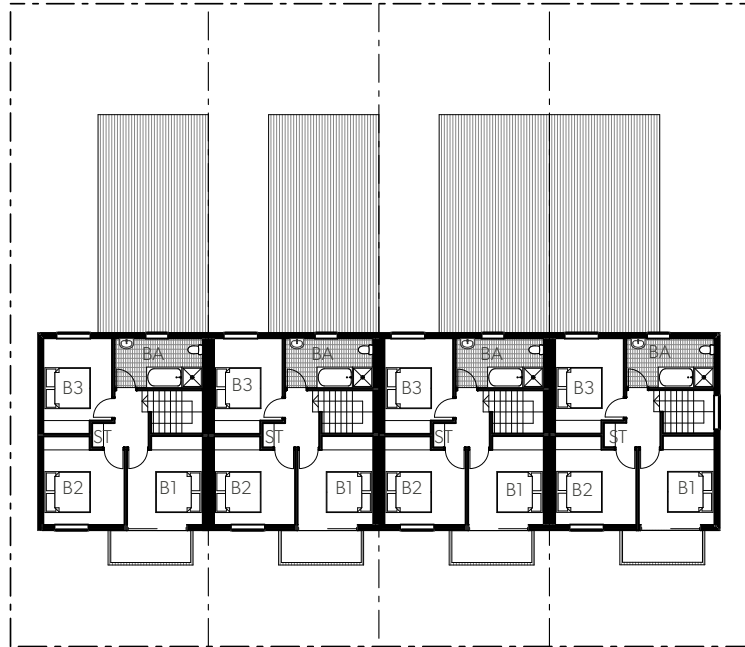
Upper level



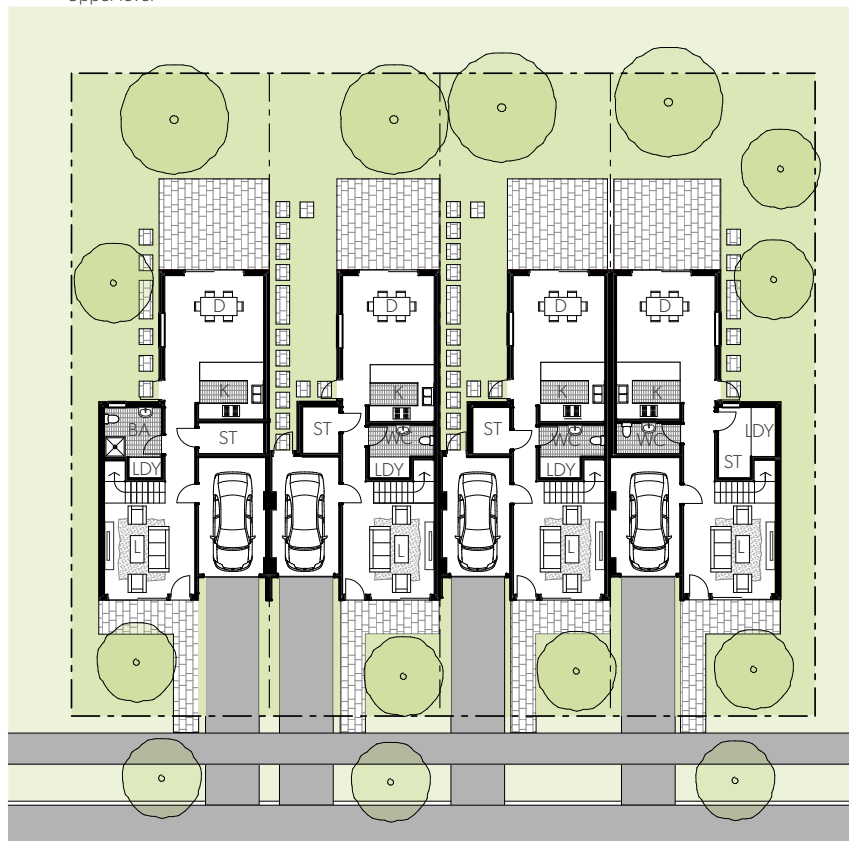
Ground level



Figure 1-11 Sample plan of terraces with car parking fronting a primary road



Upper level



Ground level



Figure 1-12 Sample plan of terraces with car parking at rear but accessed from the primary road frontage

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.

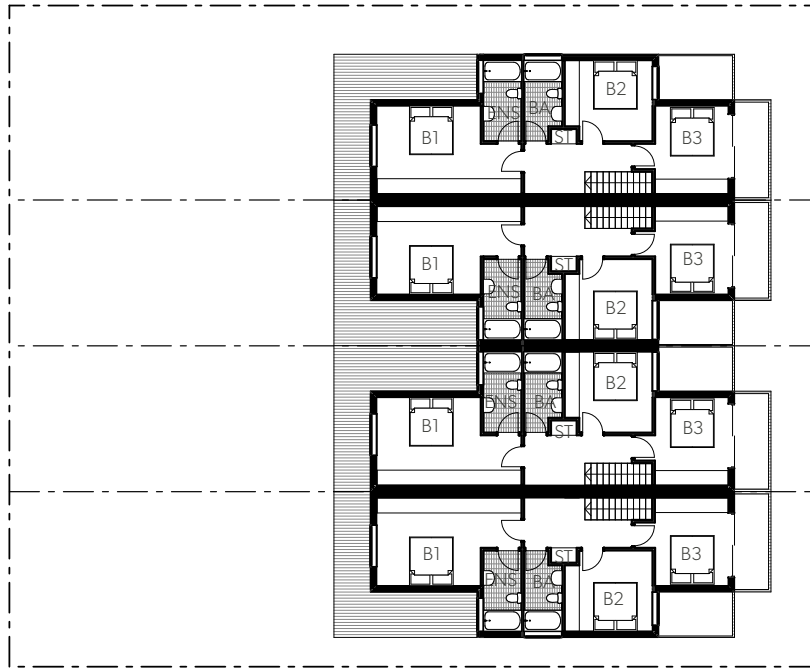
The use of courtyards can also provide solar access and natural daylight into the middle of the dwelling.

Context and subdivision

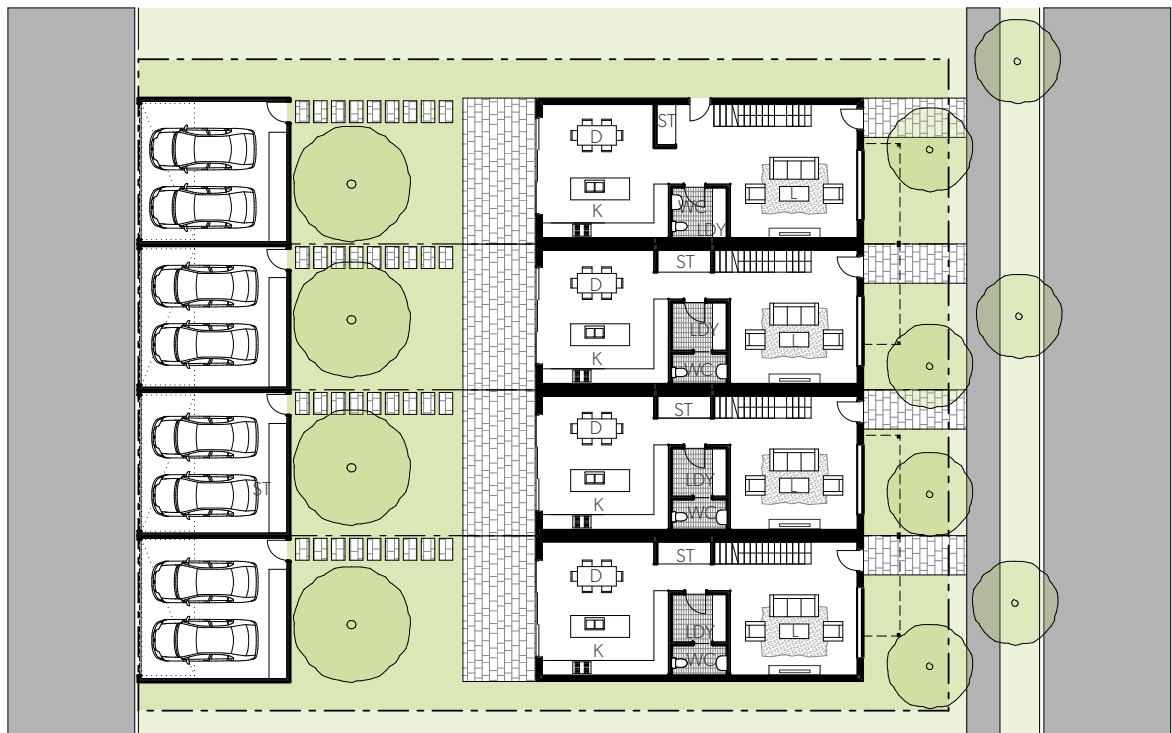
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape, in urban infill areas or in new subdivisions where laneway access can be designed.
- This building type is best suited to wide shallow lots or amalgamated sites.
- 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 1-13 Example of terraces with parking at rear



Upper level



Ground level

0 1 5 10

Figure 1-14 Sample plan of terraces with car parking accessed from rear lane

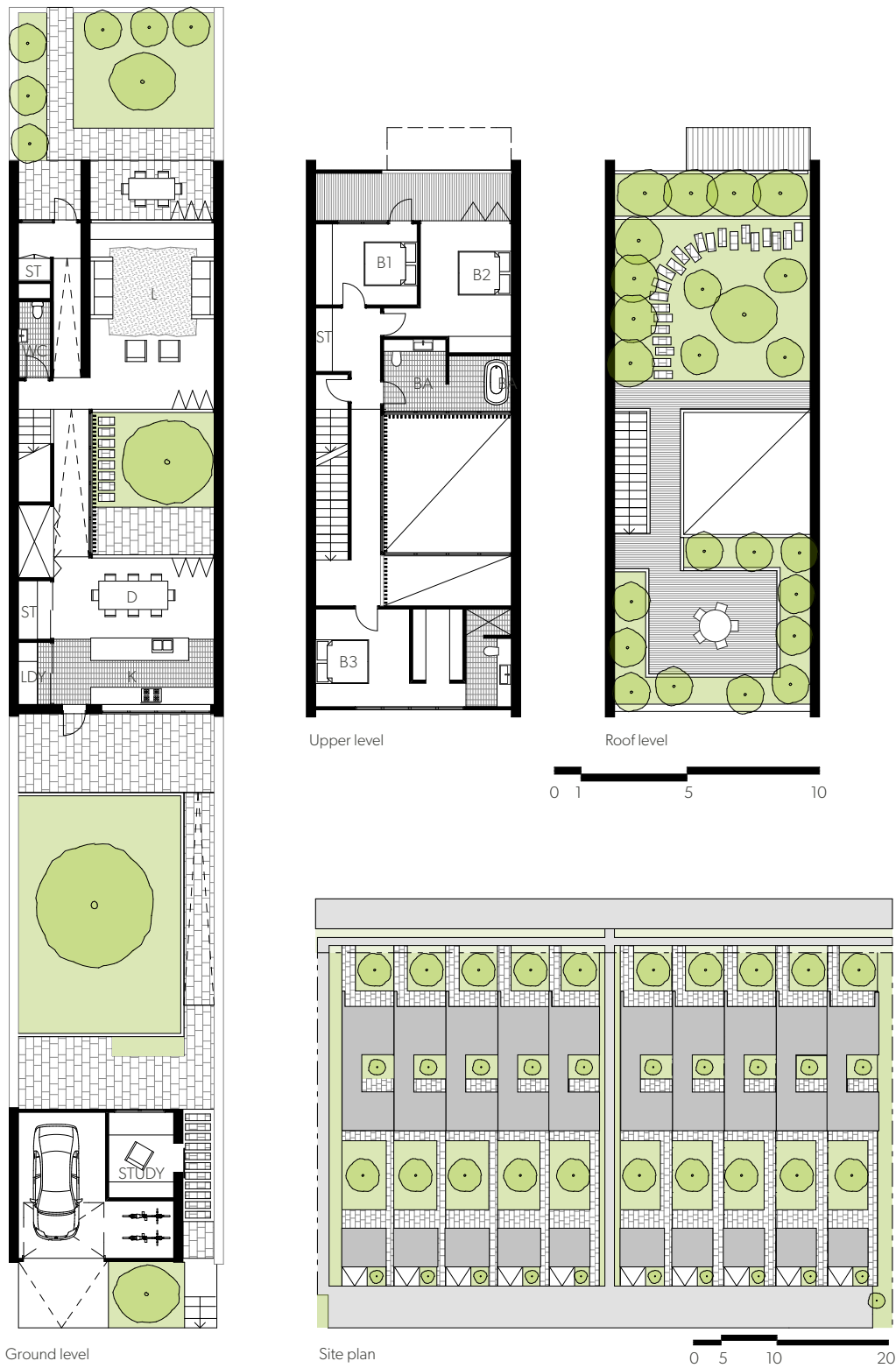


Figure 1-15 Sample detail plan of terraces car parking accessed from rear lane

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

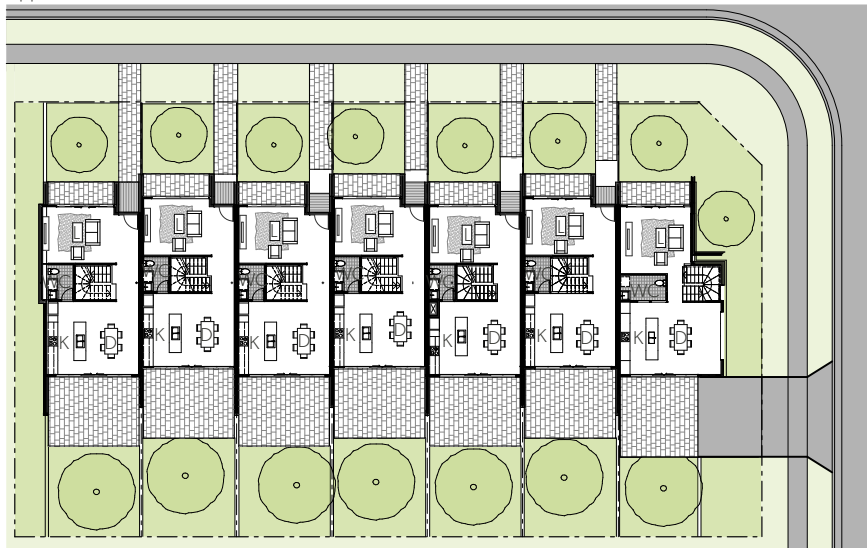
- This building type is best suited to wide shallow lots or amalgamated sites.
- This building type can be accommodated in areas where there is a higher level of housing density to blend with the existing streetscape or in urban infill areas.
- This building type may typically be more expensive to construct 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 1-16 Terraces with basement parking reduces the impact of multiple driveways on the streetscape



Upper level



Ground level



Basement level

0 1 5 10

Figure 1-17 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.

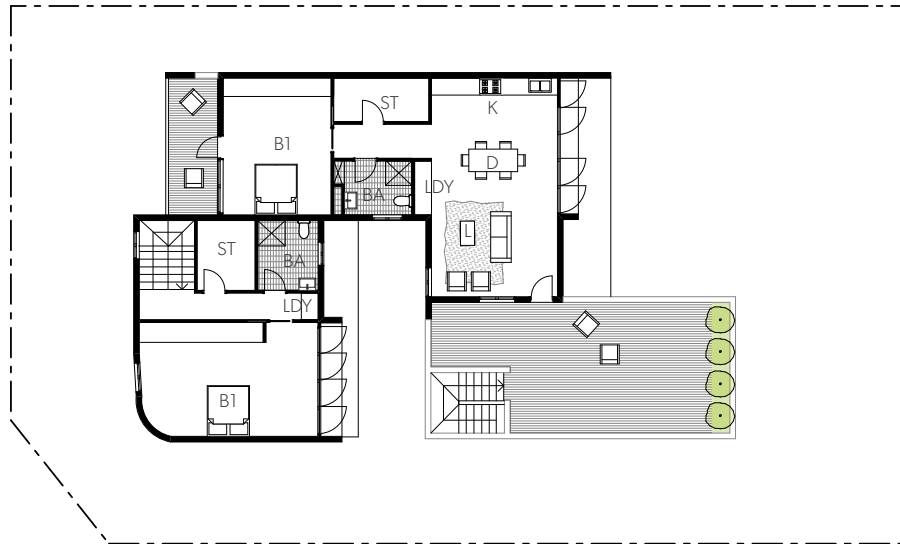
Private open space can be obtained by the use of balconies and communal private open space in the rear of the development.

Context and subdivision

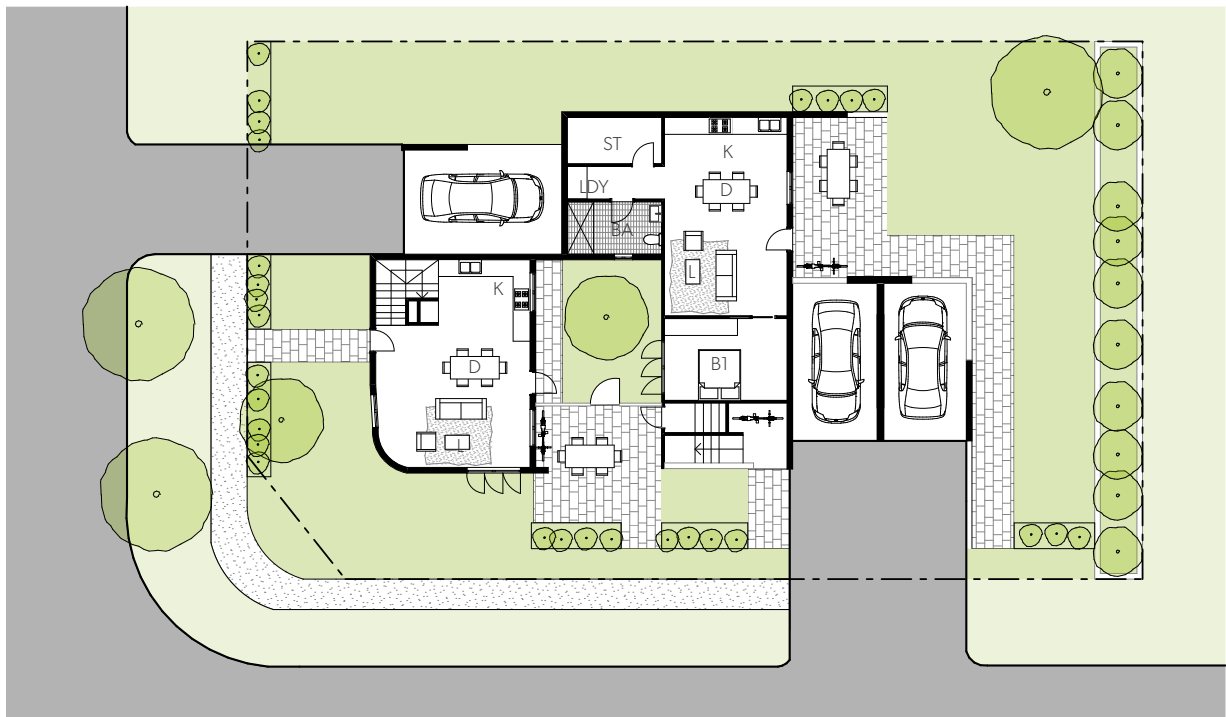
- This building type is best suited to corner lots or lots with rear lane access to accommodate garages and car parking.
- This building type is carried out as strata title subdivision, with a common entry and internal hallway.
- Typically a lot width of 15 metres is required to achieve setback requirements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



Figure 1-18 Example of manor house on a corner lot



Upper level



Ground level



Figure 1-19 Sample plan of manor house with three dwellings on a corner lot

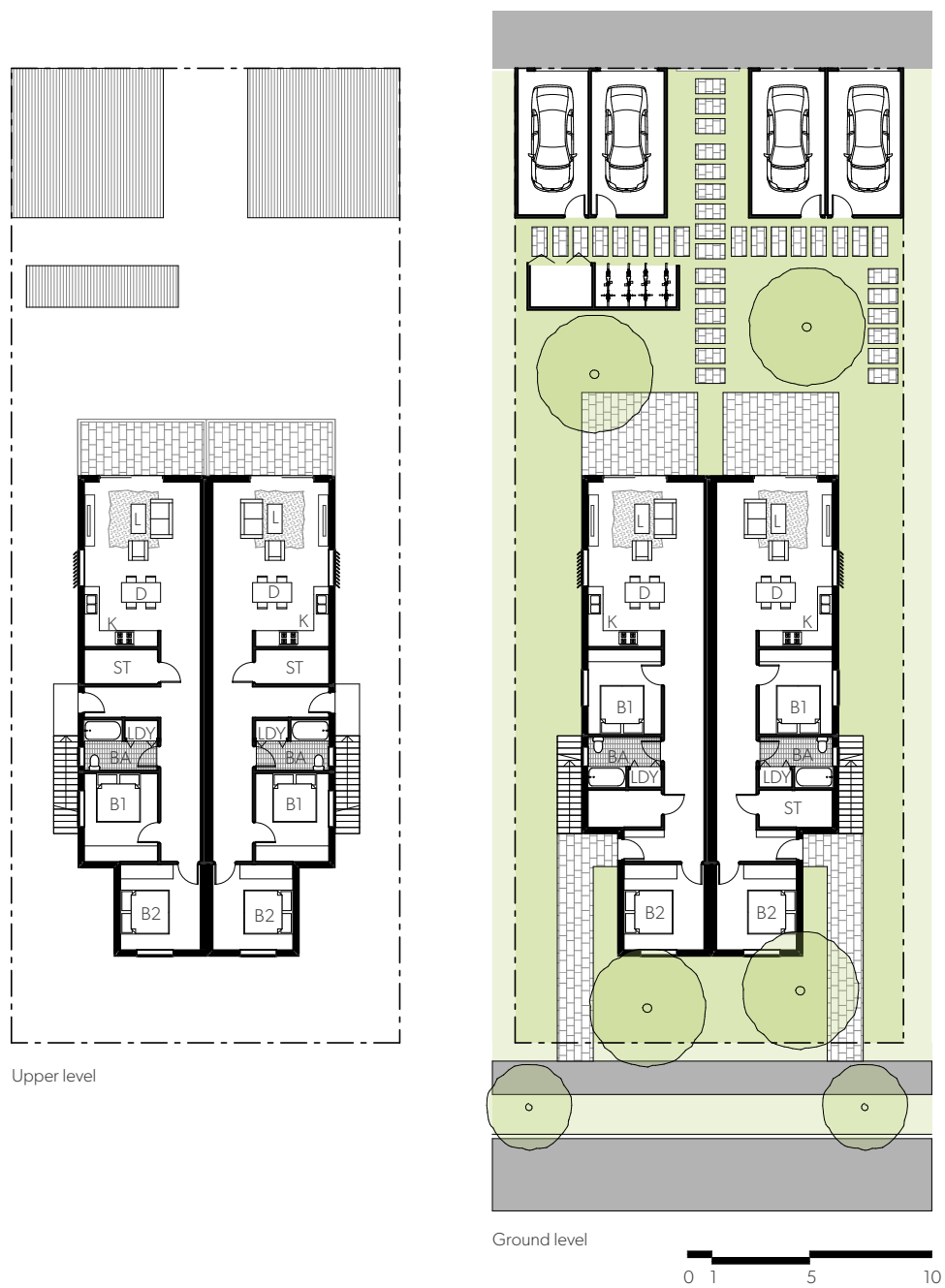
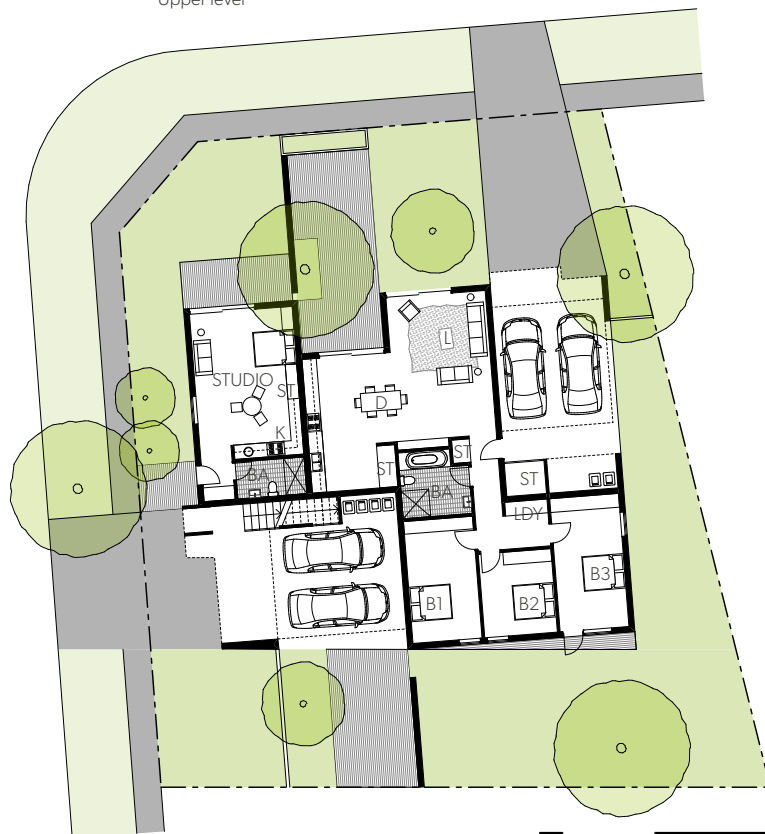


Figure 1-20 Sample plan of manor house with four dwellings and parking accessed from the rear laneway or street

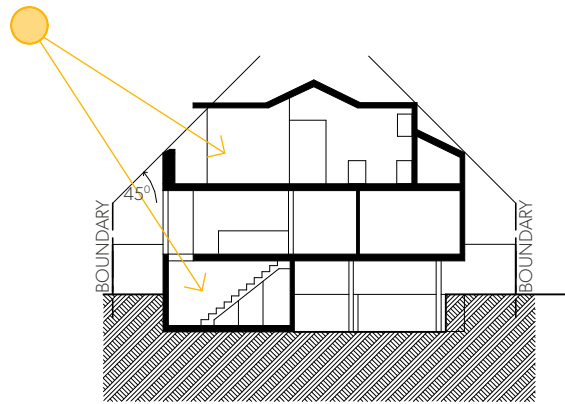


Upper level

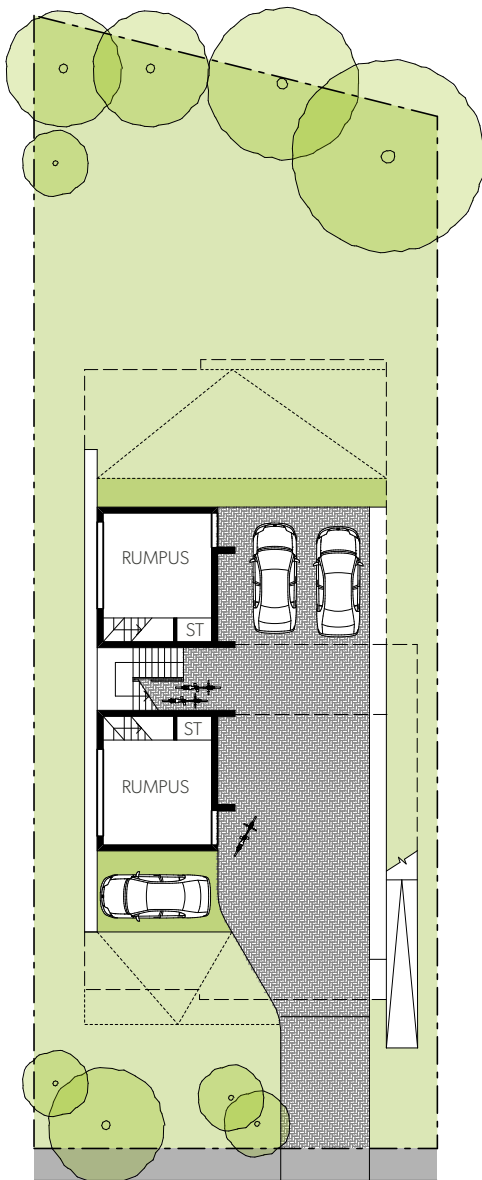


Ground level

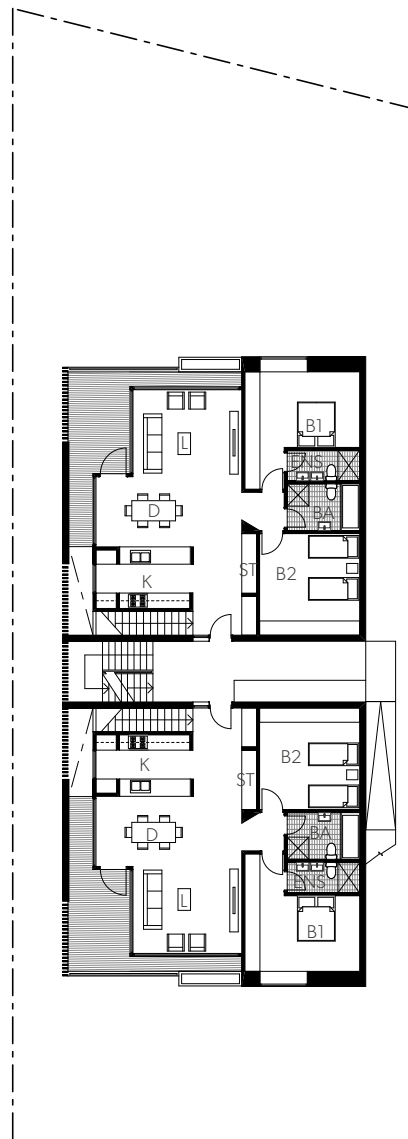
Figure 1-21 Sample plan of manor house with four dwellings on corner site



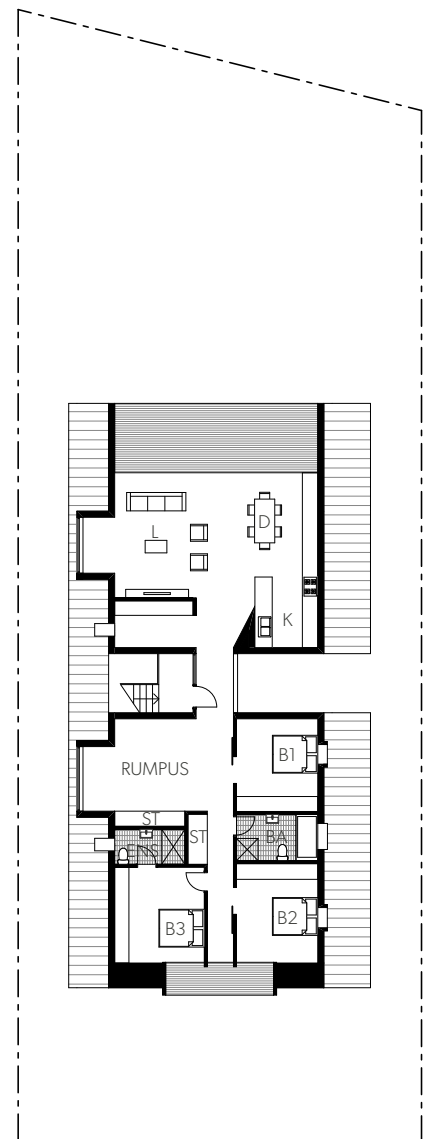
Section



Lower level



Ground level



Upper level



Figure 1-22 Sample plan of manor house with three dwellings and basement parking

Design Criteria

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

A complying development certificate must be consistent with each of the Design Criteria.

A photograph of a modern, two-story white house with large windows and a wooden balcony. A paved patio area with a grill and outdoor furniture is visible in the foreground. The image is partially covered by a teal diagonal overlay on the right side.

2.1

**Dual
Occupancy
(side by side)**

2.1 Dual occupancy (side by side)

This Section provides the Objectives and Design Criteria for complying 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 under the Codes SEPP.

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 under the Torres title subdivision must comply with the minimum lot sizes specified in the Codes SEPP.

A development application will be required where a dwelling does not have a frontage to a public road (known as a battle-axe lot) or the development does not comply with the development standards under Part 3B of the Codes SEPP.

Complying development

A complying development application can be submitted where it meets:

- the general requirements for complying development under Part 1 in the Codes SEPP;
- development standards contained within Part 3B of the Codes SEPP; and
- the Design Criteria contained within this Design Guide.

The development standards for complying development can be found in Part 3B of the Low Rise Medium Density Housing Code within the Codes SEPP. A summary of the steps required to prepare a CDC 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 required 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 CDC

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.

Each relevant Design Criteria is required to be satisfied to obtain a complying development certificate.

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 Codes SEPP: clause 3B.1, 3B.8, 3B.9, 3B.11, and 3B.12 | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|--------------------------------|-----------------|--|-----------|-------------|------|---------------|---|-------------|-----------|------|---------------|---|-------|-----------|------|
| Minimum Lot size (Clause 3.B8) | Minimum area: As specified for dual occupancies in the EPI that applies to the land. If the EPI does not specify a minimum lot size – 400m². Width measured at the building line: 12m. | | | | | | | | | | | | | | | | | | |
| Height of Building (Clause 3B.9) | 8.5m | | | | | | | | | | | | | | | | | | |
| Number of Storeys (Clause 3B.1) | 2 | | | | | | | | | | | | | | | | | | |
| Primary Road Setback (Clause 3B.11) | 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: <table><tr><th>Lot Area (m²)</th><th>Setback</th></tr><tr><td>400 - 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></table> | | | Lot Area (m²) | Setback | 400 - 900 | 4.5m | >900 - 1500 | 6.5m | >1500 | 10m | | | | | | | | |
| Lot Area (m²) | Setback | | | | | | | | | | | | | | | | | | |
| 400 - 900 | 4.5m | | | | | | | | | | | | | | | | | | |
| >900 - 1500 | 6.5m | | | | | | | | | | | | | | | | | | |
| >1500 | 10m | | | | | | | | | | | | | | | | | | |
| Secondary Road setback (Clause 3B.11(7)) | <table><tr><th>Lot Area (m²)</th><th>Setback</th></tr><tr><td>400 - 900</td><td>2m</td></tr><tr><td>>900 - 1500</td><td>3m</td></tr><tr><td>>1500</td><td>5m</td></tr></table> | | | Lot Area (m²) | Setback | 400 - 900 | 2m | >900 - 1500 | 3m | >1500 | 5m | | | | | | | | |
| Lot Area (m²) | Setback | | | | | | | | | | | | | | | | | | |
| 400 - 900 | 2m | | | | | | | | | | | | | | | | | | |
| >900 - 1500 | 3m | | | | | | | | | | | | | | | | | | |
| >1500 | 5m | | | | | | | | | | | | | | | | | | |
| Parallel Road Setback (Clause 3B.11(8)) | 3m | | | | | | | | | | | | | | | | | | |
| Classified Road Setback (Clause 3B.11(9)) | 9m | | | | | | | | | | | | | | | | | | |
| Side Setbacks (Clause 3B.11(5)) Applies only to the side boundary of the development site – not each individual lot. | <table><tr><th>Lot Width at the Building Line</th><th>Building Height</th><th>Minimum Required Setback from Each Side Boundary</th></tr><tr><td rowspan="2">12m – 24m</td><td>0m – 4.5m</td><td>0.9m</td></tr><tr><td>> 4.5m – 8.5m</td><td>= (building height – 4.5m) ÷ 4 + 0.9m</td></tr><tr><td rowspan="2">> 24m – 36m</td><td>0m – 4.5m</td><td>1.5m</td></tr><tr><td>> 4.5m – 8.5m</td><td>= (building height – 4.5m) ÷ 4 + 1.5m</td></tr><tr><td>> 36m</td><td>0m – 8.5m</td><td>2.5m</td></tr></table> See Figures 3-5 to 3-7 in Section 3 of this Design Guide. | | | Lot Width at the Building Line | Building Height | Minimum Required Setback from Each Side Boundary | 12m – 24m | 0m – 4.5m | 0.9m | > 4.5m – 8.5m | = (building height – 4.5m) ÷ 4 + 0.9m | > 24m – 36m | 0m – 4.5m | 1.5m | > 4.5m – 8.5m | = (building height – 4.5m) ÷ 4 + 1.5m | > 36m | 0m – 8.5m | 2.5m |
| Lot Width at the Building Line | Building Height | Minimum Required Setback from Each Side Boundary | | | | | | | | | | | | | | | | | |
| 12m – 24m | 0m – 4.5m | 0.9m | | | | | | | | | | | | | | | | | |
| | > 4.5m – 8.5m | = (building height – 4.5m) ÷ 4 + 0.9m | | | | | | | | | | | | | | | | | |
| > 24m – 36m | 0m – 4.5m | 1.5m | | | | | | | | | | | | | | | | | |
| | > 4.5m – 8.5m | = (building height – 4.5m) ÷ 4 + 1.5m | | | | | | | | | | | | | | | | | |
| > 36m | 0m – 8.5m | 2.5m | | | | | | | | | | | | | | | | | |

| Summary Development Standard | | | |
|--------------------------------|--------------------------------|------------------------|--|
| Rear Setback (Clause 3B.11(6)) | Lot Area (m²) | Building Height | Minimum Required Setback from Rear Boundary |
| | 400 - 900 | 0m – 4.5m | 3m |
| | | > 4.5m – 8.5m | 8m |
| | > 900 - 1500 | 0m – 4.5m | 5m |
| | | > 4.5m – 8.5m | 12m |
| | > 1500 | 0m – 4.5m | 10m |
| | | > 4.5m – 8.5m | 15m |
| | | | |
| Lane Setback (Clause 3B.12(4)) | 0m for a maximum length of 7m. | | |

- 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. Refer to Section 3 for an explanation of the application of setbacks and exceptions to the setbacks.

2.1B Gross Floor Area

| Summary Development Standard Codes SEPP: clause 3B.10 | | |
|---|---------------------------------|-------------------------------------|
| Gross Floor Area | Lot Area (m²) | Maximum GFA |
| | 400 - 2000 | 25% of lot area + 300m ² |
| | >2000 | 800m ² |

2.1C Landscaped Area

Summary Development Standard Codes SEPP: clause 3B.15

| | |
|---|---|
| Minimum Landscaped Area for Each Lot (Clause 3B.15(1)) | 50% of lot area minus 100m ² |
| Minimum Dimension of Landscaped Area (Clause 3B.15(3)) | 1.5m minimum width and length. |
| Landscaped Area Forward of the Building Line (Clause 3B.15(2)) | 25% minimum |

Objectives

Objective 2.1C-1

Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees.

Design Criteria

1. An ongoing maintenance plan is provided as part of the landscape plan.
2. Minimum soil standards for plant sizes are provided in accordance with the Table below.

| Tree Size | Height | Spread | Soil Volume |
|--------------|--------|--------|------------------|
| Large trees | 13-18m | 16m | 80m ³ |
| Medium trees | 9-12m | 8m | 35m ³ |
| Small trees | 6-8m | 4m | 15m ³ |

3. Tree planting required:
 - Front: 1 tree with mature height of 5m if primary road setback is greater than 3m.
 - Rear: 1 tree with mature height of 8m.
4. Mature trees are retained, particularly those along the boundary, (except those where approval is granted by Council for their removal).
5. Landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback.
6. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers.
7. The landscape plan indicates that at least 50% of the overall number of trees and shrubs should be species native to the region.

Objective 2.1C-2

Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced.

Objective 2.1C-3

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

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>8. 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>9. Pedestrian entries are directly visible from the public street.</p> <p>10. Windows fronting a road from habitable rooms and upper level balconies 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>11. Private courtyards within the front setback are located within the articulation zones and / or behind the required front building line.</p> <p>12. 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). Will have a maximum height no greater than 1.2m. Have a consistent character with other front fences in the street. Are not constructed of solid metal panels or unfinished timber palings. <p>13. 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>14. Retaining walls greater than 600m within the front setback are softened by planting for a minimum depth of 600mm on the low side of the retaining wall.</p> |

Objective 2.1E-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.

15. 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:
- 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 Access

Objective**Objective 2.1F-1**

Car park design and access is safe and minimises impact on habitable spaces.

Design Criteria

16. Vehicle circulation complies with AS2890.1.
17. 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.
18. The vehicular crossing should have a maximum width of 3.5m at the street boundary.

2.1G Orientation, Siting and Subdivision

Summary Development Standard Codes SEPP: clause 3B.8

Minimum Lot Size (Clause 3B.8)

Minimum lot size: As specified for dual occupancies in the EPI that applies to the land. If the EPI does not specify a minimum lot size – 400m².

Width measured at the building line: 12m.

*Subdivision Lot Size (Torrens title subdivision)
(Part 6.4(1))*

*Subdivision lot size (Torrens title subdivision)
Minimum area: 60% of the minimum lot size specified in the EPI. If the EPI does not specify a minimum lot size - 200m².*

Minimum width: 6m (measured at the building line).

Strata title subdivision

Strata area (at ground level (excluding common areas) must be at least 180m².

| Objectives | Design Criteria |
|--|--|
| Objective 2.1G-1 The built form, articulation and scale relates to the local character of the area and the context. | 19. Each dwelling has a frontage to a primary, secondary or parallel road. The road must be a public road as defined by the <i>Roads Act 1993</i> . 20. The dwelling frontage measured at the building line is to be at least 5m. 21. Every wall that faces a street has a window to a habitable room at each level. 22. Each dwelling on a corner lot has a frontage to a different street. |
| Objective 2.1G-2 Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings. | 23. The window to a living room of an adjoining dwelling that is more than 3m from the boundary is to receive more than 3 hours of solar access between 9am and 3pm on the winter solstice (June 21). 24. 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. |
| Objective 2.1G-3 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. | 25. 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. |
| Objective 2.1G-4 The development minimises impacts to vegetation on adjoining properties and allow for vegetation within the setbacks. | 26. Basement car parking should not be provided within the setbacks described in the table in Section 2.1A. |
| Objective 2.1G-5 Independent services and utilities are available to service each lot. | 27. All lots must have access to reticulated water, sewer, electricity, telecommunications and where available, gas. |

Note: The Codes SEPP contains development standards for earthworks, retaining walls and structural support.

2.1H Solar and Daylight Access

| Objective | Design Criteria |
|--|--|
| Objective 2.1H-1 The development optimises sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment. | 28. 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). 29. Direct sunlight is achieved when 1m ² of direct sunlight on the glass is achieved 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. |
| Objective 2.1H-2 The development provides good access to daylight suited to the function of the room, minimises reliance on artificial lighting, and improves amenity. | 30. Daylight is not be borrowed from other rooms, except where a room has a frontage to a classified road. 31. No part of a habitable room is more than 8m from a window. 32. No part of a kitchen work surface is more than 6m from a window or skylight. 33. Courtyards must: <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. 34. A window is visible from 75% of the floor area of a habitable room. |

2.1I Natural Ventilation

| Objectives | Design Criteria |
|--|--|
| Objective 2.1I-1 All habitable rooms are naturally ventilated. | 35. Natural ventilation is available to each habitable room. 36. Each dwelling is naturally cross ventilated. |

2.1J Ceiling Height

| Objective | Design Criteria |
|--|--|
| Objective 2.1J-1 Ceiling height achieves sufficient natural ventilation and daylight access, and provides spatial quality. | 37. Minimum ceiling heights are: <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). The ceiling height is measured from finished floor level to finished ceiling level. |

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>38. 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>39. 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>40. 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 37.</p> <p>41. 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>42. One bedroom has a minimum area of 10m², excluding wardrobe space.</p> <p>43. Bedrooms have a minimum length and width of 3m, excluding wardrobe space.</p> <p>44. 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>45. 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 |
|---|---|
| Objective 2.1L-1 Principal private open space and balconies are appropriately located to enhance liveability for residents. | 46. The area of principal private open space provided for each dwelling is at least 16m ² with a minimum length and width of 3m. 47. The principal private open space is located behind the front building line. 48. The principal private open space is located adjacent to the living room, dining room or kitchen to extend the living space. |
| Objective 2.1L-2 Dwellings provide appropriately sized private open space and balconies to enhance residential amenity. | 49. 25% of the private open space should be covered to provide shade and protection from rain. |

2.1M Storage

| Objectives | Design Criteria |
|--|---|
| Objective 2.1M-1 Adequate, well-designed storage is provided in each dwelling. | 50. In addition to storage in kitchens and bedrooms, the following storage with a minimum dimension of 500mm is provided: <ul style="list-style-type: none"> • 1 bed 6m³ • 2 bed 8m³ • 3+ bed 10m³ 51. At least 50% of the required storage is located inside the dwelling. 52. Storage not located in dwellings is secure and clearly allocated to specific dwellings, if in a common area. |

2.1N Car and Bicycle Parking

| Summary Development Standard Codes SEPP: clause 3B.19 | | |
|---|--|--|
| Number of car spaces for each dwelling | 1 | |
| Size of car space and access to car space | Comply with AS 2890.1:2004. | |
| Setback from primary, secondary or parallel road | Setback of Dwelling from Road <4.5m >4.5m | Minimum Off-Street Parking Setback from Road 5.5m 1m behind the building line |
| Maximum width of all garage doors facing a primary or secondary road | Lot Width 12m - 15m >15m - 20m >20m - 25m >25m <i>Note: Lot width refers to the completed Torrens title lot or in the case of a strata subdivision being the development site.</i> | Maximum Width of Garage Door Openings 3.2m 6m 9.2m 12m |
| Objectives | Design Criteria | |
| Objective 2.1N-1 Car parking is provided appropriate for the scale of the development. | 53. The maximum dimensions of any basement car park entry will be 2.7m high by 3.5m wide. | |
| Objective 2.1N-2 Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale in relationship with the dwelling. | 54. 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. | |

2.1O Visual Privacy

Summary Development Standard Codes SEPP: clause 3B.18

When a privacy screen is required to a window of a habitable room that has a sill less than 1.5m.

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 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.

When a privacy screen is required at the edge of a balcony, deck, patio, terrace or veranda.

A privacy screen is required at the edge of that part of a terrace, deck, balcony or veranda 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 2m² or has a frontage to a road or public open space.

Objectives

Objective 2.1O-1

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

Design Criteria

55. 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.

2.1P Acoustic Privacy

| Objectives | Design Criteria |
|---|--|
| Objective 2.1P-1 Noise transfer is minimised through the siting of buildings and building layout. | 56. 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. |

2.1Q Noise and Pollution

| Objectives | Design Criteria |
|---|--|
| Objective 2.1Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 57. Any development within the 20 ANEF contour is to be constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion. 58. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures not exceeding: <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. This is achieved by: <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 cannot be complying development. Refer to the *State Environmental Planning Policy (Infrastructure) 2007*.

2.1R Architectural Form and Roof Design

| Objectives | Design Criteria |
|--|--|
| Objective 2.1R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 59. Provide in the Design Verification Statement a description as to how the architectural form reduces the visual bulk and provides a cohesive design response. Note: Refer to Section 3 for guidance. |

| | |
|--|---|
| Objective 2.1R-2 The roof treatments are integrated into the building design and positively respond to the street. | 60. Provide in the Design Verification Statement how the roof design integrates harmoniously with the overall building form |
| | 61. Skylights and ventilation systems are integrated into the roof design. |

2.1S Visual Appearance and Articulation

| Summary Development Standard Codes SEPP: clause 3B.17 | |
|---|--|
| Articulation zone (Clause 3B.17) | <p>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. |

| Objectives | Design Criteria |
|---|---|
| Objective 2.1S-1 To promote well designed buildings of high architectural quality that contribute to the local character. | 62. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area. Note: Refer to Section 3 for guidance. |

2.1T Pools and Detached Development

| Summary Development Standard Codes SEPP: clause 3B.59 | |
|---|--|
| Pool height above ground level (existing) | Maximum height above ground level (existing): <ul style="list-style-type: none"> • At the water line – 1.2m. • At the top of the coping – 1.4m. • Where the coping is more than 300mm wide – 600mm. |
| Location of pool | Must be located in the rear yard with a minimum setback of 1m from any side or rear boundary. |
| Swimming pool pump | Must be located in an enclosure that is sound proofed. |

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

Division 5 of the Low Rise Medium Density Housing Code contains the development standards for detached development, and are summarised below:

| Summary Development Standard Codes SEPP: clause 3B.49 | | |
|---|---|----------------|
| Maximum height detached development (Clause 3B.50) | 4.5m | |
| Side setback (Clause 3B.52 (2)) | 900mm or 0m if adjoining lot building is <900mm from boundary and building wall is of masonry construction with no window. | |
| Rear setback (Clause 3B.52(9)) | Lot Area (m²) | Setback |
| | >600 - 900 | 900mm |
| | >900 - 1500 | 1.5m |
| | >1500 | 2.5m |
| Maximum gross floor area detached development | 45m ² | |

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

2.1U Energy Efficiency

| Objectives | Design Criteria |
|---|--|
| Objective 2.1U-1 The development incorporates passive environmental design. | 63. An outdoor area for clothes drying that can accommodate at least 16 lineal metres of clothes line is provided for each dwelling. |
| | 64. Any clothes drying area is screened from public and communal areas. |

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

2.1V Water Management and Conservation

| Summary Development Standard Codes SEPP: clause 3B.62 | |
|---|--|
| Connection of Stormwater System | All stormwater collected is to be discharged by gravity fed or charged system to: <ul style="list-style-type: none">• A public drainage system;• An inter-allotment drainage system; or• An on-site disposal system. |

| | |
|------------------|---|
| Design of System | <p>The system must:</p> <ul style="list-style-type: none"> • Comply with requirements in a DCP or the stormwater drainage policy that applies to the land. • Be approved (if required) under s.68 of the Local Government Act 1993. |
|------------------|---|

| Objectives | Design Criteria |
|---|--|
| <p>Objective 2.1V-1</p> <p>Flood management systems are integrated into site design.</p> | <p>65. Detention tanks are to be located under paved areas, driveways or in basements.</p> |

Note: A CDC 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> | <p>66. Provide storage space for the type and number of bins designated in council's waste policy.</p> <p>67. 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>68. 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>69. 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>70. 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>71. Despite any requirements in council's waste policy, on-site waste vehicle access and collection is not required.</p> <p><i>Note: The waste collection point is typically located on the footpath.</i></p> |

| | |
|--|---|
| | <p>72. 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>73. Storage areas for rubbish and recycling bins should 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>74. 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.

Manor houses are permitted where an LEP permits multi dwelling housing or residential flat buildings.



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 concurrent complying development approval for the development and strata title subdivision.

Complying development

A complying development application can be submitted where it meets:

- the general requirements for complying development under Part 1 in the Codes SEPP;
- development standards contained within Part 3B of the Codes SEPP; and

- the Design Criteria contained within this Design Guide.

The development standards for complying development can be found in Part 3B of the Codes SEPP. A summary of the steps required to prepare for a CDC development standards 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 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 should achieve

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

Each relevant Design Criteria is required to be satisfied to obtain a complying development certificate.

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



2.2A Building Envelopes

| Summary Development Standard Codes SEPP Clause 3B.22 | | | | | | | | | |
|---|--|----------------------------|---------|-----------|------|-------------|------|-------|-----|
| Minimum Lot Size (Clause 3B.22) | <p>Minimum lot size - Manor house: 600m²</p> <p>Minimum lot size - Dual occupancy: As specified for dual occupancies in the EPI that applies to the land. If the EPI does not specify a minimum lot size - 400m².</p> <p>Width measured at the building line: 15m.</p> | | | | | | | | |
| Height of Building (Clause 3B.23) | 8.5m | | | | | | | | |
| Primary Road Setback (Clause 3B.25) | <p>Where existing residential accommodation is within 40m of the development - average of the two closest buildings containing residential accommodation.</p> <p>Where no existing residential accommodation is within 40m of the development site then:</p> <table> <tr> <th>Lot Area (m²)</th><th>Setback</th></tr> <tr> <td>400 - 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> </table> | Lot Area (m ²) | Setback | 400 - 900 | 4.5m | >900 - 1500 | 6.5m | >1500 | 10m |
| Lot Area (m ²) | Setback | | | | | | | | |
| 400 - 900 | 4.5m | | | | | | | | |
| >900 - 1500 | 6.5m | | | | | | | | |
| >1500 | 10m | | | | | | | | |
| Secondary Road Setback (Clause 3B.25(7)) | <table> <tr> <th>Lot Area (m²)</th><th>Setback</th></tr> <tr> <td>400 -1500</td><td>3m</td></tr> <tr> <td>>1500</td><td>5m</td></tr> </table> | Lot Area (m ²) | Setback | 400 -1500 | 3m | >1500 | 5m | | |
| Lot Area (m ²) | Setback | | | | | | | | |
| 400 -1500 | 3m | | | | | | | | |
| >1500 | 5m | | | | | | | | |
| Parallel Road Setback (Clause 3B.25(8)) | 3m | | | | | | | | |
| Classified Road Setback (Clause 3B.25(9)) | 9m | | | | | | | | |
| Side Setbacks (Clause 3B.25(4)) | <p>1.5m</p> <p>Development that is >10m behind the front building line and greater than 4.5 metres above ground level (existing) - $s = h - 3m$</p> <p>'s' is the minimum setback in metres;</p> <p>'h' is the height of the part of the building in metres.</p> | | | | | | | | |
| Applies only to the side boundary of the development site. | | | | | | | | | |

| | | | |
|--------------------------------|--|------------------------|--|
| Rear Setback (Clause 3B.25(6)) | Lot Area (m²) | Building Height | Minimum Required Setback from Rear Boundary |
| | >400 - 1500 | 0m – 4.5m | 6m |
| | | > 4.5m – 8.5m | 10m |
| | > 1500 | 0m – 4.5m | 10m |
| | | > 4.5m – 8.5m | 15m |
| Lane Setback (Clause 3B.26(4)) | 0m for a maximum of 50% of the length of the boundary. | | |

Note: Refer to Section 3 for an explanation of the application of setbacks, and exceptions to the setbacks.

2.2B Gross Floor Area

| Summary Development Standard Codes SEPP Clause 3B.24 | |
|--|---|
| Gross Floor Area | 25% of lot area + 150m ² to a maximum of 400m ² . |

2.2C Landscaped Area

| Summary Development Standard Codes SEPP cl 3B.28 & cl 3B.29 | |
|--|--|
| Minimum Landscape Area (Clause 3B.28(1)) | 50% of lot area minus 100 m ² . |
| Minimum Dimension of Landscaped Area (Clause 3B.28(2)) | 1.5m width and length. |
| Landscaped Area Forward of the Building Line (Clause 3B.28(3)) | 50% minimum. |

| Objectives | Design Criteria | | | | | | | | | | | | | | | | |
|---|--|-----------|------------------|------------------|-------------|-------------|--------|-----|------------------|--------------|-------|----|------------------|-------------|------|----|------------------|
| Objective 2.2C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. An ongoing maintenance plan is provided as part of the landscape plan. | | | | | | | | | | | | | | | | |
| | 2. Minimum soil standards for plant sizes are provided in accordance with the Table below. | | | | | | | | | | | | | | | | |
| | <table><tr><th>Tree Size</th><th>Height</th><th>Spread</th><th>Soil Volume</th></tr><tr><td>Large trees</td><td>13-18m</td><td>16m</td><td>80m³</td></tr><tr><td>Medium trees</td><td>9-12m</td><td>8m</td><td>35m³</td></tr><tr><td>Small trees</td><td>6-8m</td><td>4m</td><td>15m³</td></tr></table> | Tree Size | Height | Spread | Soil Volume | Large trees | 13-18m | 16m | 80m ³ | Medium trees | 9-12m | 8m | 35m ³ | Small trees | 6-8m | 4m | 15m ³ |
| | Tree Size | Height | Spread | Soil Volume | | | | | | | | | | | | | |
| | Large trees | 13-18m | 16m | 80m ³ | | | | | | | | | | | | | |
| Medium trees | 9-12m | 8m | 35m ³ | | | | | | | | | | | | | | |
| Small trees | 6-8m | 4m | 15m ³ | | | | | | | | | | | | | | |
| 3. Tree planting required: | | | | | | | | | | | | | | | | | |
| <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. | | | | | | | | | | | | | | | | | |

| | |
|--|--|
| Objective 2.2C-2 Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced. | 4. Mature trees are retained, particularly those along the boundary (except those where approval is granted by Council for their removal). |
| | 5. Existing landscape features including trees and rock outcrops are retained where they contribute to the streetscape character or are located within the rear setback. |
| Objective 2.2C-3 Landscape design contributes to a local sense of place and creates a micro climate. | 6. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers. |
| | 7. The landscape plan indicates that at least 50% of the overall number of trees and shrubs are species native to the region. |

2.2D Local Character and Context

| Objectives | Design Criteria |
|---|---|
| Objective 2.2D-1 The built form, articulation and scale relates to the local character of the area and the context. | 8. Provide a description in the Design Verification Statement as to 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. |

2.2E Public Domain Interface

| Objectives | Design Criteria |
|--|---|
| Objective 2.2E-1 Provide high level activation and passive surveillance to public streets. | 9. Pedestrian entries are directly visible from the public street. |
| | 10. Windows fronting a road from habitable rooms and upper level balconies are to overlook the public domain. |
| | 11. Direct visibility is provided along paths and driveways from the public domain to the front door. |

| | |
|--|--|
| Objective 2.2E-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). | 12. Private courtyards within the front setback are only to be located within the articulation zones and / or behind the required front building line. |
| | 13. Front fences: <ul style="list-style-type: none">• Are visually permeable (no more than 50% of the allowable fence area should 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 be constructed of unfinished timber palings or solid metal panels. |
| | 14. 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. |
| | 15. Retaining walls greater than 600m within the front setback are softened by planting to a minimum depth of 600mm on the low side of the retaining wall. |
| 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. | 16. 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: <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. |

2.2F Pedestrian and Vehicle Access

| Objectives | Design Criteria |
|---|--|
| Objective 2.2F-1 Ensure there is adequate space for vehicle circulation and off-street parking. | 17. Vehicle circulation to complies with AS2890.1 covering off-street car parking facilities. |
| | 18. The vehicle crossing should have a maximum width of 3.5m at the street boundary. |
| | 19. Where a driveway services more than 3 vehicles, the driveway must be designed to ensure all vehicles must leave the site in a forward direction. |
| | 20. Only one driveway cross-over is located on the same street frontage. |

2.2G Orientation, Siting and Subdivision

| Summary Development Standard Codes SEPP. clause 3B.22 | |
|---|--|
| Minimum Lot Size | Minimum lot size - Manor house: 600m ² Minimum lot size - Dual occupancy: As specified for dual occupancies in the EPI that applies to the land. If the EPI does not specify a minimum lot size - 400m ² Width measured at the building line: 15m. |

| Objectives | Design Criteria |
|--|--|
| Objective 2.2G-1 The dwelling is orientated to the street and provides opportunities for street surveillance and connectivity. | 21. Every wall that faces a street or a public space has a window to a habitable room at each level. The window occupies at least 20% of the façade. |
| | 22. The front door is visible from the public domain. |
| Objective 2.2G-2 Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings. | 23. The window to a living room of an adjoining dwelling that is more than 3m from the boundary receives more than 2 hours of solar access in the Sydney metropolitan area and 3 hours of solar access in other areas, between 9am and 3pm on the winter solstice (June 21). |
| | 24. 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. |

| | |
|--|--|
| Objective 2.2G-3 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. | 25. The lowest level of the dwelling is not more than 1.3m above ground level, and no more than 1m below ground level. |
| Objective 2.2G-4 To minimise impacts to vegetation on adjoining properties and allow for vegetation within the setbacks. | 26. Basement car parking is not provided within the setbacks described in the table in Section 2.2A. |
| Objective 2.2G-5 Independent services and utilities are available to service each lot. | 27. All lots must have access to reticulated water, sewer, electricity, telecommunications and where available, gas. |

Note: For complying development the Codes SEPP contains development standards for earthworks, retaining walls and structural support.

2.2H Solar and Daylight Access

| Objectives | Design Criteria |
|--|---|
| Objective 2.2H-1 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. | 28. 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 to a living room and private open space. 29. Direct sunlight is achieved when there is 1m ² 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. |
| Objective 2.2H-2 To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity. | 30. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road. 31. No part of a habitable room is more than 8m from a window. 32. No part of a kitchen work surface is more than 6m from a window or skylight. 33. Courtyards must: <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. 34. A window is visible from 75% of the floor area of a habitable room. |

2.2I Natural Ventilation

| Objectives | Design Criteria |
|--|--|
| Objective 2.2I-1 All habitable rooms are naturally ventilated. | 35. Natural ventilation is available to each habitable room. |
| | 36. Each dwelling is cross ventilated. |

2.2J Ceiling Height

| Objectives | Design Criteria |
|---|--|
| Objective 2.2J-1 Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality. | 37. Minimum ceiling heights are: <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 | Design Criteria |
|--|---|
| 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. | 38. Dwellings are required to have the following minimum internal floor areas: <ul style="list-style-type: none"> • Studio 35m² • 1 bed 50m² • 2 bed 70m² • 3+ bed 90m² |
| | 39. The minimum internal areas outlined above only include one bathroom. The minimum area of each additional bathroom is 5m ² added onto the minimum dwelling area. |
| | 40. The minimum area of any additional bedroom is 12m ² . The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 37. |
| | 41. Kitchens are not be part of a circulation space such as a hallway ,except in studio apartments. |

| | |
|---|---|
| Objective 2.2K-2 Room sizes are appropriately sized for the intended purpose and number of occupants. | 42. One bedroom has a minimum area of 10m ² excluding wardrobe space. |
| | 43. Bedrooms have a minimum length and width of 3m excluding wardrobe space. |
| | 44. Combined living and dining rooms are to have a minimum area of: <ul style="list-style-type: none"> 1 and 2 bed 24m² 3+ bed 28m² |
| | 45. 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 |
|---|---|
| Objective 2.2L-1 Principal private open space and balconies are appropriately located to enhance liveability for residents. | 46. All dwellings have access to principal private open space with a minimum length and width of 3m: <ul style="list-style-type: none"> 1 bed or studio 8m² 2+ bed 12m² Dwellings with living area at ground level 16m² |
| | 47. The principal private open space is located behind the front building line. |
| | 48. The principal private open space is located adjacent to the living room, dining room or kitchen to extend the living space. |
| Objective 2.2L-2 Dwellings provide appropriately sized private open space and balconies to enhance residential amenity. | 49. 25% of the private open space is covered to provide shade and protection from rain. |

2.2M Storage

| Objectives | Design Criteria |
|--|---|
| Objective 2.2M-1 Adequate, well designed storage is provided in each dwelling. | 50. In addition to storage in kitchens, bathrooms and bedrooms, the following storage with a minimum dimension of 500mm is provided: <ul style="list-style-type: none"> • 1 bed or studio 6m³ • 2 bed 8m³ • 3+ bed 10m³ |
| | 51. At least 50% of the required storage is located inside the dwelling. |
| | 52. Storage not located in dwellings is secure and clearly allocated to specific dwellings if in a common area. |

2.2N Car and Bicycle Parking

| Summary Development Standard Codes SEPP. Clause 3B.32 | | |
|--|--|--|
| Number of car spaces for each dwelling | At least 0.5 car spaces and no more than 1 off-street car parking spaces must be provided for each dwelling. | |
| Size of car space and access to car space | Comply with AS 2890.1:2004 | |
| Setback from primary, secondary and parallel road | Setback of Dwelling from Road <4.5m >4.5m | Minimum Off-Street Parking Setback from Road 5.5m 1m behind the building line |
| Maximum width of all garage doors facing a primary or secondary road | 6m | |

| Objectives | Design Criteria |
|--|--|
| Objective 2.2N-1 Parking and facilities are provided for bicycles. | 53. Covered space is to be provided for the secure storage of at least 1 bicycle per dwelling. |
| Objective 2.2N-2 Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling. | 54. The maximum dimensions of any basement car park entry will be 2.7m high by 3.5m wide. 55. 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. |

2.2O Visual Privacy

| Summary Development Standard Codes SEPP, Clause 3B.31 | | | | | | | | | | | | | |
|--|---|------------------------|--|-----|--------|-----|-----|---|--|-----|--------|------|-----|
| When a privacy screen is required to a window of a habitable room that has a sill less than 1.5m | <p>A privacy screen is required when:</p> <table> <tr> <th>Distance from Boundary</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><3m</td><td>1 - 3m</td></tr> <tr> <td><6m</td><td>>3m</td></tr> </table> <table> <tr> <th>Distance from Windows in Dwelling on Same Lot</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><6m</td><td>1 - 3m</td></tr> <tr> <td><12m</td><td>>3m</td></tr> </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 | | | | | | | | | | | | |
| When a privacy screen is required at the edge of a balcony, deck, patio, terrace or veranda | <p>A privacy screen is required at the edge of a terrace, deck, balcony or veranda that is parallel or faces towards a side or rear boundary.</p> <table> <tr> <th>Distance from Boundary</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><3m</td><td>1 - 3m</td></tr> <tr> <td><6m</td><td>>3m</td></tr> </table> <table> <tr> <th>Windows in Dwelling on Same Lot</th><th>Ground Level (Existing)</th></tr> <tr> <td><6m</td><td>1 - 2m</td></tr> <tr> <td><12m</td><td>>2m</td></tr> </table> <p>Note: This does not apply to a terrace, deck, balcony or patio that has an area less than 2m² 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 | Windows in Dwelling on Same Lot | Ground Level (Existing) | <6m | 1 - 2m | <12m | >2m |
| Distance from Boundary | Finished Floor Level Above Ground Level (Existing) | | | | | | | | | | | | |
| <3m | 1 - 3m | | | | | | | | | | | | |
| <6m | >3m | | | | | | | | | | | | |
| Windows in Dwelling on Same Lot | Ground Level (Existing) | | | | | | | | | | | | |
| <6m | 1 - 2m | | | | | | | | | | | | |
| <12m | >2m | | | | | | | | | | | | |

| Objectives | Design Criteria |
|--|---|
| <p>Objective 2.2O-1</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>56. 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 |
|---|--|
| Objective 2.2P-1 Noise transfer is minimised through the siting of buildings and building layout. | 57. 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. |

2.2Q Noise and Pollution

| Objectives | Design Criteria |
|---|---|
| Objective 2.2Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 58. Any development within the 20 ANEF contour is constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion. 59. Dwellings that are within 100m of a classified road or 80m from a rail corridor have LAeq measures not exceeding: <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. This can be achieved by: <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 involves penetration of ground to a depth of 2m within 25m of a rail corridor may be integrated development and cannot be complying development. Refer to the *State Environmental Planning Policy (Infrastructure) 2007*.

2.2R Architectural Form and Roof Design

| Objectives | Design Criteria |
|--|--|
| Objective 2.2R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 60. Describe in the Design Verification Statement how the architectural form reduces the visual bulk and responds and provides a cohesive design response. Note: Refer to Section 3 for guidance. |
| Objective 2.2R-2 The roof treatments are integrated into the building design and positively respond to the street. | 61. The roof design is integrated harmoniously with the overall building form. 62. Skylights and ventilation systems are integrated into the roof design. |

2.2S Visual Appearance and Articulation

Summary Development Standard Codes SEPP. Clause 3B.30

Articulation zone

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.

The following elements can be located in the articulation zone:

- 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.

Objectives

Objective 2.2S-1

To promote well designed buildings of high architectural quality that contribute to the local character.

Design Criteria

63. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.

Note: Refer to Section 3 for guidance.

2.2T Pools and Detached Development

Summary Development Standard Codes SEPP. Clause 3B.59

Height above ground level (existing)

Maximum height above ground level (existing):

- At the water line – 1.2m.
- At the top of the coping – 1.4m.
- Where the coping is more than 300mm wide – 600mm.

Location of pool

Must be located in the rear yard with a setback of 1m from any side or rear boundary.

Swimming pool pump

Must be located in an enclosure that is sound proofed.

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

Division 5 of the Low Rise Medium Density Housing Code contains the development standards for detached development, and are summarised below:

| Summary Development Standard Codes SEPP, Clause 3B.48 | | |
|---|--|--|
| Maximum height of any development (Clause 3B.50) | 4.5m | |
| Side setback (Clause 3B.52 (2)) | 900mm or 0 if adjoining lot building is <900mm from boundary and building wall is of masonry construction with no window. | |
| Rear setback (Clause 3B.52(9)) | Lot Area (m²) >600 - 900 >900 - 1500 >1500 | Setback 900mm 1.5m 2.5m |
| Maximum gross floor area detached development | Lot Area (m²) 400 - 600 >600 - 900 >900 | Maximum Gross Floor Area 45m ² 60m ² 100m ² |

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

2.2U Energy Efficiency

| Objectives | Design Criteria |
|---|---|
| Objective 2.2U-1 The development incorporates passive environmental design. | 64. Provide an outdoor area for clothes drying that can accommodate at least 8 lineal metres of clothes line for each dwelling. 65. Any clothes drying area should be screened from public and communal areas. |

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

2.2V Water Management and Conservation

| Summary Development Standard Codes SEPP. Clause 3B.62 | |
|---|--|
| Connection of Stormwater System | <p>All stormwater collected is to be discharged by a gravity fed or charged system to</p> <ul style="list-style-type: none"> • A public drainage system; • An inter-allotment drainage system; or • An on-site disposal system. |
| Design of System | <p>The system must:</p> <ul style="list-style-type: none"> • Comply with requirements in a DCP that applies to the land; and/or • Be approved (if required) under s.68 of the Local Government Act 1993. |
| Objectives | Design Criteria |
| <p>Objective 2.2V-1</p> <p>Flood management systems are integrated into site design.</p> | <p>66. Detention tanks are located under paved areas, driveways or in basements.</p> |

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

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>67. Provide storage space for the type and number of bins designated in council's waste policy.</p> <p>68. 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>69. 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>70. 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>71. 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>72. Despite any requirements in council's waste policy, on-site waste vehicle access and collection is not required.</p> <p><i>Note: The waste collection point is typically located on the footpath.</i></p> |
| | <p>73. 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>74. Storage areas for rubbish and recycling bins should 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>75. Communal waste areas are to be located at least 3m from any bedroom or 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>76. 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 |
|---|---|
| Objective 2.2Y-1 Communal areas are designed to maximise safety and connectivity to the development and promote social interaction between residents. | 77. Communal open spaces are visible from habitable rooms and private open space while maintaining visual privacy. 78. Any communal open space is directly accessible from the building entry and common circulation. 79. For manor houses the active communal open space is at least 5% of the site area and has a maximum grade of 1:50. 80. Active communal open space is at least 3m from the habitable room of a dwelling on the lot. |
| Objective 2.2Y-2 Common circulation spaces achieve good amenity with access to daylight and ventilation. | 81. Common circulation above ground is provided with natural daylight and ventilation. |



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.

Multi dwelling housing (terraces) are permitted where an LEP permits multi dwelling housing.



Figure 2.3-1 Workflows: Preparing a CDC

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 with separate ownership of the lots.

Each lot under the Torrens title subdivision must comply with the minimum lot size requirement in Part 3B of the Codes SEPP.

A development application will be required for multi dwelling housing (terraces) where a dwelling does not have a frontage to a public road or the development does not comply with the development standards under the Codes SEPP.

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.

Complying Development

A complying development application can be submitted where it meets:

- the general requirements for complying development under Part 1 of the Codes SEPP;
- development standards contained within Part 3B of the Codes SEPP; and
- the Design Criteria contained within this Design Guide.

The development standards for complying development can be found in Part 3B of the Codes SEPP. A summary of the steps required to prepare a CDC 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 objective.

Each relevant Design Criteria is required to be satisfied to obtain a complying development certificate.

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



Figure 2.3-2 Workflows: Preparing a CDC

2.3A Building Envelopes

| Summary Development Standard Codes SEPP: clause 3B.1, 3B.35, 3B.36, 3B.38 and 3B.39 | | | |
|---|---|---|--|
| Minimum Lot Size (Clause 3B.35) | Minimum lot size: As specified for multi dwelling housing in the EPI that applies to the land. If the EPI does not specify a minimum lot size: 600m ² . Width measured at the building line: 18m. | | |
| Height of Building (Clause 3B.36) | 9m | | |
| Number of Storeys (Clause 3B.1) | 2 | | |
| Primary Road Setback (Clause 3B.38(1)(2)(3)) | Zone | Setback | |
| | R1, R2 and RU5 | Where existing dwelling houses, dual occupancies or multi dwelling housing (terraces) are within 40m - average of the two closest dwelling houses, dual occupancies or multi dwelling housing (terraces). Where no existing dwelling houses, dual occupancies or multi dwelling housing (terraces) are within 40m then: 3.5m | |
| | R3 | 3.5m | |
| Secondary Road Setback (Clause 3B.38(6)) | Lot Area (m²) | Building Height | |
| | 600-900 | 2m | |
| | > 900 - 1500 | 3m | |
| | > 1500 | 5m | |
| Parallel Road Setback (Clause 3B.38(7)) | 3m | | |
| Classified Road Setback (Clause 3B.38(8)) | 9m | | |
| Side Setbacks (Clause 3B.38(4)) Applies only to the side boundary of the development site – not each individual lot. | A multi dwelling housing (terraces) and any attached development) must have a minimum setback from a side boundary of 1.5m. | | |
| Rear Setback (Clause 3B.38(5)) | Lot Area (m²) | Building Height | Minimum Required Setback from Rear Boundary |
| | 600-900 | 0m – 4.5m | 3m |
| | | > 4.5m – 8.5m | 8m |
| | > 900 - 1500 | 0m – 4.5m | 5m |
| | | > 4.5m – 8.5m | 12m |
| | > 1500 | 0m – 4.5m | 10m |
| | | > 4.5m – 8.5m | 15m |
| Lane Setback (Clause 3B.39(4)) | 0m from the rear boundary for a maximum length of 7m. | | |

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. Refer to Section 3 for an explanation of the application of setbacks, and exceptions to the setbacks.

2.3B Gross Floor Area

| Summary Development Standard Codes SEPP: clause 3B.37 | | |
|---|----------------|-------------------------|
| Gross Floor Area (Clause 3B.37) | Zone | Gross Floor Area |
| | R1, R2 and RU5 | 60% of lot area |
| | R3 | 80% of lot area |

2.3C Landscaped Area

| Summary Development Standard Codes SEPP: clause 3B.42 and 3B.43 | | |
|---|------------------------|------------------------|
| Minimum Landscaped Area for Each Lot | Zone | Landscaped Area |
| | R1, R2 and RU5 | 30% of lot area |
| | R3 | 20% of lot area |
| Minimum Dimension of Landscaped Area | 1.5m width and length. | |
| Landscaped Area Forward of the Building Line | 25% minimum | |

| Objectives | Design Criteria | | | | | | | | | | | | | | | | |
|--|--|-----------|------------------|-------------|-------------|-------------|--------|-----|------------------|--------------|-------|----|------------------|-------------|------|----|------------------|
| Objective 2.3C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. An ongoing maintenance plan is provided as part of the landscape plan. | | | | | | | | | | | | | | | | |
| | 2. Minimum soil standards for plant sizes are provided in accordance with the Table below. | | | | | | | | | | | | | | | | |
| | <table><tr><th>Tree Size</th><th>Height</th><th>Spread</th><th>Soil Volume</th></tr><tr><td>Large trees</td><td>13-18m</td><td>16m</td><td>80m³</td></tr><tr><td>Medium trees</td><td>9-12m</td><td>8m</td><td>35m³</td></tr><tr><td>Small trees</td><td>6-8m</td><td>4m</td><td>15m³</td></tr></table> | Tree Size | Height | Spread | Soil Volume | Large trees | 13-18m | 16m | 80m ³ | Medium trees | 9-12m | 8m | 35m ³ | Small trees | 6-8m | 4m | 15m ³ |
| | Tree Size | Height | Spread | Soil Volume | | | | | | | | | | | | | |
| Large trees | 13-18m | 16m | 80m ³ | | | | | | | | | | | | | | |
| Medium trees | 9-12m | 8m | 35m ³ | | | | | | | | | | | | | | |
| Small trees | 6-8m | 4m | 15m ³ | | | | | | | | | | | | | | |
| 3. Tree planting required: <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. | | | | | | | | | | | | | | | | | |

| | |
|---|---|
| <p>Objective 2.3C-2</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>4. Mature trees are retained, particularly those along the boundary (except those where approval is granted by Council for their removal).</p> |
| <p>Objective 2.3C-3</p> <p>Landscape design contributes to a local sense of place and creates a micro climate.</p> | <p>5. 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>6. The landscape plan proposes a combination of tree planting, for shade, mid height shrubs, lawn and ground covers.</p> <p>7. The landscape plan indicates that at least 50% of the overall number of trees and shrubs should be species native to the region.</p> |

2.3D Local Character and Context

| Objectives | Design Criteria |
|--|--|
| <p>Objective 2.3D-1</p> <p>The built form, articulation and scale relates to the local character of the area and the context.</p> | <p>8. 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> |

2.3E Public Domain Interface

| Objectives | Design Criteria |
|--|---|
| Objective 2.3E-1 Provide activation and passive surveillance to the public streets. | 9. The front door of each dwelling is directly visible from the public street. 10. Windows fronting a road from habitable rooms and upper level balconies are to overlook the public domain. |
| 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). | 11. Private courtyards within the front setback are only located within the articulation zones and / or behind the required front building line. 12. Front fences: <ul style="list-style-type: none"> • Are visually permeable (no more than 50% of the allowable fence area should 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 be constructed of solid metal panels or unfinished timber palings. 13. High solid walls are only to be 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. 14. Retaining walls greater than 600m 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. | 15. 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: <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 have openings not less than 25% of the surface area of the wall. |

2.3F Pedestrian and Vehicle Access

| Objective | Design Criteria |
|---|--|
| Objective 2.3F-1 Car park design and access is safe and minimises impact on habitable spaces. | 16. Vehicle circulation complies with AS2890.1. 17. 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. 18. New rear lanes: <ul style="list-style-type: none"> • maximum length of a dead end laneway - 40m. • minimum width between structures - 7m. |

2.3G Orientation, Siting and Subdivision

| Summary Development Standard Codes SEPP: clause 3B.35, Part 6.4(1) | |
|--|--|
| Minimum Lot Size (Clause 3B.35) | Minimum lot size: As specified for multi dwelling housing in the EPI that applies to the land. If the EPI does not specify a minimum lot size - 600m ² . Width measured at the building line: 18m. |
| Subdivision Lot Size (Torrens title subdivision) (Part 6.4(1)) | Subdivision lot size (Torrens title subdivision) Minimum area: 200m ² . Minimum width: 6m (measured at the building line). |
| Strata title subdivision | The minimum strata area (at the ground level)(excluding common areas) must be at least 180m ² . |

| Objectives | Design Criteria |
|---|---|
| Objective 2.3G-1 Building types and layouts respond to the streetscape and site while optimising solar access within the development and maximise street surveillance and connectivity. | 19. 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 width of each terrace measured at the building line is to be at least 6m. 20. Every wall that faces a street has a window to a habitable room at each level. |
| Objective 2.3G-2 Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings. | 21. The window to a living room of an adjoining dwelling that is more than 3m from the boundary is to receive more than 3 hours of solar access between 9am and 3pm on the winter solstice (June 21). 22. 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. |

Objective 2.3G-3

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.

23. 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.

Objective 2.3G-4

Independent services and utilities are available to service each lot.

24. All lots must have access to reticulated water and sewer, electricity, telecommunications, and where available gas.

Note: For complying development the Codes SEPP contains development standards for earthworks, retaining walls and structural support.

2.3H Solar and Daylight Access

Objective**Design Criteria****Objective 2.3H-1**

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.

25. The living room or private open space in each dwelling is to receive a minimum of 2 hours direct sunlight between 9 am and 3 pm on the winter solstice (June 21).

26. 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.

Objective 2.3H-2

To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity.

27. Daylight may not be borrowed from other rooms, except where a room has a frontage to a classified road.

28. No part of a habitable room is more than 8m from a window.

29. No part of a kitchen work surface is more than 6m from a window or skylight.

30. Courtyards must:

- Be fully open to the sky; and
- Have a minimum dimension of one third of the perimeter wall height, an area of 4m².

31. A window is visible from 75% of the floor area of a habitable room.

2.3I Natural Ventilation

| Objectives | Design Criteria |
|--|--|
| Objective 2.3I-1 All habitable rooms are naturally ventilated. | 32. Natural ventilation is available to each habitable room. |
| | 33. Each dwelling is naturally cross ventilated. |

2.3J Ceiling Height

| Objective | Design Criteria |
|---|---|
| Objective 2.3J-1 Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality. | 34. Minimum ceiling heights are: <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 |
|--|--|
| Objective 2.3K-1 The dwelling has a sufficient area to ensure the layout of rooms are functional, well-organised and provide a high standard of amenity. | 35. Dwellings to have the following minimum internal floor areas: <ul style="list-style-type: none"> • 1 bed 65m² • 2 bed 90m² • 3+ bed 115m² |
| | 36. The minimum internal areas outlined above only contain one bathroom. The minimum area of each additional bathroom is 5m ² added onto the minimum dwelling area. |
| | 37. The minimum area of any additional bedroom is 12m ² . The area of each additional bedroom is then added to the minimum internal floor area contained in Design Criteria 35. |
| | 38. Kitchens are not part of a circulation space such as a hallway. |

Objective 2.3K-2

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

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

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

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

- 1 and 2 bed 24m²
- 3+ bed 28m²

42. 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-1

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

Design Criteria

43. The area of principal private open space provided for each dwelling is at least 16m² with a minimum length and width of 3m.

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

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

Objective 2.3L-2

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

46. 25% of the private open space should 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

47. 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

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

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

2.3N Car and Bicycle Parking

| Summary Development Standard Codes SEPP: clause 3B.46 | | |
|--|---|--|
| Number of car spaces for each dwelling (Clause 3B.46(1)) | 1 space per dwelling | |
| Size of car space and access to car space | Comply with AS 2890.1:2004. | |
| Setback from primary, secondary or parallel road (Clause 3B.46(5)) | Setback of Dwelling from Road <4.5m >4.5m | Minimum Off-Street Parking Setback from Road 5.5m 1m behind the building line |
| Lot width requirement for parking to a primary road or parallel road frontage | Minimum width 18m measured at the building line. | |
| Maximum width of all garage doors facing a primary or secondary road (Clause 3B.46(6)) | 6m (for access to a common basement) , or For access to individual lots: Lot Width (At Completion) 8m - 12m >12m Maximum Width of Garage Door Openings 3.2m 6m Note: Lot width refers to the completed Torrens title lot or in the case of a strata subdivision being each individual strata lot. | |

| Objectives | Design Criteria |
|--|---|
| Objective 2.3N-1 Car parking is provided appropriate for the scale of the development. | 50. 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 as per RMS "Guide to Traffic Generating Developments". |
| Objective 2.3N-2 Parking facilities are provided for other modes of transport. | 51. Covers space is to be provided for the secure storage of at least 1 bicycle per dwelling. |
| Objective 2.3N-3 Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling. | 52. The maximum dimensions of any basement car park entry is to be 2.7m high by 3.5m wide. 53. 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. |

2.3O Visual Privacy

| Summary Development Standard Codes SEPP: clause 3B.45 | | | | | | | | | | | | | |
|--|---|------------------------|--|-----|--------|-----|-----|---|--|-----|--------|------|-----|
| When a privacy screen is required to a window of a habitable room that has a sill less than 1.5m. | <p>A privacy screen is required when:</p> <table> <tr> <th>Distance from Boundary</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><3m</td><td>1 - 3m</td></tr> <tr> <td><6m</td><td>>3m</td></tr> </table> <table> <tr> <th>Distance from Windows in Dwelling on Same Lot</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><6m</td><td>1 - 3m</td></tr> <tr> <td><12m</td><td>>3m</td></tr> </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 | | | | | | | | | | | | |
| When a privacy screen is required at the edge of a balcony, deck, patio, terrace or veranda | <p>A privacy screen is required at the edge of a terrace, deck, balcony or veranda that is parallel or faces towards a side or rear boundary</p> <table> <tr> <th>Distance from Boundary</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><3m</td><td>1 - 3m</td></tr> <tr> <td><6m</td><td>>3m</td></tr> </table> <table> <tr> <th>Distance from Windows in Dwelling on Same Lot</th><th>Finished Floor Level Above Ground Level (Existing)</th></tr> <tr> <td><6m</td><td>1 - 2m</td></tr> <tr> <td><12m</td><td>>2m</td></tr> </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 | | | | | | | | | | | | |
| Objectives | Design Criteria | | | | | | | | | | | | |
| <p>Objective 2.3O-1</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>54. 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> | | | | | | | | | | | | |

2.3P Acoustic Privacy

| Objectives | Design Criteria |
|---|--|
| Objective 2.3P-1 Noise transfer is minimised through the siting of buildings and building layout. | 55. 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. |

2.3Q Noise and Pollution

| Objectives | Design Criteria |
|---|---|
| Objective 2.3Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 56. Any development within the 20 ANEF contour is to be constructed to comply with AS 2021:2015 Acoustics – Aircraft Noise Intrusion. 57. Dwellings that are within 100m of a classified road or 80m from a rail corridor are to have LAeq measures are not exceeding: <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. This is achieved by: <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 and cannot be complying development. Refer to the *State Environmental Planning Policy (Infrastructure) 2007*.

2.3R Architectural Form and Roof Design

| Objectives | Design Criteria |
|--|---|
| Objective 2.3R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 58. 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. Note: Refer to Section 3 for guidance. |
| Objective 2.3R-2 The roof treatments are integrated into the building design and positively respond to the street. | 59. The roof design is integrated harmoniously with the overall building form. 60. Skylights and ventilation systems are integrated into the roof design. |

2.3S Visual Appearance and Articulation

Summary Development Standard Codes SEPP: clause 3B.44

Articulation zone (Clause 3B.44)

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.

The following elements can be located in the articulation zone:

- 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.

Objectives

Objective 2.3S-1

To promote well designed buildings of high architectural quality that contribute to the local character.

Design Criteria

61. Provide in the Design Verification Statement a description as to how the aesthetics and articulation contribute to the character of the local area.

Note: Refer to Section 3 for guidance.

2.3T Pools and Detached Development

Summary Development Standard Codes SEPP: clause 3B.59

Pool height above ground level (existing)

Maximum height above ground level (existing):

- At the water line – 1.2m.
- At the top of the coping – 1.4m.
- Where the coping is more than 300mm wide – 600mm.

Location of pool

Must be located in the rear yard with a minimum setback of 1m from any side or rear boundary.

Swimming pool pump

Must be located in an enclosure that is sound proofed.

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

Part 3B of the Low Rise Medium Density Housing Code contains the development standards for detached development and are summarised below:

Summary Development Standard Codes SEPP: clause 3B.50

| Maximum height detached development (Clause 3B.50) | 4.5m. | | | | | | | | |
|--|---|----------------------------|---------|------------|-------|-------------|------|-------|------|
| Side setback (Clause 3B.52(2)) | 900mm or 0m if adjoining lot building is <900mm from boundary and building wall is of masonry construction with no window. | | | | | | | | |
| Rear setback (Clause 3B.52(8)) | <table> <tr> <th>Lot Area (m²)</th><th>Setback</th></tr> <tr> <td>>400 - 900</td><td>900mm</td></tr> <tr> <td>>900 - 1500</td><td>1.5m</td></tr> <tr> <td>>1500</td><td>2.5m</td></tr> </table> | Lot Area (m ²) | Setback | >400 - 900 | 900mm | >900 - 1500 | 1.5m | >1500 | 2.5m |
| Lot Area (m ²) | Setback | | | | | | | | |
| >400 - 900 | 900mm | | | | | | | | |
| >900 - 1500 | 1.5m | | | | | | | | |
| >1500 | 2.5m | | | | | | | | |
| Maximum gross floor area detached development | 45m ² | | | | | | | | |

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

2.3U Energy Efficiency

| Objectives | Design Criteria |
|---|---|
| Objective 2.3U-1 Development incorporates passive environmental design. | 62. Provide an outdoor area for clothes drying that can accommodate at least 16 lineal metres of clothes line for each dwelling. 63. Any clothes drying area is screened from public and communal areas. |

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

2.3V Water Management and Conservation

Summary Development Standard Codes SEPP: clause 3B.62

| | |
|---------------------------------|---|
| Connection of Stormwater System | All stormwater collected is to be discharged by gravity fed or charged system to: <ul style="list-style-type: none"> • A public drainage system; • An interallotment drainage system; or • An on-site disposal system. |
| Design of System | The system must: <ul style="list-style-type: none"> • Comply with requirements in a DCP that applies to the land; and/or • Be approved (if required) under s.68 of the Local Government Act 1993). |

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

2.3W Waste Management

Objectives

Objective 2.3W-1

Waste storage facilities meet the needs of the residents, are easy to use and access, and enable efficient collection of waste.

Design Criteria

64. Provide storage space for the type and number of bins designated in council's waste policy.
65. 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.
66. 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.
67. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.
68. Any communal waste area is to:
 - provide for water supply for cleaning,
 - have a solid floor grated to a floor waste (connected to a sewer), and
 - be designed to meet the requirements of council's waste policy.
69. Despite any requirements in council's waste policy, on-site waste vehicle access and collection is not required where:
 - there are less than 20 dwellings, or
 - the development is Torrens title subdivided.
70. A communal onsite waste collection point is to be provided where:
 - there are 20 or more dwellings and
 - the development is strata title subdivided.
71. Where vehicle access is not provided to the site, any communal on-site collection point is to:
 - 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

| | |
|--|---|
| | 72. If the waste collection point (including any communal waste collection point) is used for permanent storage of bins, it is to be screened from view from the public domain and is to have a height no greater than 1.3m, if forward of the building line. |
| Objective 2.3W-2 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents | 73. Storage areas for rubbish and recycling bins should be provided <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. |
| | 74. Communal waste areas are to be located at least 3m from any bedroom or living room window. |

2.3X Universal Design

| Objectives | Design Criteria |
|---|---|
| Objective 2.3X-1 Universal design features are included in dwelling design to promote flexible housing for all community members. | 75. 30% of all dwellings will include the Silver Level Seven Core Liveable Housing Design Elements contained in the <i>Liveable Housing Design Guidelines</i> . |

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 | | ♦ | ♦ | | | | | | |
| C | Landscaped Area | | | | | ♦ | | | | |
| D | Local Character and Context | ♦ | | | | | | | | |
| E | Public Domain Interface | ♦ | ♦ | | ♦ | | | | | |
| F | Pedestrian and Vehicle Access | | ♦ | | | ♦ | | ♦ | ♦ | |
| 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 (only 2.2) | | | | | ♦ | | | ♦ | |

3.2 Using this Section

Complying Development

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

The designer is required in 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.

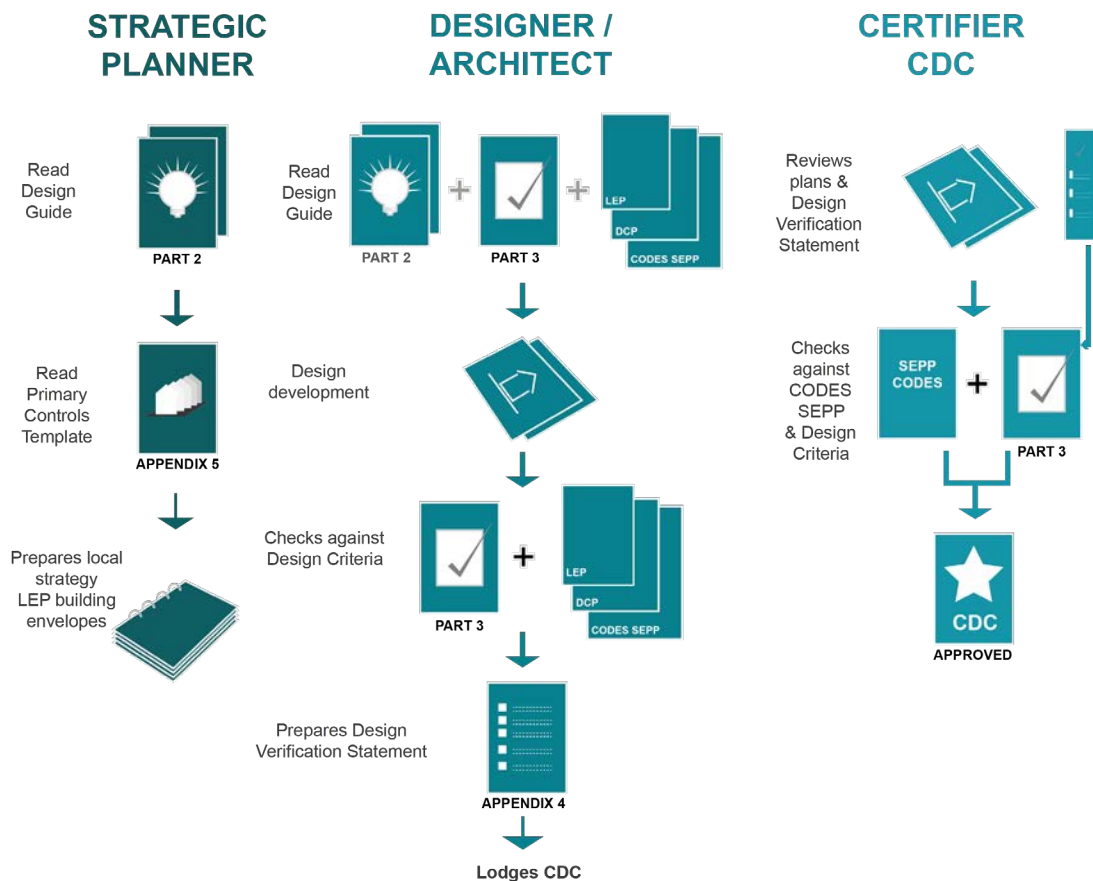
Planning Context

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 encourages a design-led strategic planning process to determine the type, scale and built form of medium density housing permitted as complying development in an area.

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 medium density housing carried out as complying development. 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.

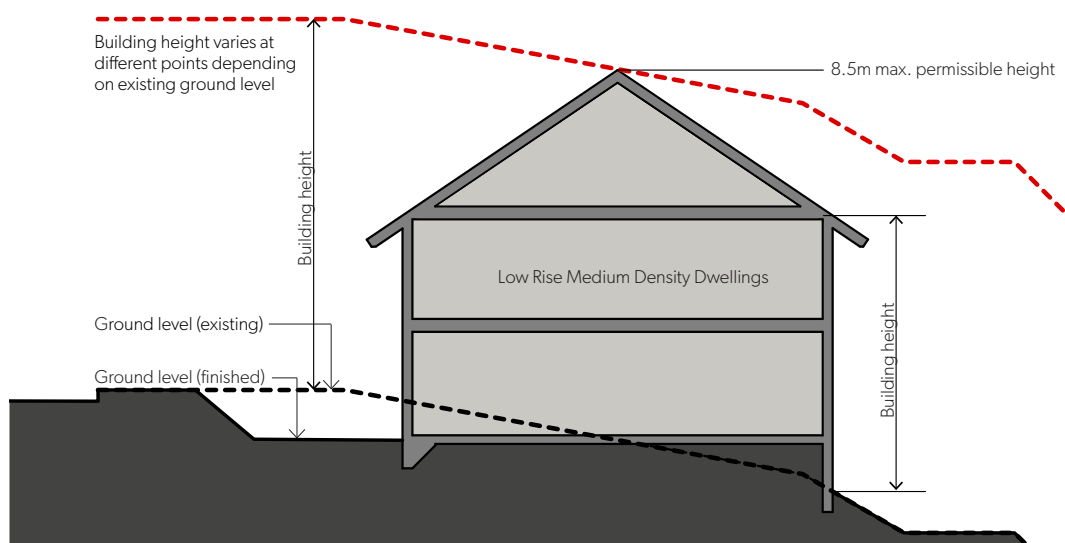


Figure 3-2 Measuring building height

Determining existing ground level

Ground level (existing) is the existing level of a site at any point. A survey plan should be prepared by a registered surveyor.

Where there are existing structures on the site and the existing ground level cannot be surveyed, it is appropriate to use the existing levels around the edge of the structures and connect the contours between these points. This provides a practical approach in assessing and determining ground level (existing) where the physical ground level cannot be determined.

Calculating the number of storeys

Storey is defined under the SILEP 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.

For the purpose calculating the number of storeys under the Code, the part of any basement used for the purposes of car parking or access to that parking is not to be counted as a storey.

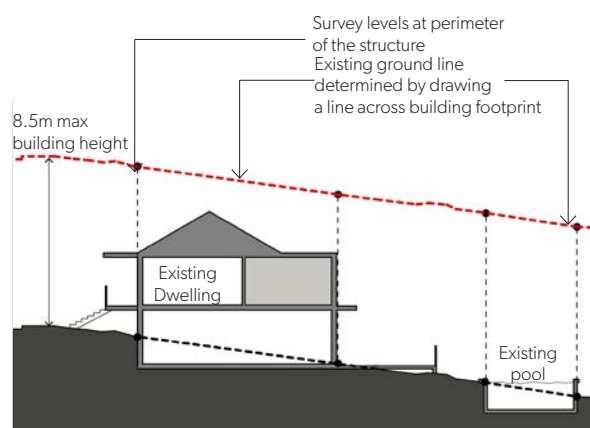


Figure 3-4 Determining existing ground level under existing structures

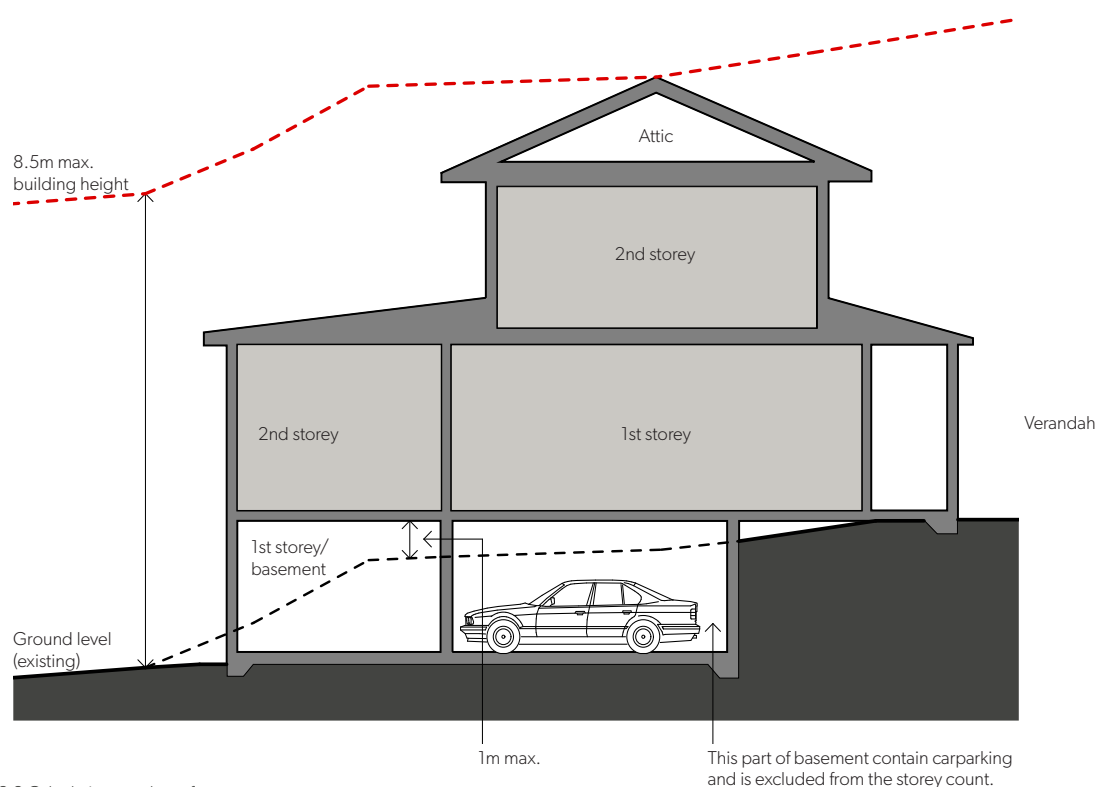


Figure 3-3 Calculating number of storeys

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.

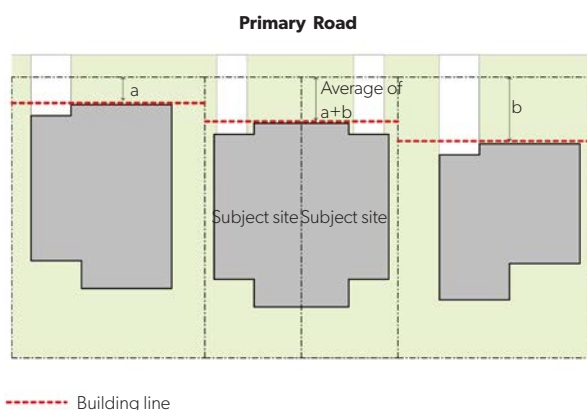


Figure 3-5 Primary road setback

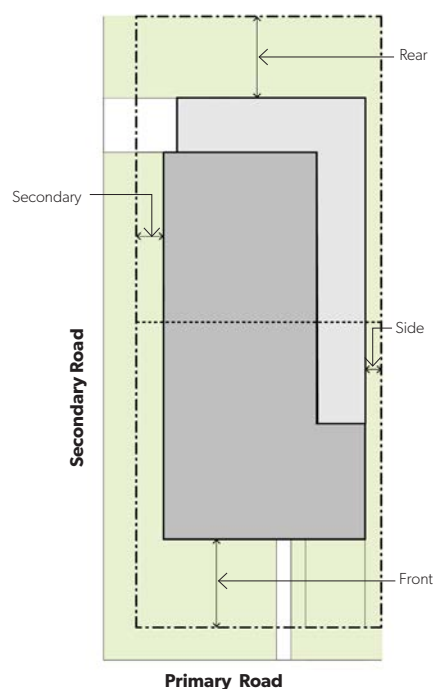
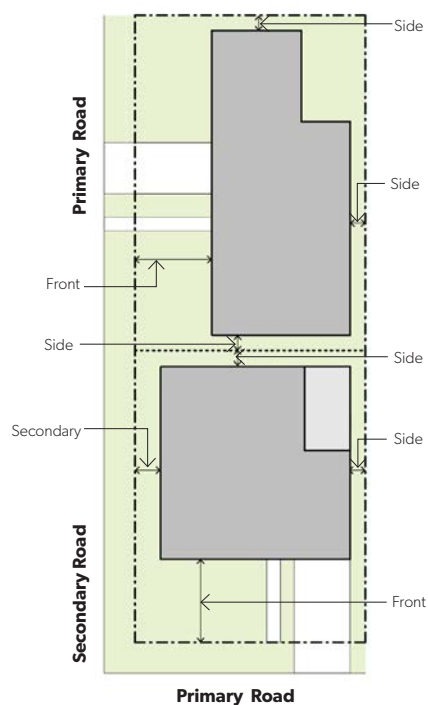


Figure 3-6 Nomination of setbacks for a corner dual occupancy

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 Figure 3-7 and 3-8.

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 certain building elements setout in Section 2 of this Design Guide and the Codes SEPP.

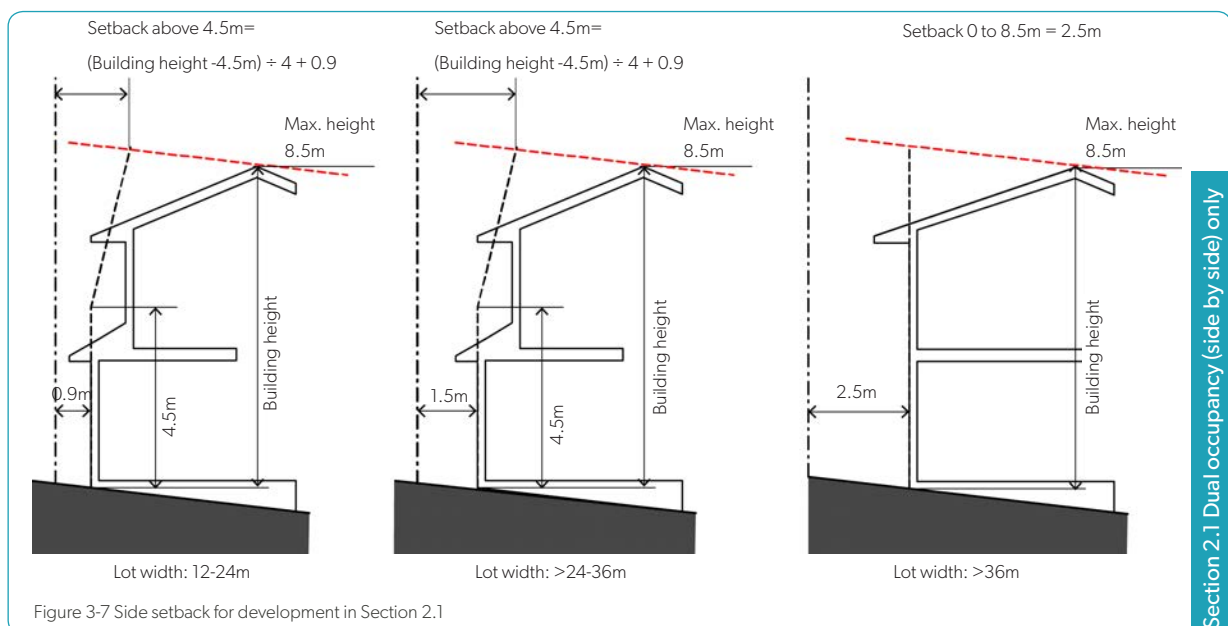


Figure 3-7 Side setback for development in Section 2.1

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.

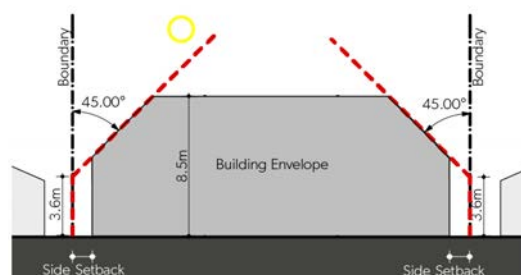
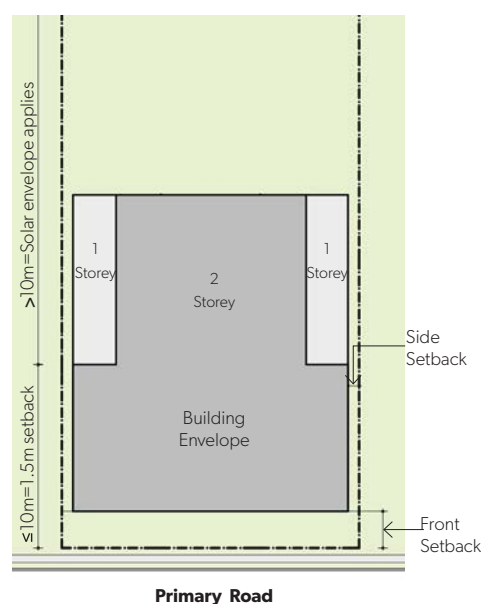


Figure 3-9 Side setback for development in Section 2.2



Section 2.2 Manor houses only

3B Gross Floor Area

Related Design Principles

Design Principle 3. Density

Gross floor area (GFA) 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*.

The Codes SEPP definition clarifies that only 1 car space can be excluded for each dwelling from the gross floor area.

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.

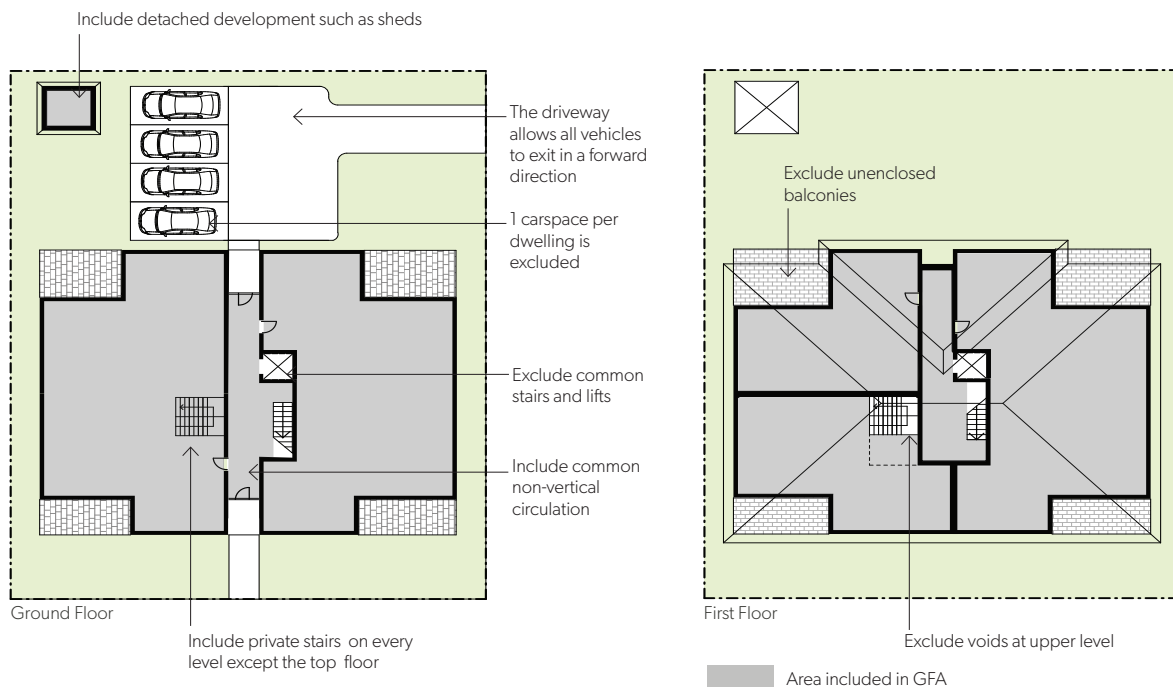


Figure 3-10 Calculating gross floor area.

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.

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 is defined in the *SI LEP* as deep soil planting area that does not have structures above or below.

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

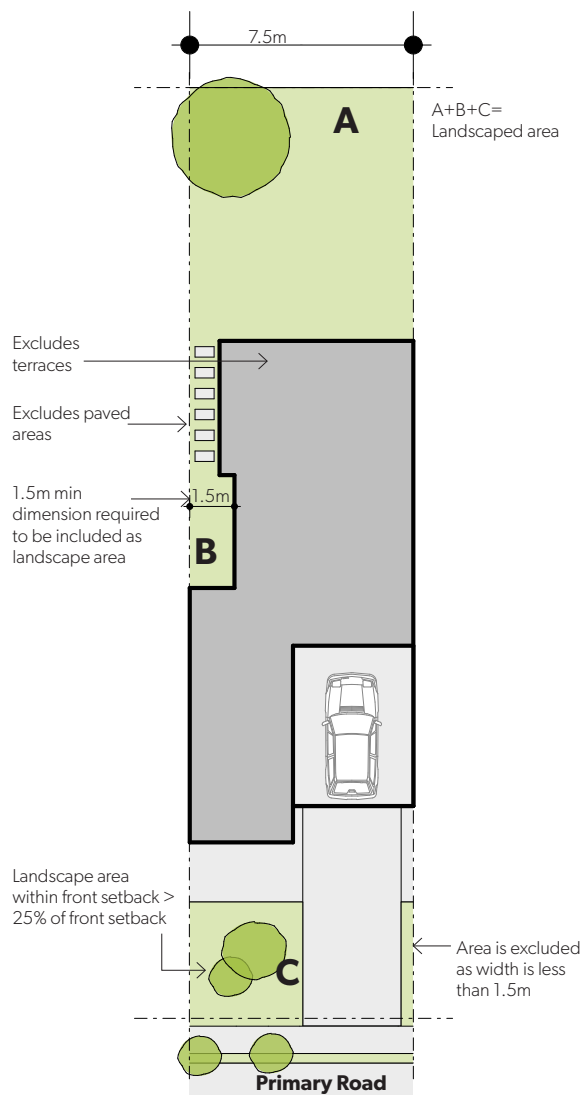


Figure 3-11 Landscaped areas distributed around the site. The minimum dimension ensures the space is sustainable for substantial planting (A+B+C = total landscape required).

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 | | | 500-600mm | |
| Ground cover | | | 300-450mm | |
| Turf | | | 200mm | |

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

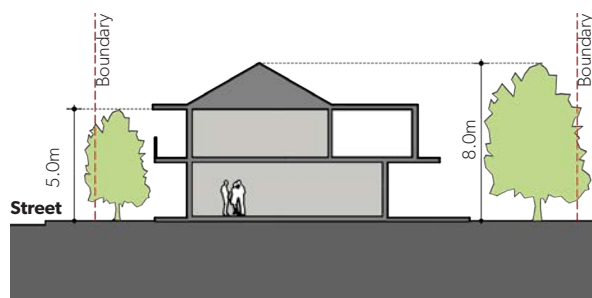


Figure 3-14 Front and rear setbacks provide opportunities for tree planting. Trees should be in scale with the development proposed

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-location 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 24 (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 area's 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 establish 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 (eg 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.

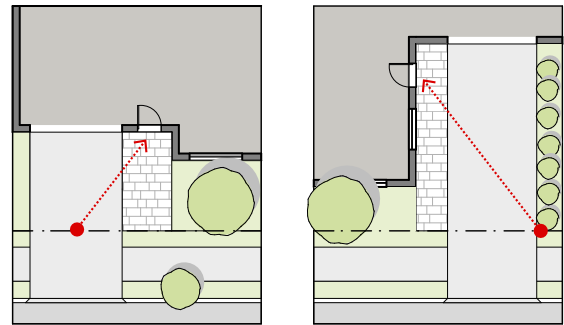


Figure 3-23 Examples of front doors that are visible from the street. A line can be drawn from the street boundary to front door unobstructed

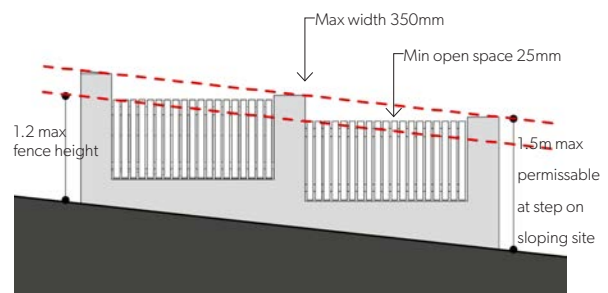


Figure 3-21 On sloping sites fences and walls should be stepped so that no part of the fence is higher than 1.5m above natural ground level

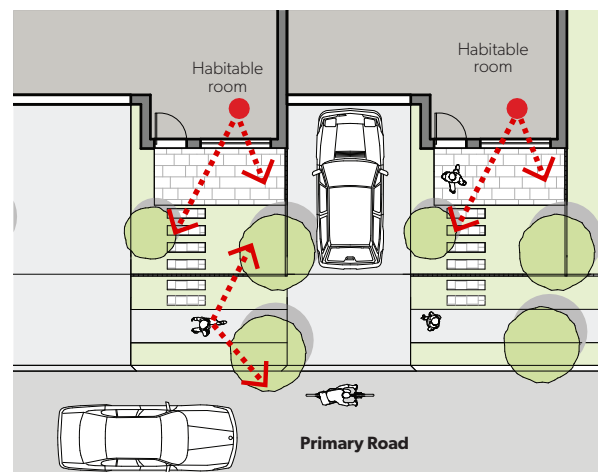


Figure 3-22 New buildings should contribute to and improve the existing streetscape. Windows and porches should be included in the street elevation to increase passive surveillance.

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

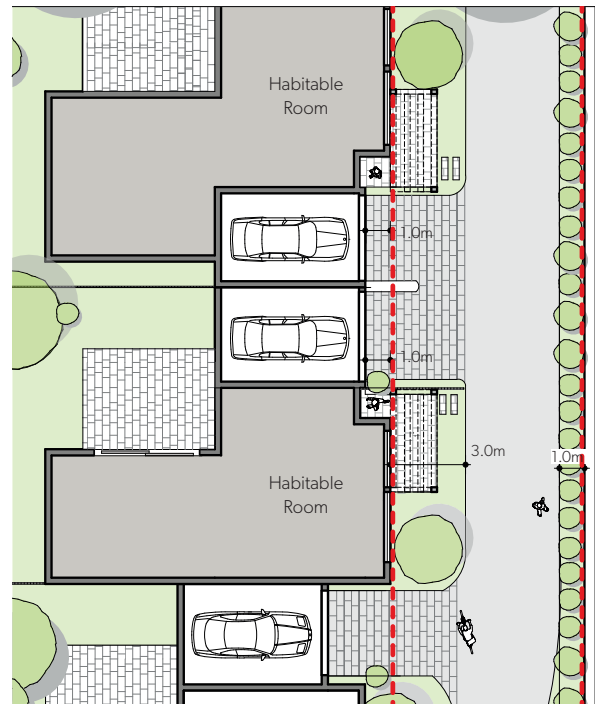
Design Principle 8. Housing Diversity and Social Interaction

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

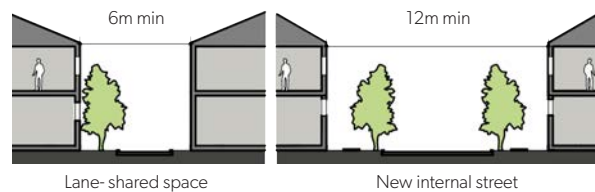


Figure 3-28 Minimum widths for shared lanes and internal streets



Figure 3-27 Internal pedestrian network

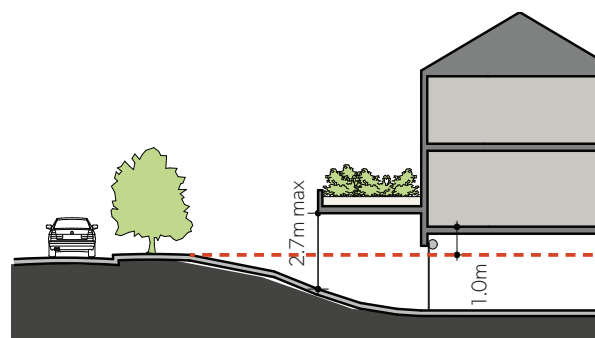


Figure 3-25 Reduce visual impact of basement entries by reducing the scale of the garage opening

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 3-29 The orientation and siting of the development should respond to the desired streetscape character and be consistent with surrounding streetscape setbacks

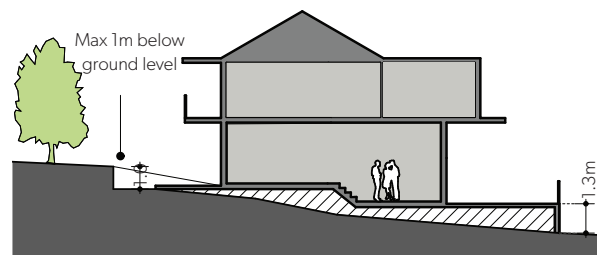


Figure 3-30 Reduce visual impact and site excavation by providing split levels which work with the fall of land

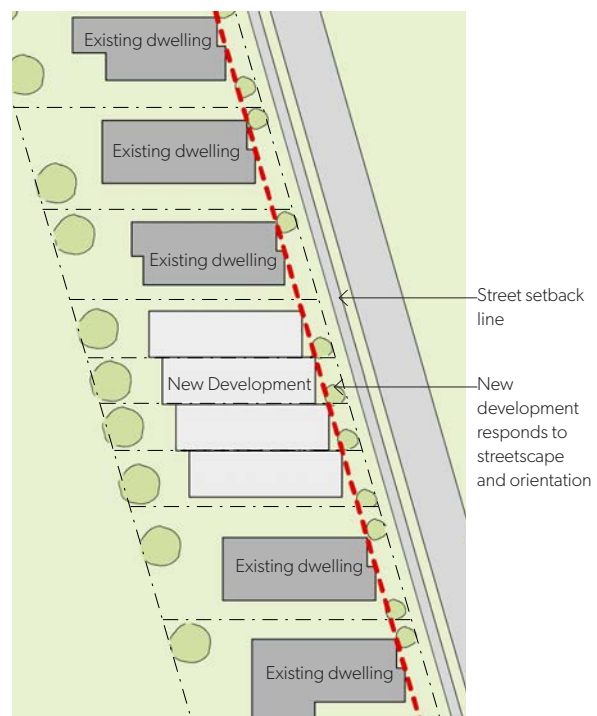


Figure 3-31 Built form responds to and complements surrounding streetscape and setbacks

Subdivision

In most instances, land can be subdivided with development consent. However, in certain instances, the Codes SEPP allows for concurrent strata or Torrens title subdivision.

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 gross floor area 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.

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.

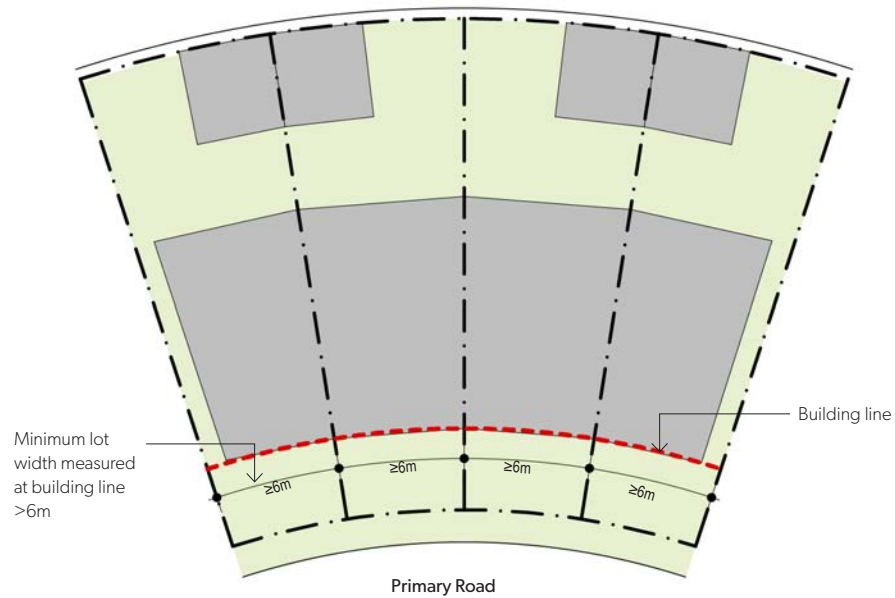


Figure 3-32 Street frontage width is measured at the building line for multi dwelling housing (terraces)

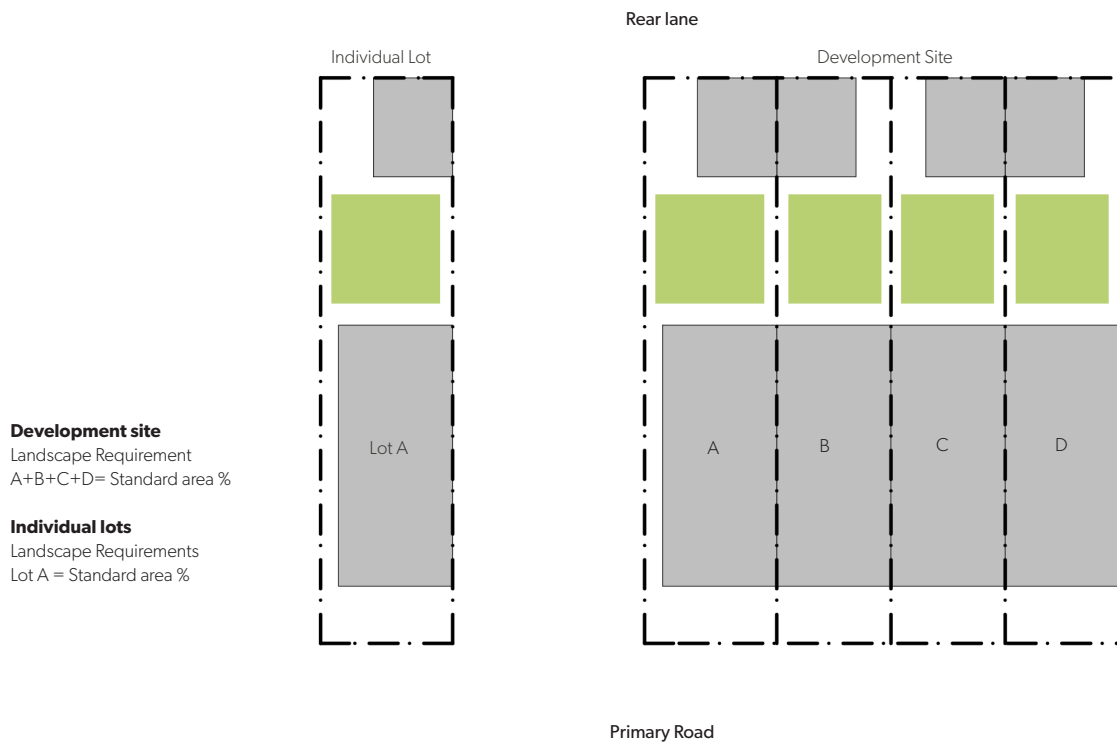


Figure 3-33 Subdivision of dual occupancy or terrace - each lot complies with minimum landscaped area and gross floor area

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.

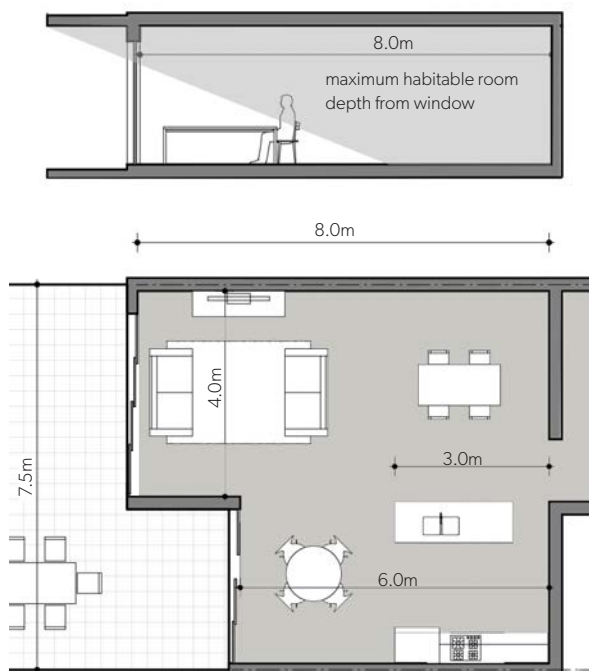


Figure 3-35 The depth of a single aspect dwelling relative to the ceiling height directly influences the quality of natural ventilation and daylight access. The maximum depth of open plan layouts combining living, dining and kitchen spaces is 8 metres.

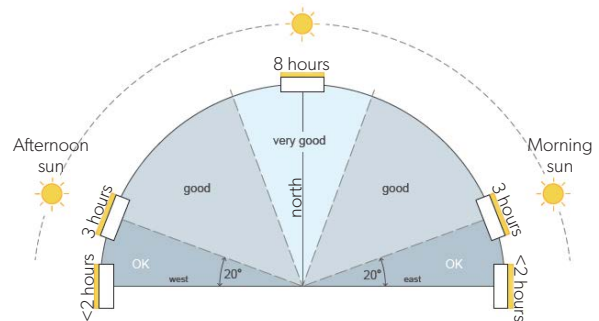


Figure 3-34 The hours of sunlight that can be expected in mid-winter are directly related to the orientation of the façade. This diagram shows the optimal orientation for habitable rooms and balconies
Note: An additional design and assessment tool is provided at Appendix 5 to ascertain the level of sunlight access to dwellings.



Figure 3-36 For solar access to be included, at least 1m² of sunlight must remain in a window for a 15 minute period

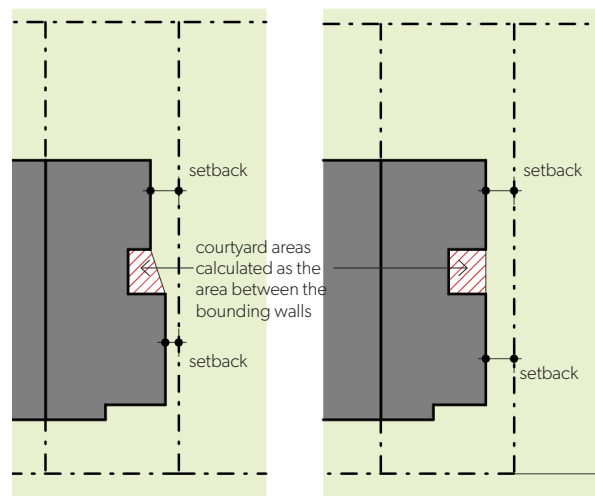


Figure 3-37 Courtyard used to increase daylight access are calculated by the areas between bounding walls

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).

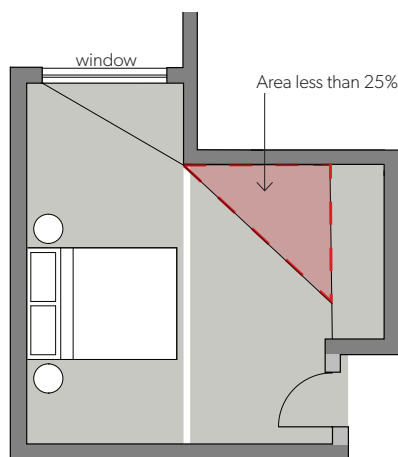


Figure 3-38 A window is visible from 75% of the floor area of a habitable room

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. In calculating solar access, it is best to use 3-dimensional views as these show the influence of vertical and horizontal shading elements.
10. The following design solutions can be used to achieve solar and daylight access for a courtyard in a dwelling.
 - Courtyards are fully open to the sky;
 - Building services are concealed with appropriate detailing and materials to visible walls;
 - Ensure a minimum dimension of one third of the perimeter wall heights, and an area of 3m²;
 - Ensure acoustic privacy, fire safety and minimum privacy separations are achieved (see 2P Visual Privacy).
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.

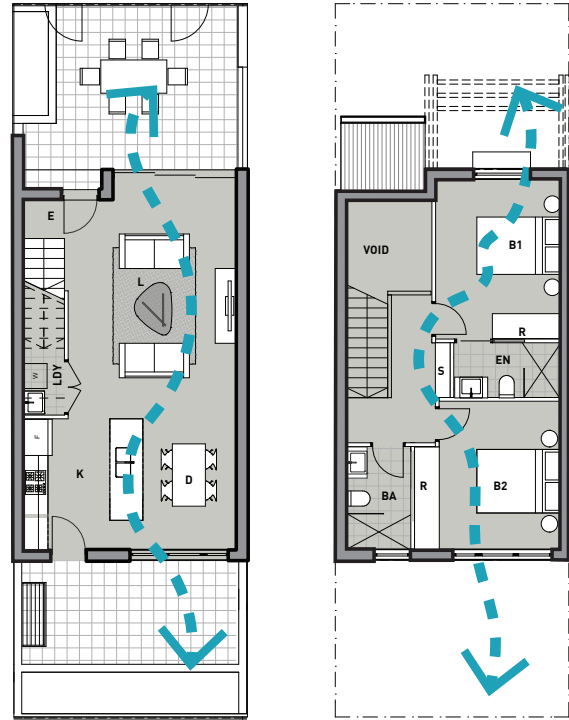


Figure 3-40 Cross ventilated dwelling

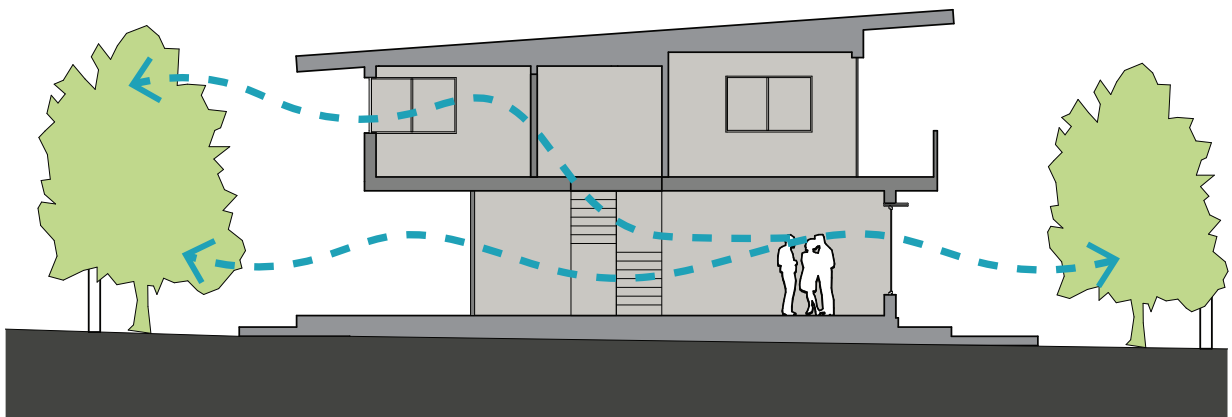


Figure 3-39 Effective cross ventilation is achieved when the inlet and outlet have approximately the same area, allowing air to be drawn through the dwelling using opposite air pressures on each side of the building

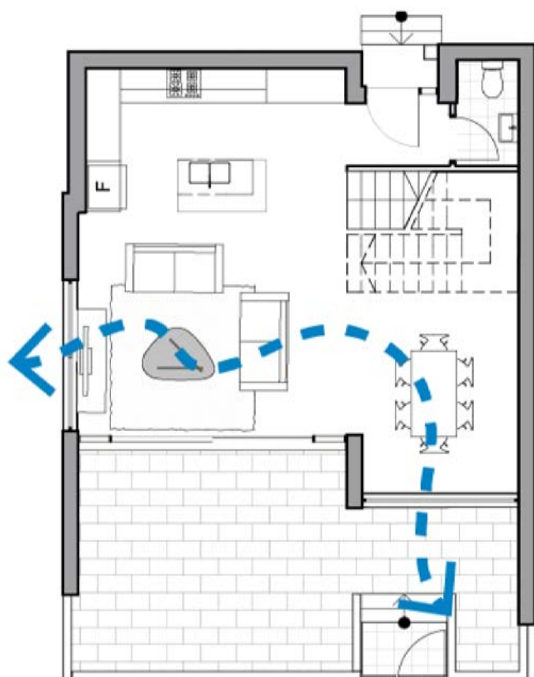


Figure 3-41 Corner cross ventilated dwelling



Figure 3-42 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 windows 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 Heights

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 3-44 Raked ceilings add visual and spatial interest and make a room feel larger

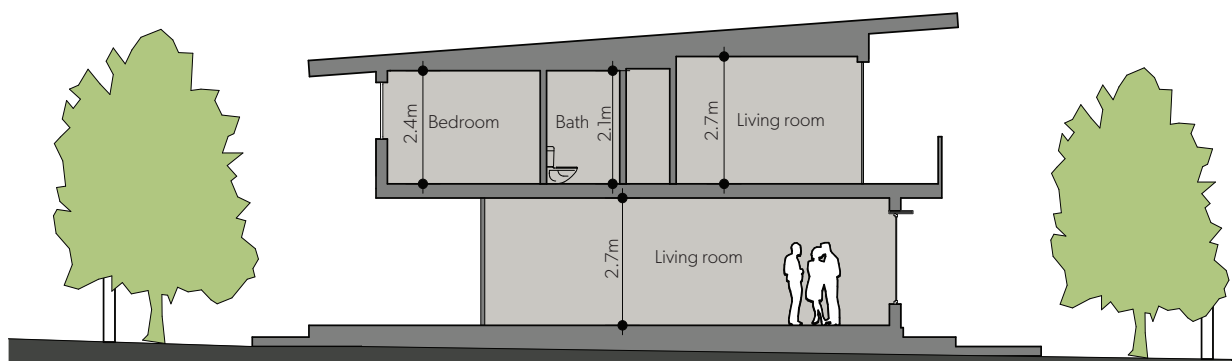


Figure 3-43 Different ceiling heights in different spaces



Figure 3-45 Mezzanine spaces can overlook double height spaces. The change in ceiling height and define different functions



Figure 3-46 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 3-47 This living area has a combined kitchen-dining area which opens directly on to the balcony

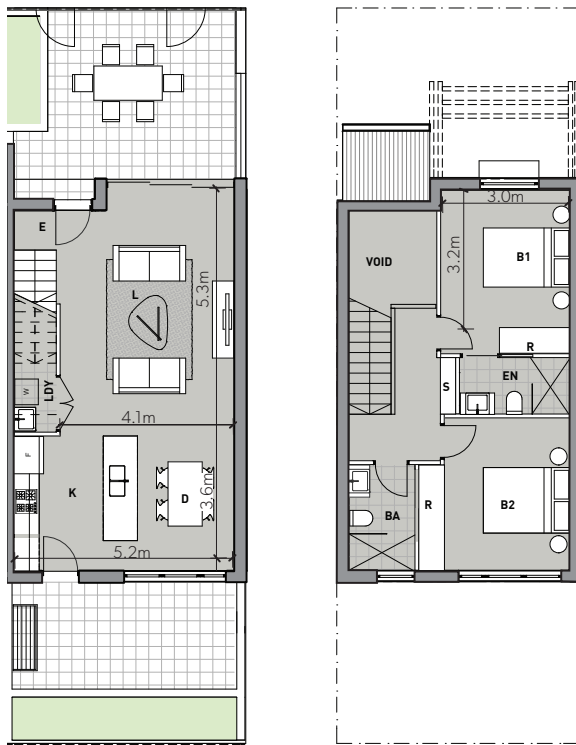


Figure 3-48 Calculation of minimum room areas and dimension

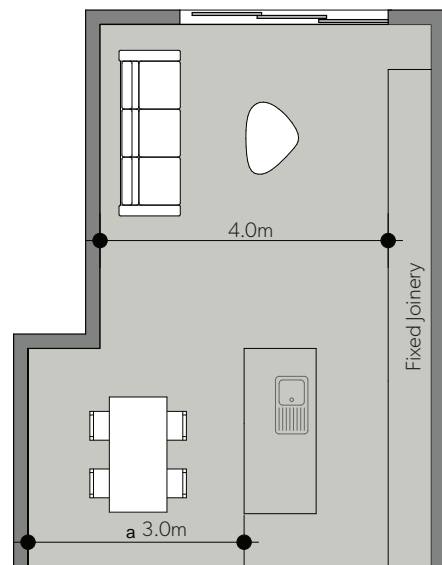
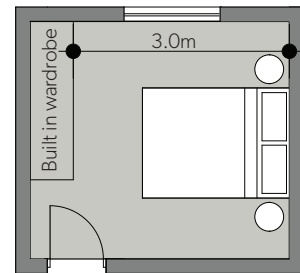


Figure 3-49 The minimum room dimension is the smallest dimension measured in any direction

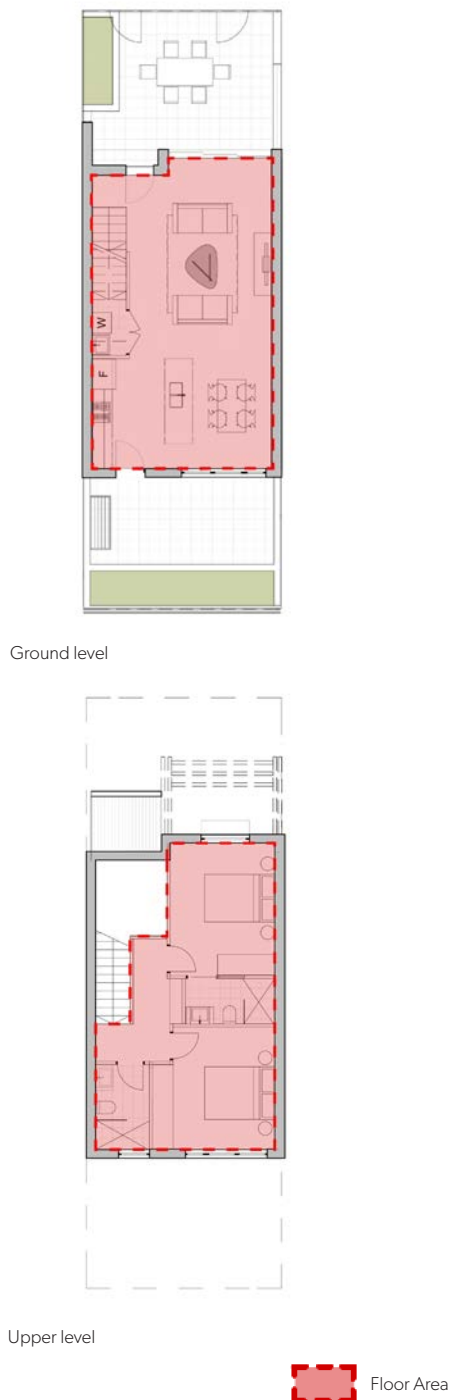


Figure 3-50 Area to include in floor area calculations

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 3I Solar and Daylight Access and 3S Universal Design for further guidance closely related to room configuration.

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 3-54 Space partially sheltered from weather and directly accessible from living rooms

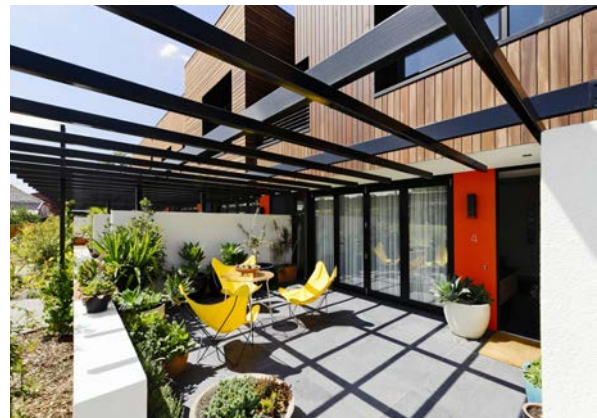


Figure 3-53 North facing space - room for plants and a sitting area

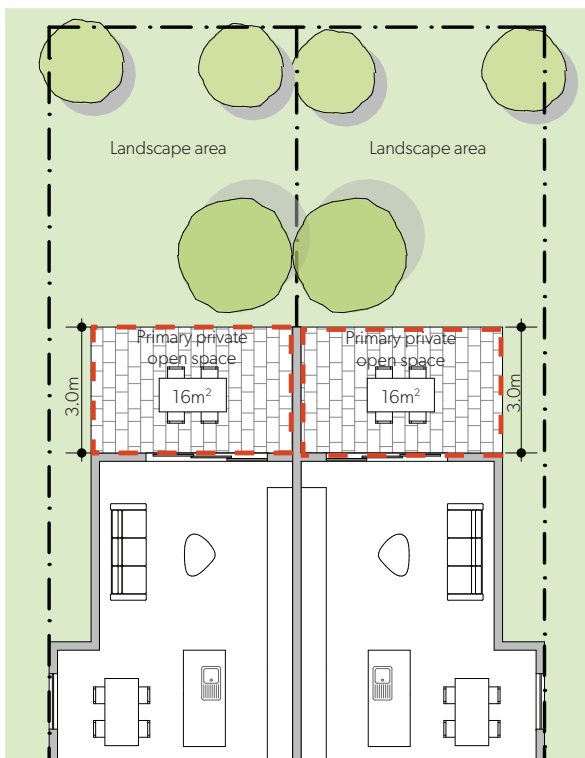


Figure 3-51 This combined kitchen-dining-living room opens directly on to the balcony. Private open space must meet the required minimum dimensions.

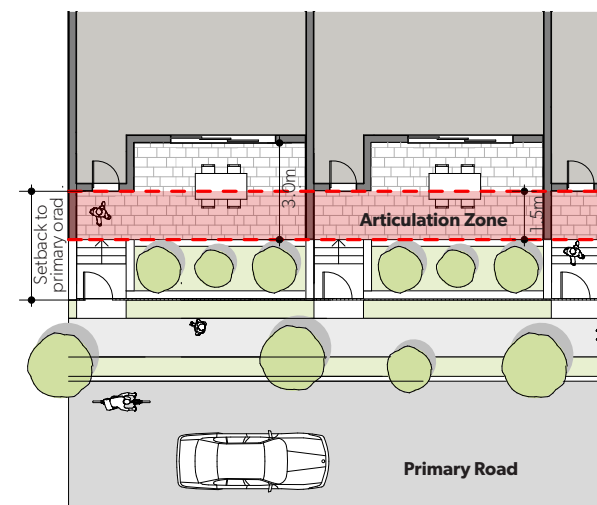


Figure 3-52 Private open space facing the street sits within the articulation zone or behind the front building line. It is separated from the street by landscaping and may include low fences.

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 primary 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 3-55 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 3-58 Storage space under stairs



Figure 3-56 Storage integrated into living room design



Figure 3-57 Wardrobe space in bedrooms



Figure 3-59 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.

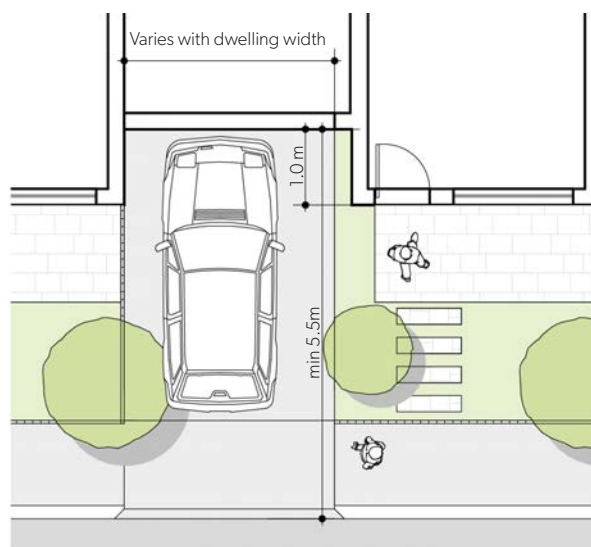


Figure 3-60 Bicycle parking for residents should be secure and easy to access from common areas

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 3-62 Bicycle parking for residents should be secure and easy to access from common areas



Figure 3-61 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.

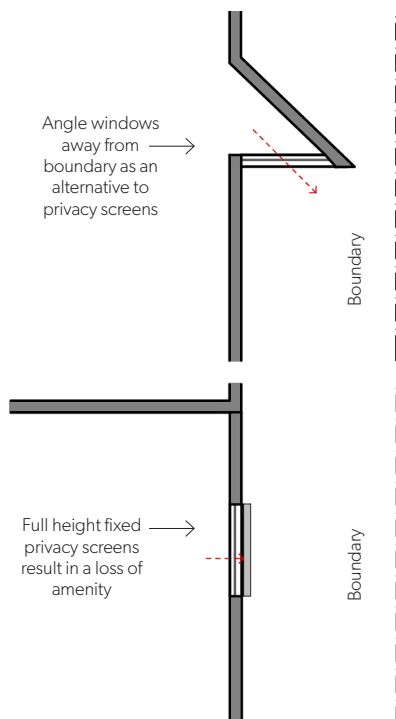


Figure 3-63 Privacy screens can be used to add visual interest to a development



Figure 3-66 Privacy screens are integrated into the facade and provide part of the architectural expression



Figure 3-65 Angled privacy screens direct views away from the side boundary. They could also include bay windows



Figure 3-64 Poorly executed privacy screens. These block outlook, sunlight and daylight to windows and reduce amenity of room.

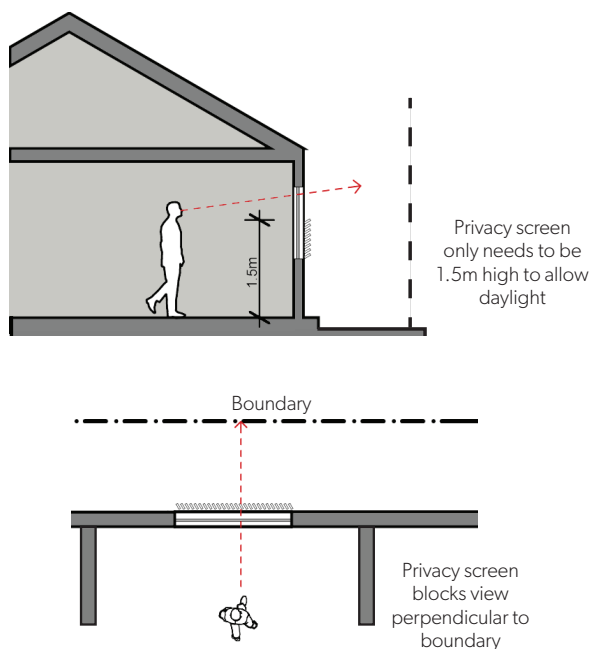


Figure 3-67 Privacy screens do not always need to cover the whole window



Figure 3-68 Pop out windows angled away from the boundary provides privacy

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 defined in the Codes SEPP as 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.

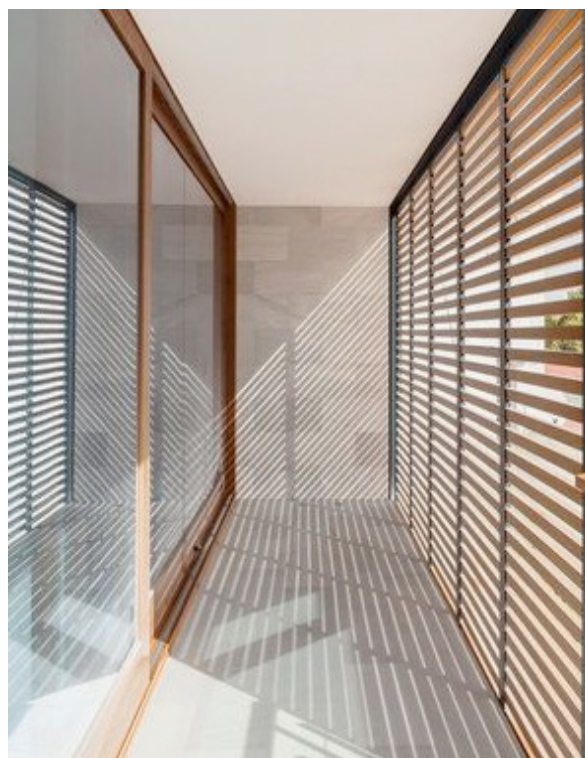
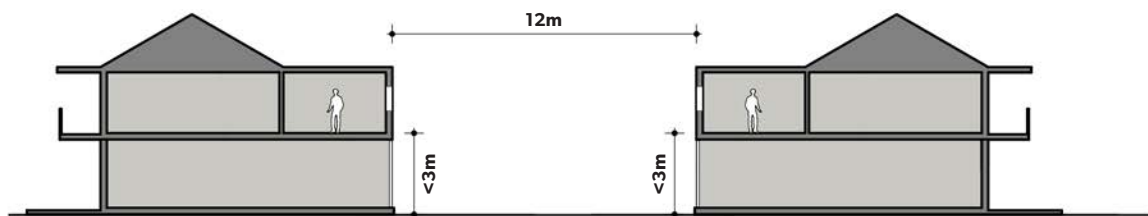
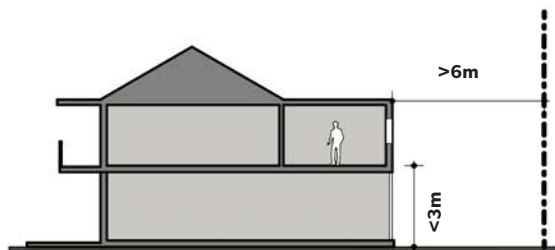


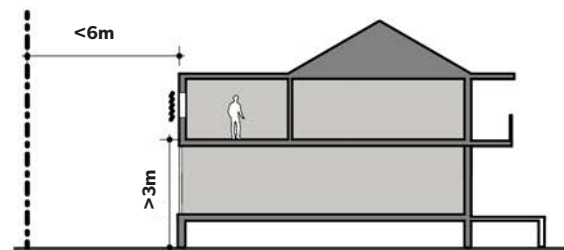
Figure 3-69 Fixed privacy screens can be used on balconies where there may be privacy concerns. Consideration should be given to how the screen is integrated into the facade



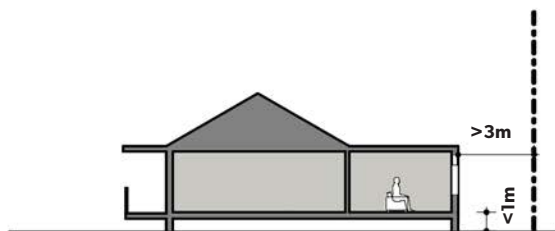
Dwelling to dwelling - separation distance is doubled



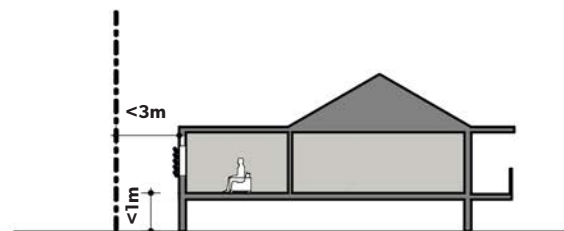
FFL above natural ground level $< 3\text{m}$ and distance to boundary is $> 6\text{m}$
No privacy screen required



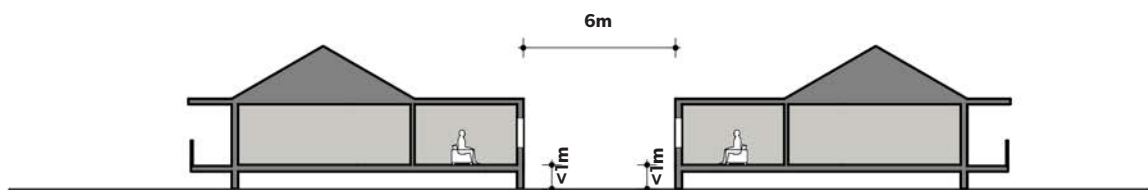
FFL above natural ground level $> 3\text{m}$ and distance to boundary is $< 6\text{m}$
Privacy screen required



FFL above natural ground level $< 1\text{m}$ and distance to boundary is $> 3\text{m}$
No privacy screen required



FFL above natural ground level $> 1\text{m}$ and distance to boundary is $< 3\text{m}$
Privacy screen required



Dwelling to dwelling - separation distance is doubled

Figure 3-70 Diagrams showing different privacy interface conditions



Figure 3-71 Privacy screens can be decorative



Figure 3-72 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 3R Noise and Pollution.



Figure 3-73 A poor acoustic outcome is achieved when driveways are in close proximity to bedrooms and living rooms, and driveways are hard paved reverberating sound.

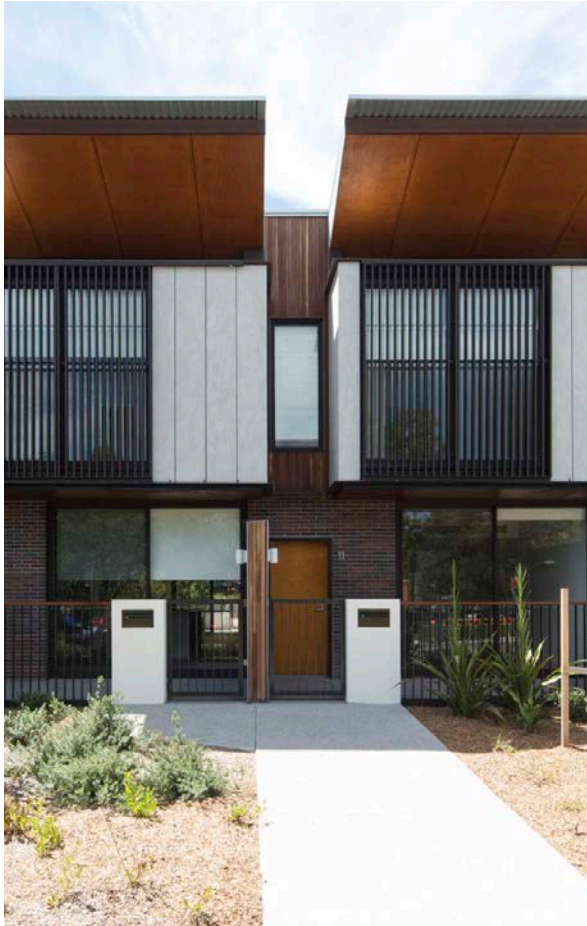


Figure 3-74 Living rooms setback from main circulation spaces by large landscape setback provides privacy

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 3Q 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.

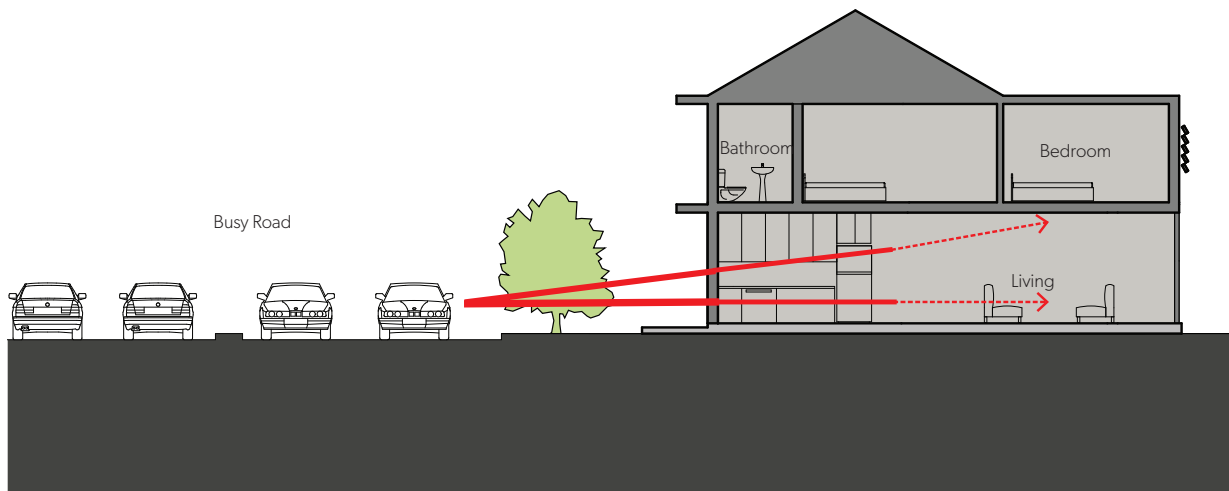


Figure 3-75 Locate noise sensitive rooms away from road noise



Figure 3-76 Landscaping in front of solid dark coloured fence reduces impact of sound walls

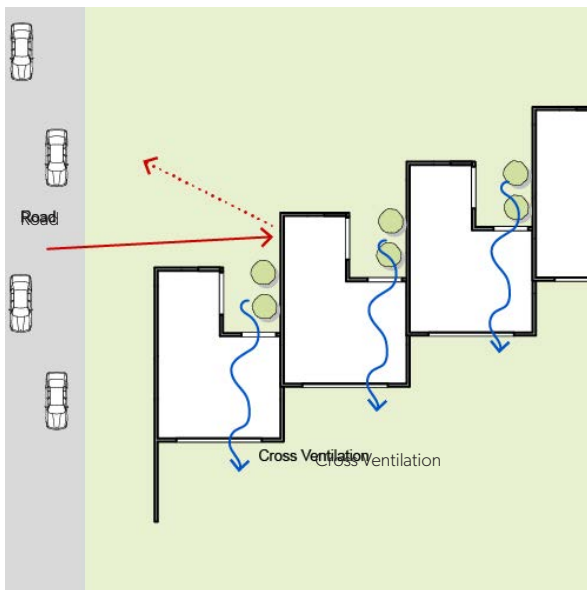


Figure 3-77 Staggered terrace houses can be arranged to shield windows from excessive traffic noise and still allow for cross ventilation

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 3-78 Dwellings address public space



Figure 3-79 Interesting roof forms and integration of privacy and sun control devices to overall building design

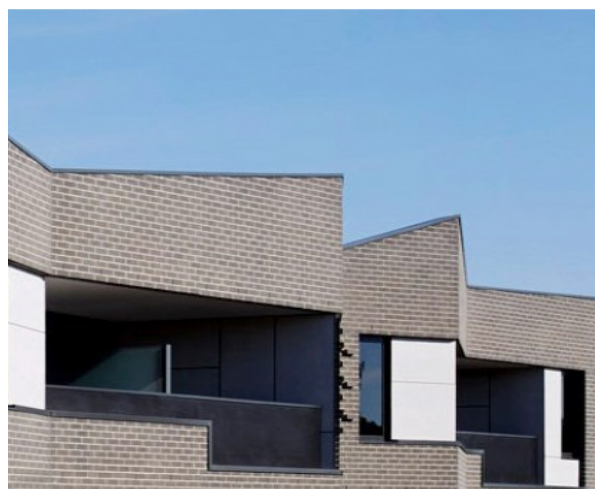


Figure 3-80 Silhouette created by parapet



Figure 3-81 Roof form expressed



Figure 3-82 Variety in design of streetscape with consistent palette - incorporates sun control devices



Figure 3-83 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. 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.
3. The bulk and visual impact of a building should be reduced by breaking down the roof into small roof elements.
4. 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.
5. 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.
6. Providing a built form which balances the composition of solid and void.
7. 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 3-85 Varied building forms and a mixed palette of materials adds interest to the streetscape



Figure 3-84 Asymmetrical design for dual occupancies adds interest to the streetscape



Figure 3-86 Example of transparent fencing landscaping in front setback and asymmetrical facade design



Figure 3-87 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 3-88 Awnings provide shelter and add articulation



Figure 3-89 Contrast texture with sharply defined openings and fine steel balustrades



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



Figure 3-92 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.

The Codes SEPP requires that to be detached development, it 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 3-93 Swimming pools and spas should be integrated with the landscape design



Figure 3-94 Swimming pools and spas can also be integrated to complement the architecture of the dwelling



Figure 3-95 Pool fencing should be integrated with the landscape design



Figure 3-96 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 3I Solar and Daylight Access, Section 3J Natural Ventilation and Section 3L Dwelling Size and Layout.



Figure 3-98 Light shelves can reflect sunlight deeper into rooms and provide shade from summer sun



Figure 3-97 Roof mounted photovoltaics should be integrated into the design of the dwelling



Figure 3-100 Adjustable screens allow control of sunlight



Figure 3-99 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 3-101 Rain gardens integrated into the landscape can filter stormwater

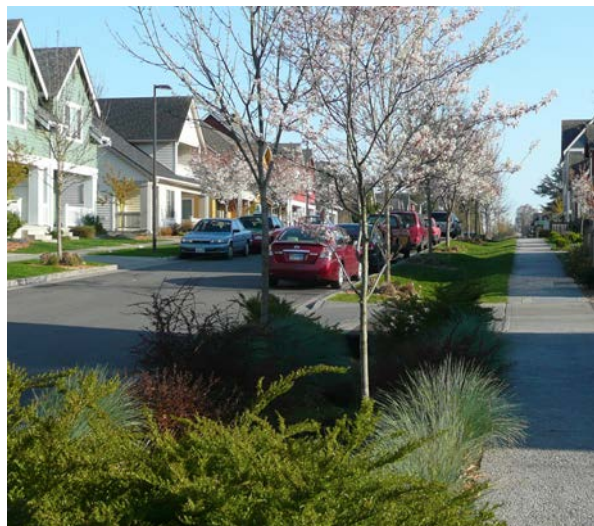


Figure 3-102 Swales can be attractive, and are able to filter and collect the stormwater

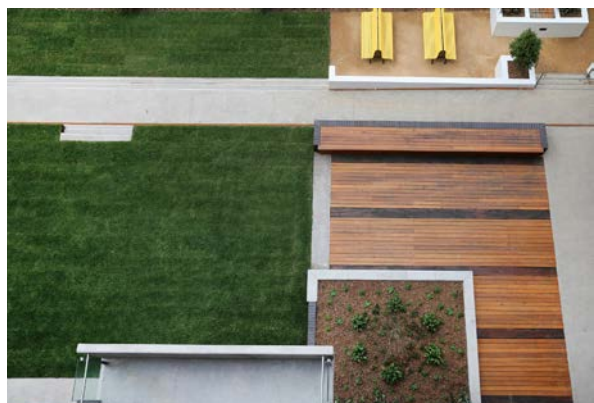


Figure 3-103 Tanks can be hidden under decks in private and communal open spaces



Figure 3-105 Integrate rainwater tanks into the landscape

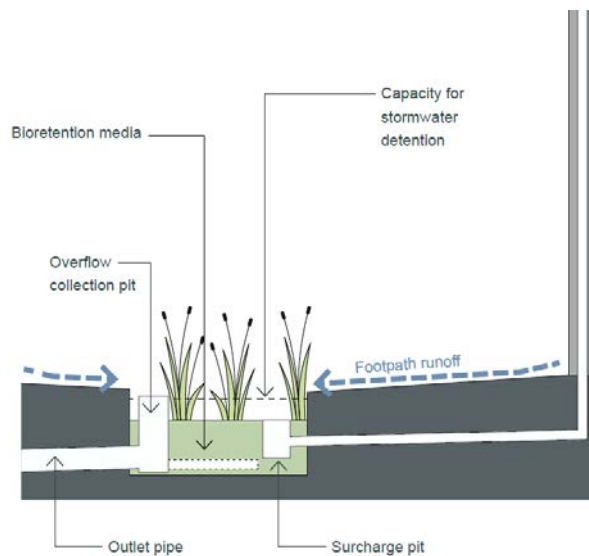


Figure 3-104 A bioretention garden improves water quality by using plants to treat roof and surface water runoff

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.

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 3-106 Alternative waste disposal, such as composting, can be incorporated into the design of communal open space areas



Figure 3-108 Bin areas fronting the street can be designed and incorporated into the building or landscape elements



Figure 3-107 Provide bin areas that are screened and incorporated into the landscape or building design



Figure 3-110 Well designed, easily accessible and clean waste and recycling rooms improve the collection and management of household waste



Figure 3-111 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 3-112 Additional floor space is required to ensure circulation can be achieved once the dwelling is furnished



Figure 3-113 Clear space between bench tops makes it easier to use the kitchen



Figure 3-114 A universally designed dwelling provides step free door transitions and level flooring to reduce trip hazards

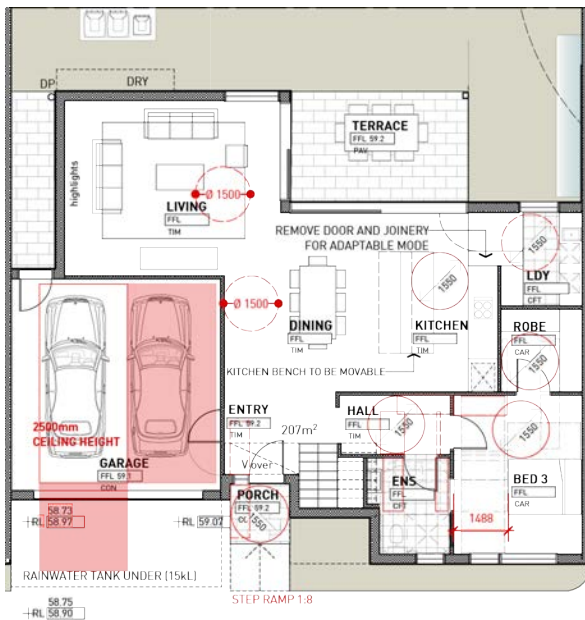


Figure 3-115 Accessible dwellings and universal designed dwellings require additional space for circulation. Locating a bedroom on the ground floor of a two storey dwelling allows flexibility in accommodating a diverse range of needs.

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 Spaces

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 3-116 Low walls in landscaped areas can be used for sitting



Figure 3-117 Usable grassed area for active play separated from dwellings by paths and planting

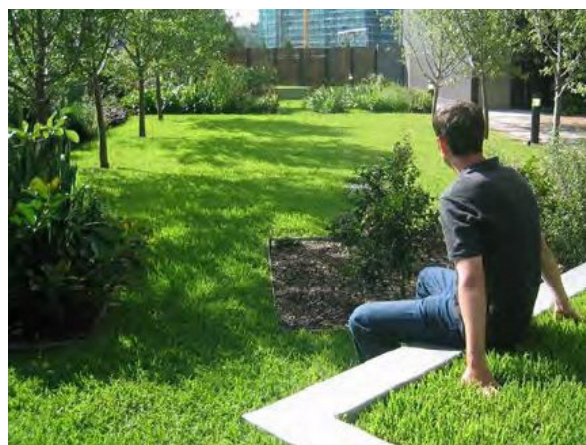


Figure 3-118 Communal areas provide a space for residents to sit and relax and socialise

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*.

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 complying development applications.

4.1 Site Considerations

The Design Guide is intended to:

- Provide guidance for site consideration for different development types; and
- Assist in the preparation and assessment of complying development applications.

Site Considerations For Different Development Types

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 Codes SEPP 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 consideration:

- 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 the primary road;
- Manor houses on corner lots may have parking from both frontages;
- Sites that have a north facing frontage will suit narrow deep lots so a square pavilion like design can provide sunlight into the rear of the site; and
- 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 greenfield areas, 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.

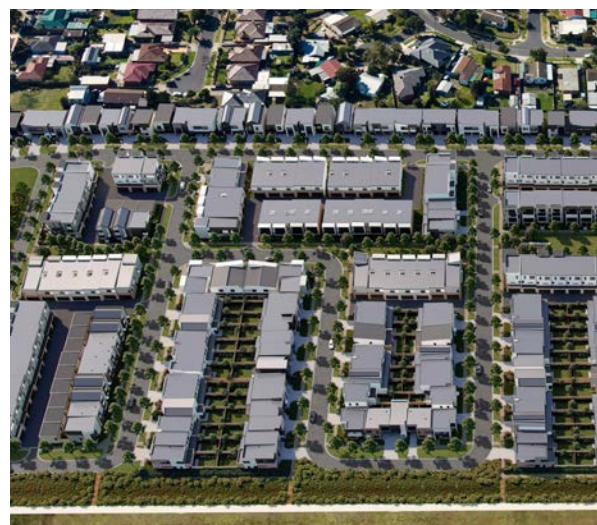
A variety of tenure options will help meet people's changing needs at different stages of their lives. Housing diversity will help provide for renters, homeowners, investors and social housing tenants. It will also provide choice at different life stages.

Identify the Context

An appreciation of the existing constraints and opportunities of the site and surrounding area will help with the cohesive design of a site masterplan which will respect and respond to it's surroundings.

Place

Understanding the existing qualities of 'place' are important, including the regional identity and heritage, 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.

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.

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, and shape should allow for functionality, access and facilitate sunlight and daylight into rear gardens and habitable rooms.

A solar-efficient lot design 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 dwelling 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.

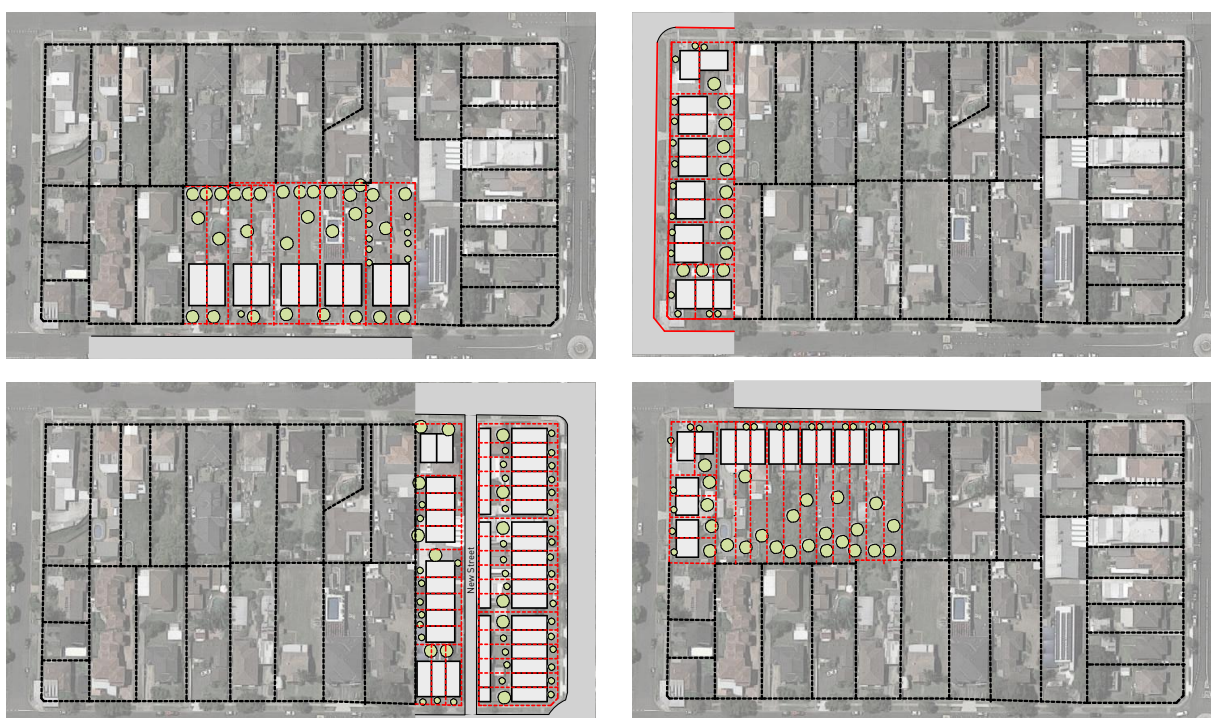


Figure 4-2 Different solutions are needed for lots of different sizes and orientation, rather than encouraging one form of housing

Public Domain

With increased density, the demand on the public domain for the amenity of 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.

Matters of consideration when designing the public domain include:

- 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 require 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 creates opportunities for additional car parking

4.2 Pre-Application Meetings

It is important to receive good advice when preparing an application. 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.

For complying development, this meeting should be with your accredited certifier and building designer.

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 be documented and written advice be provided to the applicant and designer.

Working closely with a council or the accredited certifier may help avoid unnecessary delays with the application.

The accredited certifier cannot direct the design, give design advice or recommend solutions. Their role is to advise what is required and whether or not the proposed development complies with the development standards in the Codes SEPP.

Often other specialised consultants will also need to provide information for the Pre-DA such as engineers, arborists or landscape architects.

For complying development, the accredited certifier can obtain the necessary pre-information to ensure that complying development can be carried out on the site. The applicant should be aware of any other required approvals that must be met and information needed to accompany the application.

As every complying development proposal must meet the predetermined development standards in the Codes SEPP, it is important that the accredited certifier understands the proposed design and that the architect or building designer understands the development standards that need to be met.

Often medium density development 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. The location of existing services, such as underground cables and pipes, should also be assessed to determine any potential impact on the design.



Figure 4-6 Pre-application meeting

4.3 Complying Development

Complying development is a combined planning and construction approval for straight forward development that can be determined through fast-track assessment by a Council or accredited certifier. This includes certain development covered by this guide including:

- Dual occupancies as described in Section 2.1.
- Manor houses and certain dual occupancies as described in Section 2.2.
- Terraces houses in Section 2.3.

A complying development certificate (CDC) must be obtained from an accredited certifier or Council before any work starts. The certificate is a combined planning and building approval. Before starting complying development, applicants must find out what planning controls apply to the land. A section 149 planning certificate from council will outline the planning controls that apply to the land.

This will assist the accredited certifier in identifying any restrictions that may prevent complying development from being carried out on the land.

Requirements of Complying Development

For a development to be complying development it must be permissible with consent in the land use zone under the relevant council's Local Environmental Plan (or other environmental planning instrument).

You can find out the zone of your land at the Planning Viewer website (www.planningportal.nsw.gov.au).

Complying development under the Low Rise Medium Density Housing Code is not permitted on certain land listed in Part 1 of the Codes SEPP. These include:

- Land affected by coastal hazards or coastal erosion,
- Environmentally sensitive land;
- Heritage conservation areas (swimming pools and detached outbuildings are allowed);
- Foreshore areas;
- Land that is affected by aircraft noise at 25 ANEF contours or above; and
- Land identified as having an Acid Sulfate level of class 1 or class 2.

Where a lot is only partly affected by a land-based exclusion, complying development is allowed on the parts of the lot which are not affected.

All works must comply with the requirements of the Building Code of Australia.

Complying development does not override private covenants or similar legal instruments. For example, if a covenant limits building heights this will continue to apply to the land.

If your development does not satisfy all the development standards or is proposed on land which is excluded under the Codes SEPP, a complying development certificate cannot be approved. A development application must be lodged for this development.

Bushfire Prone Land

Complying development that results in Torrens title subdivision is not permitted on Bushfire Prone land. Subdivision on bushfire prone land would be an integrated development and require a Bushfire Safety Authority under the Rural Fires Act 1997. Torrens title subdivision on Bush Fire Prone land can only be carried by submitting a development application to the Council.

Other development on bushfire prone land will need a Bushfire Attack Level (BAL) Certificate. This can be obtained from Council or a suitably qualified consultant in bush fire risk assessment. Complying development is not permitted on part of the land that is identified as BAL 40 or Flame Zone.

Flood Prone Land

If the land is flood prone, you will need to consider how your development can be designed to manage and reduce flood risk.

Complying development cannot be carried out on lots that have been certified as the following:

- A flood storage area;
- A floodway area;
- A flow path;
- A high hazard area; or
- A high risk area.

The driveway crossing and any works in the road reserve will need to be approved by Council prior to the approval of the CDC. It is advisable to seek advice at the early stage of the design to ensure correct levels have been set and the crossings can be approved.

Stormwater, water supply or sewerage connections may require approval from Council or the local water authority. The design of these connections may affect the overall building design and advice from the authorities should be sought early in the design process.



Figure 4-7 Example of low rise medium density terraces

Steps for Preparing a Complying Development Certificate

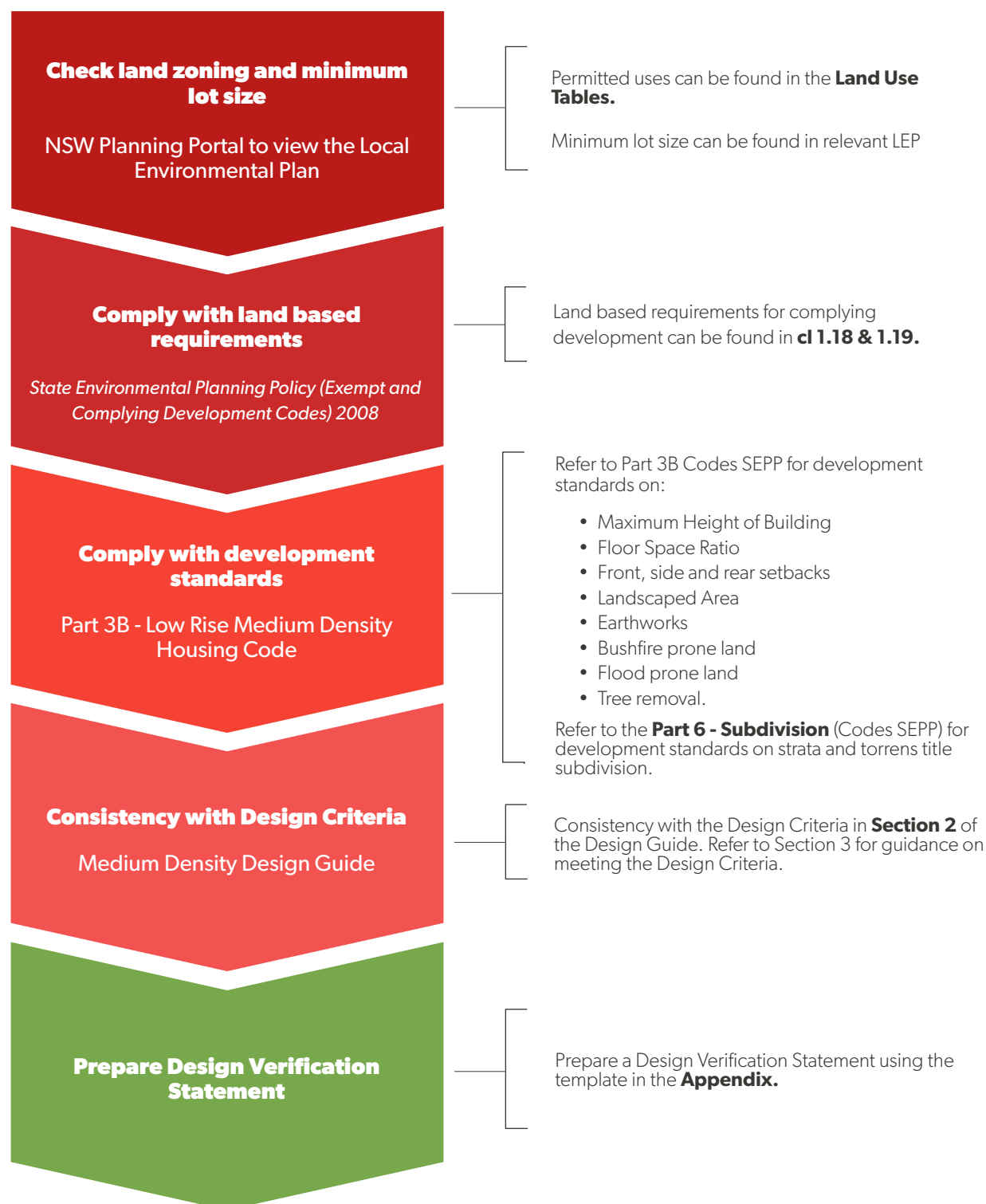


Figure 4-8 Workflows: Preparing a CDC

Development Standards in the Low Rise Medium Density Housing Code

The Low Rise Medium Density Housing Code is in Part 3B of the Codes SEPP. This Section is divided into 7 divisions:

- Division 1 – Requirements for complying development under this code
- Division 2 – Development standards for certain dual occupancies and attached development
- Division 3 – Development standards for manor houses, certain dual occupancies and attached development
- Division 4 – Development standards for multi dwelling housing (terraces) and attached development
- Division 5 – Development standards for detached development
- Division 6 – Development standards for associated works including earthworks, retaining walls, drainage, protection of walls, protection of trees and conditions under complying development certificates.
- Division 7 – Conditions applying to complying development certificates under this code

Complying development must satisfy all relevant development standards. Part 6 of the Codes SEPP includes development standards for subdivision.

Design Criteria in the Medium Density Design Guide

The Codes SEPP requires all complying development proposals to comply with the Design Criteria contained in Section 2 of this guide.

A Design Verification Statement is required to be prepared by a qualified designer or building designer accredited by the Building Designers Association of Australia that will certify that the design of the development complies with the Design Criteria and explains how the proposed development relates to the context of the local area.

How do I apply for a Complying Development Certificate?

Complying development certificates can be issued by your local council or an accredited certifier. Accredited certifiers can be found online via the register of accredited certifiers (<http://bpb.nsw.gov.au/engage-certifier/find-certifier>).

Fees for complying development certificates vary as certifiers are able to set their own rates.

Complying development applications can be made electronically via the NSW Planning Portal or by submitting in paper form to the certifier.

What information do I need for my Complying Development Application?

Complying development applications must include sufficient information to allow the accredited certifier to assess whether the proposal complies with the development standards of the policy.

Where necessary, consider providing supporting drawings or diagrams that assist in demonstrating compliance such as:

- Gross floor area - included a coloured area;
- Landscaped area - included a coloured area; and
- Solar access - 3D axonometric views

Other Approvals

Prior to receiving your complying development certificate you may require other approvals. These may include:

- Approvals under the Roads Act 1993 from Council for driveway crossings and any works in the road way;
- Permit for tree removal; and/or
- Approval for connection to water supply.

Design Verification Statement

The statement is to be prepared by the building designer or architect who designed the development.

The statement must:

- Explain how the Design Principles are achieved;
- Illustrate how the development is suited to the context; and
- Provide evidence as to where and how the Design Criteria have been achieved.

A template for the statement is provided in the Appendix. The statement is required to list and describe how the design of the development is consistent with the Design Criteria.

Assessment and Notification

The assessment can be carried out by council or a accredited certifier. The development must comply with the relevant development standards, Design Criteria and the land based requirements.

The accredited certifier should ensure that they have all the required information with respect to land based exclusions. The accredited certifier must check the Design Verification Statement against the plans to ensure the designer has referenced all relevant Design Criteria and provided evidence for compliance visible on the plans.

The accredited certifier must visit the site to inspect the existing features and ensure that any pre-approvals, such as tree removal and driveway crossings, have been obtained.

After the Complying Development Certificate is issued, there will be a further 7 day notice period prior to work commencing on site.

Conditions of Approval

Complying development is approved subject to conditions that must be complied with. The conditions protect against negative impacts before, during and after the construction of the development. The mandated conditions that apply to medium density development carried out as complying development are contained in Schedule 6A of the Codes SEPP.

In some circumstances, medium density development can be undertaken through:

- Torrens title subdivision of the land; or
- strata subdivision of a building.

Subdivision

Development under this guide can include subdivision or strata subdivision. This may be carried out as complying development concurrently with the complying development certificate for the development itself or after as a separate complying development certificate as long as the development was approved under the Medium Density Housing Code.

A draft plan of subdivision will need to be provided to council or the accredited certifier as part of the application and include any existing, amended or proposed easements or restrictions on the land.

Land cannot be subdivided until construction of the development has been completed in its entirety and an occupation certificate issued.

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 s.109c 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.

A subdivision certificate may be issued by an accredited certifier (who has the appropriate accreditation for subdivision) or council.

The application for a subdivision certificate needs to be accompanied by the following documents:

- Plan of subdivision;
- Relevant development consent or complying development certificate;
- Final occupation certificate;
- 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.

Strata subdivision certificates may be issued by Council or an accredited certifier.

A strata 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.



Figure 4-9 Example of low rise medium density terraces



Appendices

Project Overview Template

Development Standards Checklist

The following is a summary of the key development standards that apply to the development. If not applicable place N/A in complies column.

Principal Standards

| Standard | Proposed | Standard | Complies |
|---|----------|----------|----------|
| Minimum lot area for development | | | |
| Minimum lot width for development | | | |
| Height of Building/s | | | |
| Number of storeys | | | |
| Maximum gross floor area | | | |
| Minimum landscaped area | | | |
| Proportion of area forward of building line that contains landscaped area | | | |
| Primary road setback | | | |
| Secondary road setback | | | |
| Rear lane setback | | | |
| Side setbacks | | | |
| Rear setback | | | |
| Principal private open space | | | |
| Car parking spaces | | | |

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 complying 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

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
-

Design Criteria Consistency Template

In the table below describe how the proposed development satisfies the Design Criteria. It also needs to direct the certifier or assessing planner to where they can find the evidence.

This could be a reference to a drawing, a table or some other report. Evidence can also be provided in this table.

2.1 Dual occupancy (side by side)

2.1C Landscaped Area

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. | |
| | 2. | |
| | 3. | |
| Objective 2.1C-2 Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced. | 4. | |
| | 5. | |
| Objective 2.1C-3 Landscape design contributes to a local sense of place and creates a micro climate. | 6. | |
| | 7. | |

2.1D Local Character and Context

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1D-1 The built form, articulation and scale relates to the local character of the area and the context | 8. | |

2.1E Public Domain Interface

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1E-1 Provide activation and passive surveillance to the public streets. | 9. | |
| | 10. | |
| Objective 2.1E-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). | 11. | |
| | 12. | |
| | 13. | |
| | 14. | |
| Objective 2.1E-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. | 15. | |

2.1F Pedestrian and Vehicle Access

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.1F-1 Car park design and access is safe and minimises impact on habitable spaces. | 16. | |
| | 17. | |
| | 18. | |

2.1G Orientation, Siting and Subdivision

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1G-1 The built form, articulation and scale relates to the local character of the area and the context. | 19. | |
| | 20. | |
| | 21. | |
| | 22. | |
| Objective 2.1G-2 Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings. | 23. | |
| | 24. | |
| Objective 2.1G-3 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. | 25. | |
| Objective 2.1G-4 The development minimises impacts to vegetation on adjoining properties and allow for vegetation within the setbacks. | 26. | |
| Objective 2.1G-5 Independent services and utilities are available to service each lot. | 27. | |

2.1H Solar and Daylight Access

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1H-1 The development optimises sunlight received to habitable rooms and private open spaces. Solar access enables passive solar heating in winter and provides a healthy indoor environment. | 28. | |
| | 29. | |

Objective 2.1H-2

The development provides good access to daylight suited to the function of the room, minimises reliance on artificial lighting, and improves amenity.

30.

31.

32.

33.

34.

2.1I Natural Ventilation

Objectives
Design Criteria
Consistent
Objective 2.1I-1

All habitable rooms are naturally ventilated.

35.

36.

2.1J Ceiling Height

Objectives
Design Criteria
Consistent
Objective 2.1J-1

Ceiling height achieves sufficient natural ventilation and daylight access, and provides spatial quality.

37.

2.1K Dwelling Size and Layout

Objectives
Design Criteria
Consistent
Objective 2.1K-1

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

38.

39.

40.

41.

Objective 2.1K-2

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

42.

43.

44.

45.

2.1L Principal Private Open Spaces

Objectives
Design Criteria
Consistent
Objective 2.1L-1

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

46.

47.

48.

Objective 2.1L-2

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

49.

2.1M Storage

Objectives
Design Criteria
Consistent
Objective 2.1M-1

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

50.

51.

52.

2.1N Car and Bicycle Parking

Objectives
Design Criteria
Consistent
Objective 2.1N-1

Car parking is provided appropriate for the scale of the development.

53.

Objective 2.1N-2

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

54.

2.1O Visual Privacy

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1O-1 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. | 55. | |

2.1P Acoustic Privacy

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.1P-1 Noise transfer is minimised through the siting of buildings and building layout. | 56. | |

2.1Q Noise and Pollution

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.1Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 57. | |
| | 58. | |

2.1R Architectural Form and Roof Design

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 59. | |
| Objective 2.1R-2 The roof treatments are integrated into the building design and positively respond to the street. | 60. | |
| | 61. | |

2.1S Visual Appearance and Articulation

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.1S-1 To promote well-designed buildings of high architectural quality that contribute to the local character. | 62. | |

2.1U Energy Efficiency

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.1U-1 The development incorporates passive environmental design. | 63. | |
| | 64. | |

2.1V Water Management and Conservation

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1V-1 Flood management systems are integrated into site design. | 65. | |

2.1W Waste Management

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.1W-1 Waste storage facilities meet the needs of the residents, are easy to use and access, and enable efficient collection of waste. | 66. | |
| | 67. | |
| | 68. | |
| | 69. | |
| | 70. | |
| Objective 2.1W-2 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents. | 71. | |
| | 72. | |

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

2.2C Landscaped Area

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. | |
| | 2. | |
| | 3. | |
| Objective 2.2C-2 Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced. | 4. | |
| | 5. | |
| Objective 2.2C-3 Landscape design contributes to a local sense of place and creates a micro climate. | 6. | |
| | 7. | |

2.2D Local Character and Context

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2D-1 The built form, articulation and scale relates to the local character of the area and the context. | 8. | |

2.2E Public Domain Interface

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2E-1 Provide high level activation and passive surveillance to the public streets. | 9. | |
| | 10. | |
| | 11. | |
| Objective 2.2E-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). | 12. | |
| | 13. | |
| | 14. | |
| | 15. | |
| 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. | 16. | |

2.2F Pedestrian and Vehicle Access

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2F-1 Ensure there is adequate space for vehicle circulation and off-street parking. | 17. | |
| | 18. | |
| | 19. | |
| | 20. | |

2.2G Orientation, Siting and Subdivision

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2G-1 The dwelling is orientated to the street and provides opportunities for street surveillance and connectivity. | 21. | |
| | 22. | |
| Objective 2.2G-2 Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings. | 23. | |
| | 24. | |
| Objective 2.2G-3 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. | 25. | |
| Objective 2.2G-4 To minimise impacts to vegetation on adjoining properties and allow for vegetation within the setbacks. | 26. | |
| Objective 2.2G-5 Independent services and utilities are available to service each lot. | 27. | |

2.2H Solar and Daylight Access

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2H-1 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. | 28. | |
| | 29. | |
| Objective 2.2H-2 To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity. | 30. | |
| | 31. | |
| | 32. | |
| | 33. | |
| | 34. | |

2.2I Natural Ventilation

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2I-1 All habitable rooms are naturally ventilated. | 35. | |
| | 36. | |

2.2J Ceiling Height

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2J-1 Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality. | 37. | |

2.2K Dwelling Size and Layout

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| 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. | 38. | |
| | 39. | |
| | 40. | |
| | 41. | |
| Objective 2.2K-2 Room sizes are appropriately sized for the intended purpose and number of occupants. | 42. | |
| | 43. | |
| | 44. | |
| | 45. | |

2.2L Principal Private Open Spaces

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2L-1 Principal private open space and balconies are appropriately located to enhance liveability for residents. | 46. | |
| | 47. | |
| | 48. | |
| Objective 2.2L-2 Dwellings provide appropriately sized private open space and balconies to enhance residential amenity. | 49. | |

2.2M Storage

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2M-1 Adequate, well-designed storage is provided in each dwelling. | 50. | |
| | 51. | |
| | 52. | |

2.2N Car and Bicycle Parking

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2N-1 Parking and facilities are provided for bicycles. | 53. | |
| Objective 2.2N-2 Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling. | 54. | |
| | 55. | |

2.2O Visual Privacy

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2O-1 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. | 56. | |

2.2P Acoustic Privacy

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2P-1 Noise transfer is minimised through the siting of buildings and building layout. | 57. | |

2.2Q Noise and Pollution

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 58. | |
| | 59. | |

2.2R Architectural Form and Roof Design

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 60. | |
| Objective 2.2R-2 The roof treatments are integrated into the building design and positively respond to the street. | 61. | |
| | 62. | |

2.2S Visual Appearance and Articulation

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2S-1 To promote well designed buildings of high architectural quality that contribute to the local character. | 63. | |

2.2U Energy Efficiency

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2U-1 The development incorporates passive environmental design. | 64. | |
| | 65. | |

2.2V Water Management and Conservation

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.2V-1 Flood management systems are integrated into site design. | 66. | |

2.2W Waste Management

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2W-1 Waste storage facilities meet the needs of the residents, are easy to use and access and enable efficient collection of waste. | 67. | |
| | 68. | |
| | 69. | |
| | 70. | |
| | 71. | |
| Objective 2.2W-2 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents. | 72. | |
| | 73. | |

2.2X Universal Design

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2X-1 Universal design features are included in dwelling design to promote flexible housing for all community members. | 74. | |

2.2Y Communal Areas and Open Space

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.2Y-1 Communal areas are designed to maximise safety and connectivity to the development and promote social interaction between residents. | 75. | |
| | 76. | |
| | 77. | |
| | 78. | |
| Objective 2.2Y-2 Common circulation spaces achieve good amenity with access to daylight and ventilation. | 79. | |

2.3 Terraces

2.3C Landscaped Area

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3C-1 Landscape design supports healthy plant and tree growth and provides sufficient space for the growth of medium sized trees. | 1. | |
| | 2. | |
| | 3. | |
| Objective 2.3C-2 Existing natural features of the site that contribute to neighbourhood character are retained, and visual and privacy impacts on existing neighbouring dwellings are reduced. | 4. | |
| | 5. | |
| Objective 2.3C-3 Landscape design contributes to a local sense of place and creates a micro climate. | 6. | |
| | 7. | |

2.3D Local Character and Context

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3D-1 The built form, articulation and scale relates to the local character of the area and the context. | 8. | |

2.3E Public Domain Interface

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3E-1 Provide activation and passive surveillance to the public streets. | 9. | |
| | 10. | |
| 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). | 11. | |
| | 12. | |
| | 13. | |
| | 14. | |
| 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. | 15. | |

2.3F Pedestrian and Vehicle Access

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3F-1 Car park design and access is safe and minimises impact on habitable spaces. | 16. | |
| | 17. | |
| | 18. | |

2.3G Orientation, Siting and Subdivision

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3G-1 Building types and layouts respond to the streetscape and site while optimising solar access within the development and maximises street surveillance and connectivity. | 19. | |
| | 20. | |

Objective 2.3G-2

Reasonable solar access is provided to the living rooms and private open spaces of adjoining dwellings.

21.

22.

Objective 2.3G-3

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.

23.

Objective 2.3G-4

Independent services and utilities are available to service each lot.

24.

2.3H Solar and Daylight Access

Objectives**Design Criteria****Consistent****Objective 2.3H-1**

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.

25.

26.

Objective 2.3H-2

To provide good access to daylight suited to the function of the room, minimise reliance on artificial lighting and improve amenity.

27.

28.

29.

30.

31.

2.3I Natural Ventilation

Objectives**Design Criteria****Consistent****Objective 2.3I-1**

All habitable rooms are naturally ventilated.

32.

33.

2.3J Ceiling Height

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3J-1 Ceiling height achieves sufficient natural ventilation and daylight access and provides spatial quality. | 34. | |

2.3K Dwelling Size and Layout

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3K-1 The dwelling has a sufficient area to ensure the layout of rooms are functional, well-organised and provide a high standard of amenity. | 35. | |
| | 36. | |
| | 37. | |
| | 38. | |
| Objective 2.3K-2 Room sizes are appropriate for the intended purpose and number of occupants. | 39. | |
| | 40. | |
| | 41. | |
| | 42. | |

2.3L Principal Private Open Spaces

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3L-1 Principal private open space and balconies are appropriately located to enhance liveability for residents. | 43. | |
| | 44. | |
| | 45. | |
| Objective 2.3L-2 Dwellings provide appropriately sized private open space and balconies to enhance residential amenity. | 46. | |

2.3M Storage

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3M-1 Adequate, well-designed storage is provided in each dwelling. | 47. | |
| | 48. | |
| | 49. | |

2.3N Car and Bicycle Parking

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3N-1 Car parking is provided appropriate for the scale of the development. | 50. | |
| | 51. | |
| | 52. | |
| Objective 2.3N-2 Parking facilities are provided for other modes of transport. | 53. | |
| | 54. | |
| Objective 2.3N-3 Visual and environmental impacts of car parking and garages do not dominate the streetscape and have an appropriate scale relationship with the dwelling. | 55. | |
| | 56. | |

2.3O Visual Privacy

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3O-1 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. | 57. | |

2.3P Acoustic Privacy

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3P-1 Noise transfer is minimised through the siting of buildings and building layout. | 58. | |

2.3Q Noise and Pollution

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3Q-1 Ensure outside noise levels are controlled to acceptable levels in living and bedrooms of dwellings. | 56. | |
| | 57. | |

2.3R Architectural Form and Roof Design

| Objectives | Design Criteria | Consistent |
|--|-----------------|------------|
| Objective 2.3R-1 The architectural form is defined by a balanced composition of elements. It responds to internal layouts and desirable elements in the streetscape. | 58. | |
| | | |
| Objective 2.3R-2 The roof treatments are integrated into the building design and positively respond to the street. | 59. | |
| | 60. | |

2.3S Visual Appearance and Articulation

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3S-1 To promote well-designed buildings of high architectural quality that contribute to the local character. | 61. | |

2.3U Energy Efficiency

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3U-1 The development incorporates passive environmental design. | 62. | |
| | 63. | |

2.3W Waste Management

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3W-1 Waste storage facilities meet the needs of the residents, are easy to use and access and enable efficient collection of waste. | 64. | |
| | 65. | |
| | 66. | |
| | 67. | |
| | 68. | |
| Objective 2.3W-2 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents. | 69. | |
| | 70. | |

2.3X Universal Design

| Objectives | Design Criteria | Consistent |
|---|-----------------|------------|
| Objective 2.3X-1 Universal design features are included in dwelling design to promote flexible housing for all community members. | 71. | |

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 *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

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: Youssofzay & 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, Photograprer: 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 3-98 | Brise Soleil, Architect: Carterwilliamson, Photographer: Brett Boardman |
| Figure 3-80 | Catherine Booth College, Architect: SJB, Photographer: Peter Clarke | Figure 3-97 | Roxbury E Townhouses, Architect: Urbanica Design, Photographer: Unknown |
| Figure 3-81 | Townhouses, Architect: EJE Architects, Photographer: Unknown | Figure 3-100 | Green House, Architect: Carterwilliamson, Photographer: Brett Boardman |
| Figure 3-82 | AE2 Ermington, Architect: DKO, Photographer: Rory Gardiner | Figure 3-103 | The Platform-North Everleigh Affordable Housing, Landscape Architect: Arcadia Landscape Architecture, Photographer: Unknown. |
| Figure 3-83 | Realm Townhouses, Architect: Rothe Lowman, Photographer: Jamie Diaz-Berrio | Figure 3-108 | Putney Hill, Architect: Cox Architects, developed by Frasers Property Australia, Photographer: Tom Ferguson photography. |
| Figure 3-85 | Alphington Townhouses, Architect Green Sheep Collective, Photographer: Unknown | Figure 3-112 | Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property |
| Figure 3-86 | 2 Semi's Camperdown, Architect: David Boyle, Photographer: Unknown | Figure 3-113 | Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property |
| Figure 3-86 | 100 Albert Street, Architect: DKO, Photographer: Dan Hocking | Figure 3-114 | Epacris Townhouses, Architect: Smith & Tzannes, Photographer: Abode Property |
| Figure 3-87 | Beach Road Townhouses, Architect: CBG Architects, Photographer: Unknown | Figure 3-116 | South Beach Townhouses, Architect: Fox Johnston, Photographer: Simon Whitbread |
| Figure 3-88 | South Coast House, Architect: Clare Design, Photographer: Unknown | Figure 3-117 | Spectrum, Architect: Stanasic, Photographer: Peter Smith |
| Figure 3-89 | CL House, Architect: ADI Architectura, Photographer: Unknown. | Figure 3-118 | Landscape Architect: Oculus |
| Figure 3-90 | AE2, Architect: DKO, Photographer: Rory Gardiner. | Section 4 | |
| Figure 3-91 | Four Room cottage, Architect: Vokes and Peters, Photographer: Jon Linkins. | Figure 4-1 | Orion Braybrook Masterplan for Stockland, Architect: DKO |
| Figure 3-92 | Double courtyard house, Architect: Vokes and Peters, Photographer: Christopher Frederick Jones. | Figure 4-4 | Bicycle Path, Untapped Cities, Photographer: William Feuerman |
| Figure 3-93 | Randwick Garden, Landscape Architect: Secret Garden Landscape, Photographer: Unknown | Figure 4-7 | Glebe Harbour, Architect: SJB, Photographer: Unknown |
| Figure 3-94 | Spiegel House, Architect: Carterwilliamson, Photographer: Brett Boardman | Figure 4-9 | Fairwater, Frasers Property Photographer Unknown |
| Figure 3-95 | Kew II House, Architect: Kennedy Nolan, Photographer: Unknown | | |
| Figure 3-96 | Spiegel House, Architect: Carterwilliamson, Photographer: Brett Boardman | | |

