

Apartment Design Guidelines for Victoria



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Introduction

The Victorian Government is committed to ensuring that apartments deliver diverse and affordable housing options to meet the long-term needs of the Victorian community. There is a need to lift the quality and functionality of apartments to benefit the health and well-being of residents, and improve environmental performance.

Improving apartment design

The Apartment Standards (Standards) are intended to improve apartment design in Victoria. The design of apartment buildings that suitably responds to context and successfully incorporates the apartment standards and guidelines requires specialist design capabilities. It is important for the success of the project to select a team of design professionals to be led by an experienced architect or building designer who can analyse and integrate the multiple requirements into a successful design that contributes positively to the urban context and the neighbourhood character. Alternative design solutions may be proposed and the responsible authority will assess how an alternative solution meets the objectives. This is an important aspect of innovation.

Purpose of the guidelines

The Apartment Design Guidelines for Victoria provide assistance to applicants, architects, building designers and planners for designing and assessing apartment developments.

The Guidelines provide additional explanation of the apartment standards in the Interpreting the Standards section and guidance on matters to consider to meet the objectives of the apartment standards in the Design Guidance section. The Guidelines are also intended to support greater consistency in the planning permit assessment phase of an apartment development.

The Guidelines are complemented by the Urban Design Guidelines for Victoria which provide best practice knowledge and advice to inform the design of buildings in relation to the function and amenity of the public realm.

Structure of the Guidelines

The Apartment Design Guidelines for Victoria are arranged in three sections as follows. All three sections and their elements are interrelated and require an integrated approach to achieve the objectives. For ease of reference, each section includes the standards, objectives and decision guidelines for each standard. The guidelines include further interpretation where required, and suggestions for how the objectives can be achieved.

Section 1. SITING AND BUILDING ARRANGEMENT

This section reinforces the importance of urban context report and design response as a starting point for design and considers Standards primarily related to the design and configuration of buildings at a site scale. This involves assessing the immediate context, adjacent buildings and public realm. The guidelines relate to how the building envelope (its three dimensional volume) is established through applying appropriate building types, orientation and setbacks. Siting the building also establishes where communal open space is located, how landscape is incorporated into the proposal and how entries and shared circulation is arranged. This section includes the following standards:

1. Building setback
2. Communal open space
3. Solar access to communal outdoor open space
4. Landscaping
5. Building entry and circulation

Section 2. BUILDING PERFORMANCE

This section provides guidance about performance issues which need to be considered in designing the building such as noise impacts, energy performance and management of water and waste. These issues require consideration at both a site scale and at a more detailed building systems level. These Standards relate closely to other environmental assessment tools and typically require specialist input to support the design response. This section includes the following Standards:

6. Noise impacts
7. Energy efficiency
8. Waste and recycling
9. Integrated water and stormwater management

Section 3. DWELLING AMENITY

This section introduces guidance related to the detailed design of individual dwellings. The guidelines address amenity issues such as access to daylight and ventilation through arrangements of windows and room depth as well as functional and accessible layouts of internal and external space. This section includes the following standards:

10. Functional layout
11. Room depth
12. Windows
13. Storage
14. Natural ventilation
15. Private open space
16. Accessibility

Application of the apartment standards

The Standards apply to all apartment developments in Victoria.

The Standards have been introduced to the *Victoria Planning Provisions* and all planning schemes in:

- A new clause in Clause 55 (Two or more dwellings on a lot and Residential buildings) at Clause 55.07, and
- A new Particular Provision at Clause 58 (Apartments).

Apartment developments of four storeys or less (excluding a basement) in a residential zone will continue to be assessed against most of the standards under Clause 55 (which includes new Apartment Standards at Clause 57).

Apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones will be assessed against Clause 58.

The guidelines relate to both the new Clause 58 provisions and the new Clause 55.07 provisions. Refer to *Planning Advisory Note 66: New planning provisions for apartment developments – Amendment VC136* (April 2017) for details of how the new standards for apartment developments are given effect in both the amended Clause 55 and new Clause 58.

Operation of the apartment standards

The apartment provisions operate in the same way that Clauses 54 and 55 operate to assess residential development in the *Victoria Planning Provisions*.

The apartment provisions contain Objectives, Standards and Decision guidelines.

Objectives describe the desired outcomes to be achieved in the completed development.

A Standard contains the requirements to meet the objective. A standard should normally be met. However, if the responsible authority is satisfied that an alternative design solution meets the objective, the alternative design solution may be considered.

Decision guidelines set out the matters that the responsible authority must consider before deciding if an application meets the objectives. When an alternative design solution is proposed, the effect of the design solution on the achievement of other objectives should be considered.

Requirements

An apartment development:

- Must meet of the objectives of Clause 55 or Clause 58.
- Should meet the standards of Clause 55 or Clause 58.

The apartment standards contained in Clause 55.07 cannot be varied in a schedule to the zone. A select number of the existing standards under Clause 55 continue to have the ability to be varied by schedules to the zones.

The Neighbourhood Character Overlay will continue to allow variations to most of the standards of Clause 55 except for the apartment standards in Clause 55.07 and existing key amenity standards such as overshadowing and daylight to new and existing windows.

Apartment standards in Clause 58 cannot be varied in a schedule to the zone or an overlay, except for the Building setback standard (Clause 58.04-1).

Urban context and design response

Neighbourhood and site description and design response

For apartment developments of four storeys or less (excluding a basement) in a residential zone, the Victoria Planning Provisions in Clause 55.01 requires a Neighbourhood and site description and design response to be prepared and submitted with an application. A neighbourhood site description accurately describes the features or characteristics of the neighbourhood and the site.

A neighbourhood and site description is a factual record of the physical features of the neighbourhood and the site. Therefore, the description should be impartial and describe both the positive and negative features of the neighbourhood and the site.

A design response must explain how the proposed design:

- derives from and responds to the neighbourhood and site description. It involves evaluating the influence that features identified in the description should have on the design
- meets the objectives of Clause 55

- responds to any neighbourhood character features for the area identified in a local planning policy or a Neighbourhood Character Overlay.

For more information on preparing a neighbourhood and site description and design response refer to the following documents available on the department's website:

- *Planning Practice Note 16: Making a planning application for one or more dwellings in a Residential zone*
- *Planning Practice Note 43: Understanding Neighbourhood Character.*

Urban context report and design response

For apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones, the Victoria Planning Provisions in Clause 58.01 requires a Urban context report and design response to be prepared and submitted with an application. A urban context report accurately describes the features or characteristics of the urban context and the site.

An urban context report is not a justification for a preconceived design. It is a factual record of the physical features of the urban context and the site. Therefore, the description should be impartial and describe both the positive and negative features of the urban context and the site.

A design response must explain how the proposed design:

- derives from and responds to the urban context report. It involves evaluating the influence that features identified in the description should have on the design
- meets the objectives of the Clause 58
- responds to any relevant planning provisions that applies to the land.
- responds to any relevant housing, urban design and landscape plan, strategy or policy.

Urban context

The starting point for a new apartment design is its urban context. Urban context refers to the strategic setting of a development. It includes the natural, social and economic environment of the area, existing physical surroundings, features that make a particular place distinctive, neighbourhood character, and the likely future character of the area. In some cases, urban context refers to valued aspects of the existing character, and in other circumstances, such as urban renewal precincts, it may refer to an emerging or preferred future character.

Across Victoria, each location and site is different. Defining the context establishes the parameters for apartment development and how new buildings should respond to the character of an area. The development proposal will derive its own design response from its unique urban context. It will need to demonstrate that it takes into account the context and all the standards, to deliver acceptable apartment amenity and support the liveability of surrounding neighbourhoods.

Design response

The neighbourhood and site description or urban context report assists in determining the most appropriate building type and site layout for residential developments. Different building types may be appropriate within different contexts depending on individual site characteristics. A context may have more than one building type, scale and character, or multiple interface conditions such as public space, commercial uses and so on. It may be appropriate for the development to respond by providing a diversity of building forms and dwelling types.

A design response derives from and responds to the neighbourhood and site description or urban context report, and any applicable local planning provisions, as well as the objectives within the Standards.

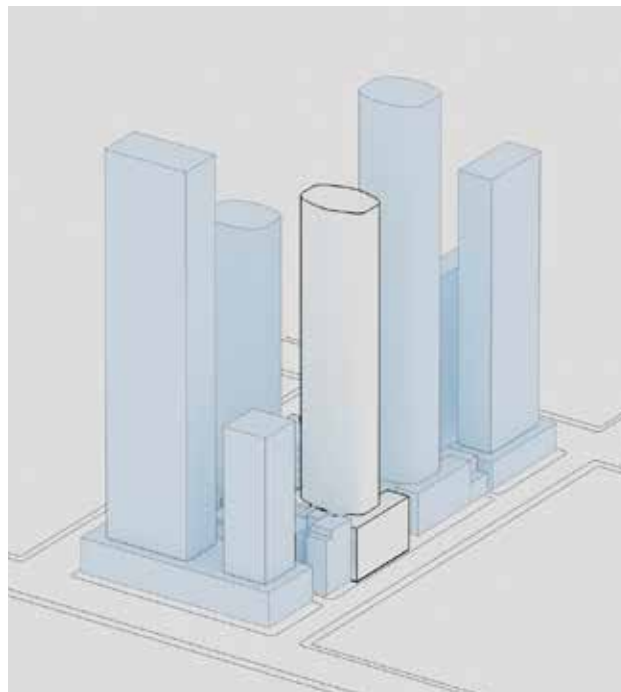
Guidance on responding to contexts

There are distinctive features and characteristics in different contexts that need to be considered in designing an apartment development. The following section outlines four typical contexts: Central City (Tower and Podium), Activity Centres, Neighbourhood Centres and Residential Neighbourhoods.

Central City (Tower and Podium)

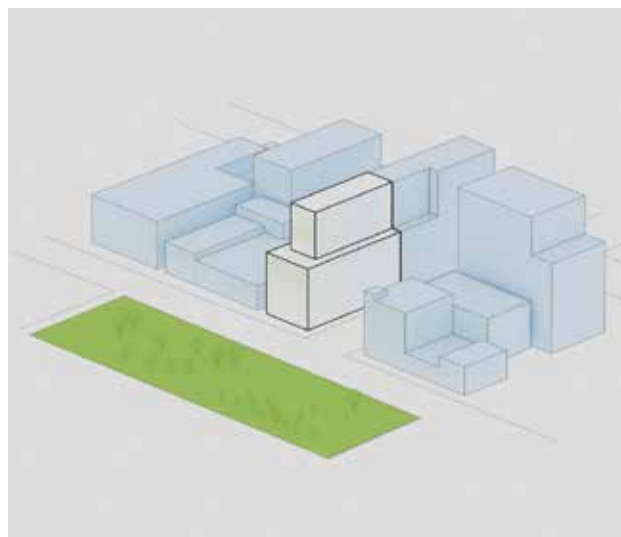
This context is characterised by taller building forms, often as tower and podium, such as found in central city areas. These areas are characterised by high commercial and residential intensity, high site coverage and a strong urban character. Considerations for residential apartment development in this context include managing complex relationships with adjacent buildings and spaces. This urban context may include heritage buildings and places, adjacent tall buildings and high amenity public spaces.

In this context, planning schemes outline detailed controls for building setback and height. The design response in this context should generally increase setbacks with building height and may require consideration of wind effects, noise and availability of public open space.



Activity Centres

This context is characterised by medium rise built form, typically on larger or consolidated sites. These areas have medium to high levels of residential and commercial intensity and an active public realm. New apartment developments which may include mixed uses, often have zero setbacks to the street frontage and may be adjacent to heritage and other sensitive interfaces. Planning controls may be in place detailing preferred character and built form. The design response will typically require high site coverage at lower levels, with setbacks required at upper levels.



Neighbourhood Centres

This context is characterised by varied site configurations, typically in established shopping strips. Lower rise buildings on smaller sites are generally built up to side boundaries, and to the street frontage. New apartment development may interface with sensitive lower density residential uses or heritage buildings. Development should address the pattern of building setbacks, amenity of surrounding dwellings, and the quality and type of landscape.

Specific planning controls may be in place to guide built form and character. The building form above street frontages may require further setbacks with front and rear orientation of apartments appropriate for narrow infill sites to achieve amenity objectives.



Residential Neighbourhoods

This context is characterised by lower rise residential buildings, including detached houses and townhouses as well as infill apartment development in appropriate residential zones.

New apartment development should be responsive to the low rise residential character of the area.

Low rise apartment buildings typically require setbacks to the street and other boundaries to achieve amenity objectives and respond to the preferred landscape character.



Section 1 | SITING AND BUILDING ARRANGEMENT

Guidance to building setback

Why this is important

Building setbacks at side, rear and internal to the site contribute to apartment amenity by providing access to daylight, sunlight, visual privacy, outlook and ventilation to buildings, and may provide space for landscaping. Setbacks will vary in response to a building's urban context and contribute to the character of the area. Setbacks ensure acceptable apartment amenity is derived from within the site and from the public realm.

Application

Clause 58.04-1 (Building setback) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Building setback objectives (Clause 58.04-1)

To ensure the setback of a building from a boundary appropriately responds to the existing urban context or contributes to the preferred future development of the area.

To allow adequate daylight into new dwellings.

To limit views into habitable room windows and private open space of new and

existing dwellings.

To provide a reasonable outlook from new dwellings.

To ensure the building setbacks provide appropriate internal amenity to meet the needs of residents.

Standard (D14)

The built form of the development must respect the existing or preferred urban context and respond to the features of the site.

Buildings should be set back from side and rear boundaries, and other buildings within the site to:

- Ensure adequate daylight into new habitable room windows.
- Avoid direct views into habitable room windows and private open space of new and existing dwellings. Developments should avoid relying on screening to reduce views.
- Provide an outlook from dwellings that creates a reasonable visual connection to the external environment.
- Ensure the dwellings are designed to meet the objectives of Clause 58.

Decision guidelines

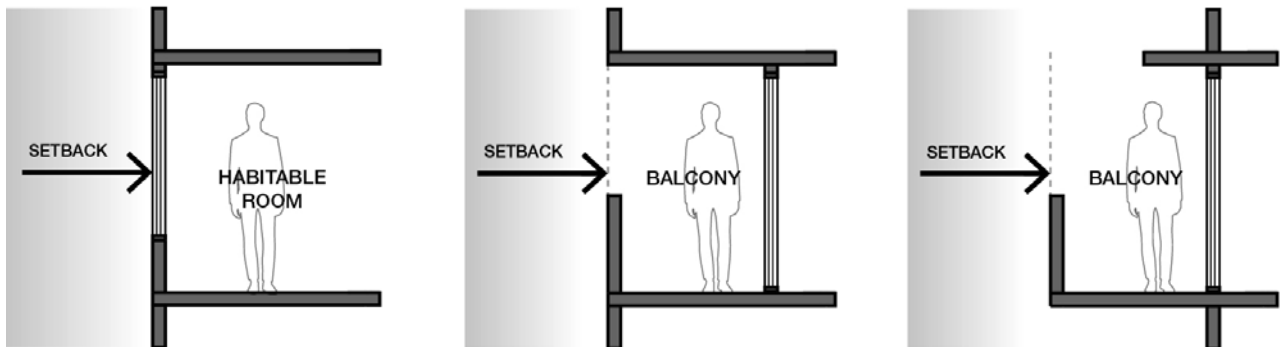
Before deciding on an application, the responsible authority must consider:

- The purpose of the zone and/or overlay that applies to the land.
- Any relevant urban design objective, policy or statement set out in this scheme.
- The urban context report.
- The design response.
- The relationship between the proposed building setback and the building setbacks of existing adjacent buildings, including the interface with laneways.
- The extent to which the proposed dwellings are provided with reasonable daylight access through the layout of rooms and the number, size, location and orientation of windows.
- The impact of overlooking on the amenity of existing and proposed dwellings.
- The existing extent of overlooking into existing dwellings and private open space.
- Whether the development meets the objectives of Clause 58.

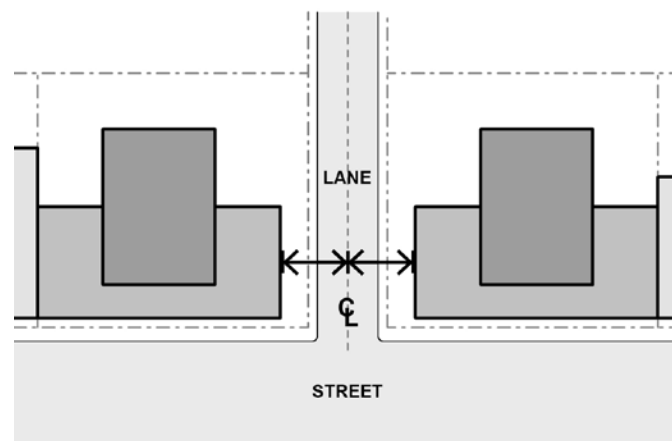
Design guidance

Interpreting the standard

A setback dimension is measured from the site boundary to the external surface of the habitable room window or the open side of the balcony, whichever is the lesser.



Measure setbacks to laneways from the centre of the laneway.



Access to daylight is concerned largely with how much daylight enters a room, regardless of orientation and the sun's path through the sky. Access to sunlight is different, as it is concerned solely with how much of the sun's path through the sky can be seen from windows within the room and is dependent on orientation.

1.1 Establish building setbacks to respond to the existing or preferred urban context.

→ GUIDANCE: Every site has unique characteristics and will require a site specific design response to building setbacks.

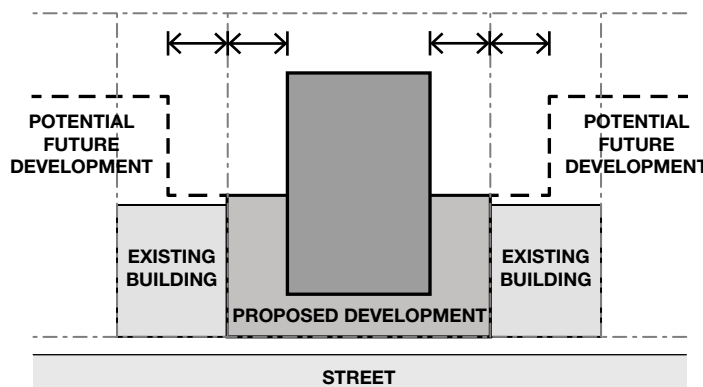
Site characteristics which influence setbacks may include:

- Site orientation
- Scale and type of surrounding buildings
- Existing or preferred future patterns of building setbacks
- Site features such as existing significant vegetation
- Important view lines such as towards heritage buildings
- Offsite impacts such as overshadowing and noise

→ GUIDANCE: Refer to relevant Local Planning Policies and any local planning provisions for preferred and mandatory minimum setbacks.

1.2 Establish setbacks to adjacent buildings and uses to ensure adequate amenity.

→ GUIDANCE: Take account of existing buildings and uses on adjoining sites and their potential for future development when establishing building setbacks.



Plan diagram. Adjoining sites and the preferred future development potential help to inform appropriate building setbacks.

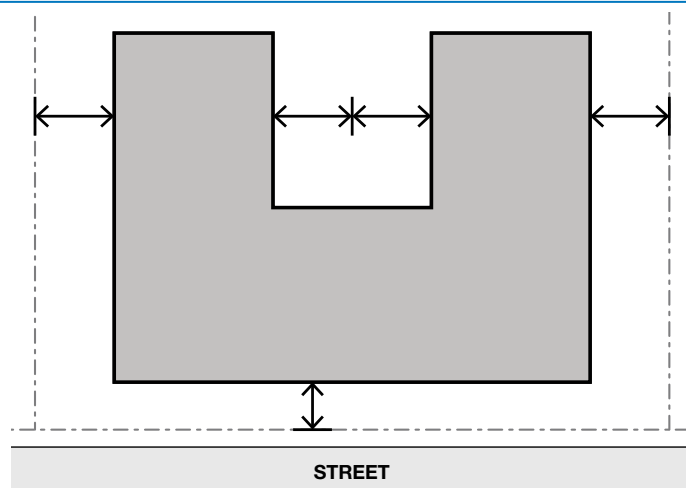
1.3 Establish the street frontage setback alignment of buildings to contribute to the character and amenity of the public realm

→ GUIDANCE: Refer to relevant Local Planning Policies and any local planning provisions for preferred and mandatory street frontage setback requirements.

→ GUIDANCE: Refer to the Urban Design Guidelines for Victoria or relevant local design guidelines when determining appropriate front setbacks.

- 1.4 Establish internal setbacks to achieve daylight, privacy and outlook objectives between dwellings within a site.

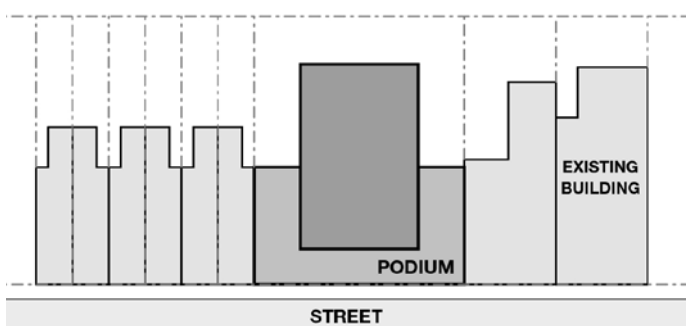
→ GUIDANCE: Internal setbacks can be determined using a similar method as setbacks from site boundaries.



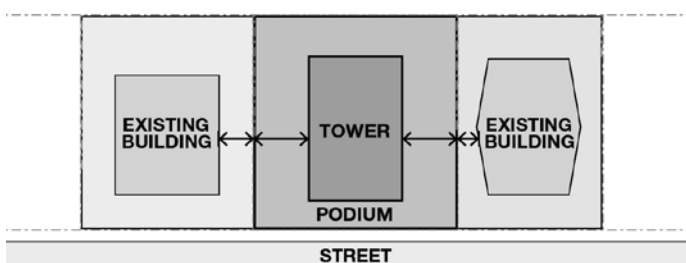
Plan diagram. Setbacks between dwellings achieve amenity objective.

- 1.5 In streets where buildings have zero side setback, such as in dense urban contexts, main streets or for podium forms within centres, continue the built form pattern.

→ GUIDANCE: The extent of walls on boundaries may be informed by the relevant planning provisions, the pattern of building types within the context and amenity impact on adjoining properties.



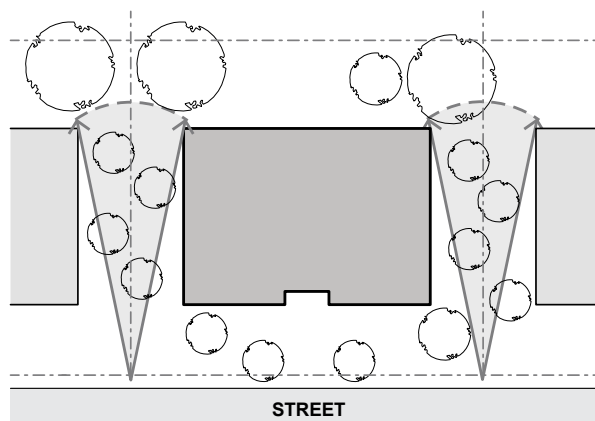
Plan diagram. Side setbacks at lower levels may not be required in some urban contexts.



Plan diagram. Side and rear setbacks at lower levels may not be required in some urban contexts.

1.6 Provide side setbacks in contexts where they contribute to the landscape character of the street.

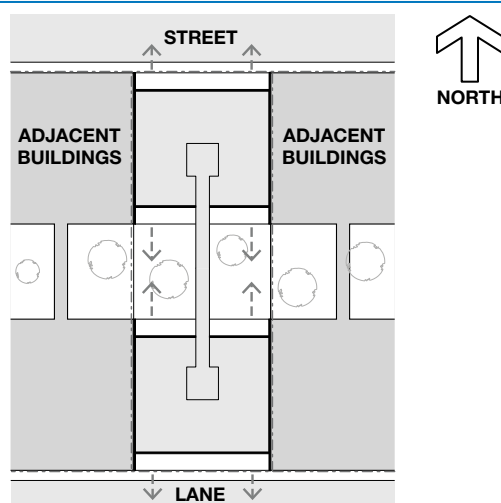
→ GUIDANCE: Gaps between buildings allow views through to vegetation along the side and to the rear of buildings.



Plan diagram. Setbacks contribute to a landscape character.

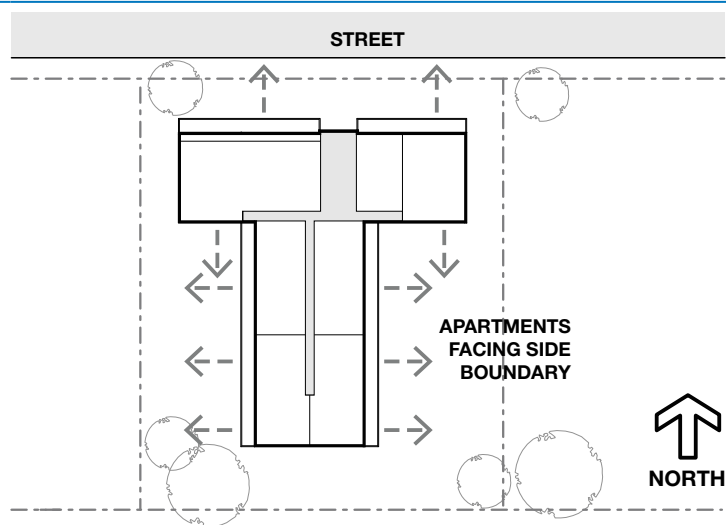
1.7 Typically, on narrow infill sites, minimise side setbacks and face habitable rooms towards the street and the rear of the site.

→ GUIDANCE: Avoiding outlook towards the side of narrow sites, optimises amenity and privacy between buildings.



Plan diagram. Direct habitable rooms on narrow sites to optimise internal amenity.

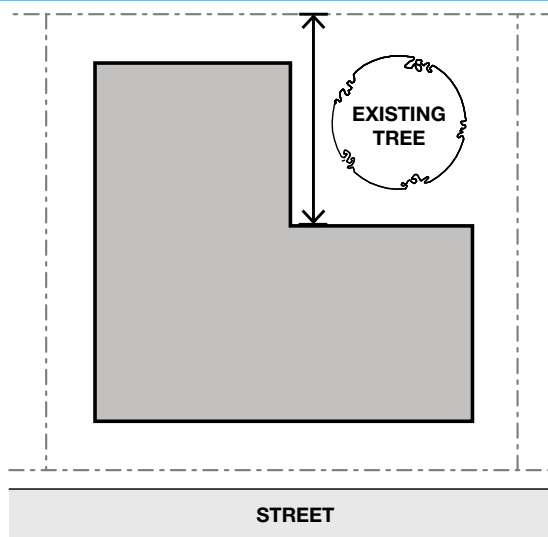
- 1.8 Where habitable spaces and balconies face towards side boundaries, increase side setbacks to allow access to daylight and outlook, while maintaining privacy.



Plan diagram. Dwelling aspect informs side setback requirements.

- 1.9 Where contexts allow for buildings in landscaped areas, configure the building setbacks to retain existing mature trees and to accommodate deep soil areas.

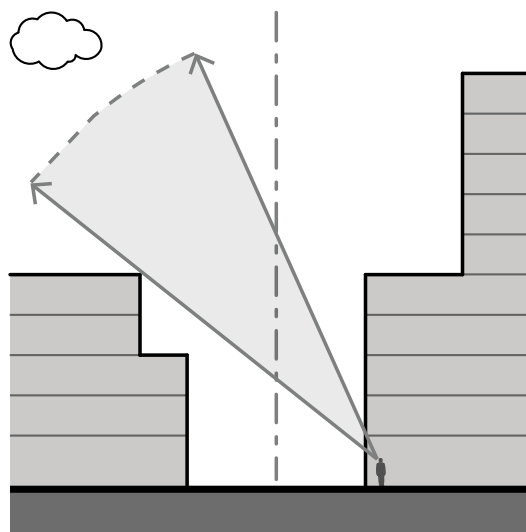
→ GUIDANCE: Appropriate building setbacks will assist in meeting the landscaping standard.



Plan diagram. Setbacks can accommodate deep soil areas and existing landscaping.

- 1.10 Ensure building setback is responsive to the adjoining building form and height to deliver adequate daylight, privacy and outlook for dwellings.

→ GUIDANCE: Where the height of a building increases, setbacks should typically increase to achieve adequate amenity and good built form outcomes.



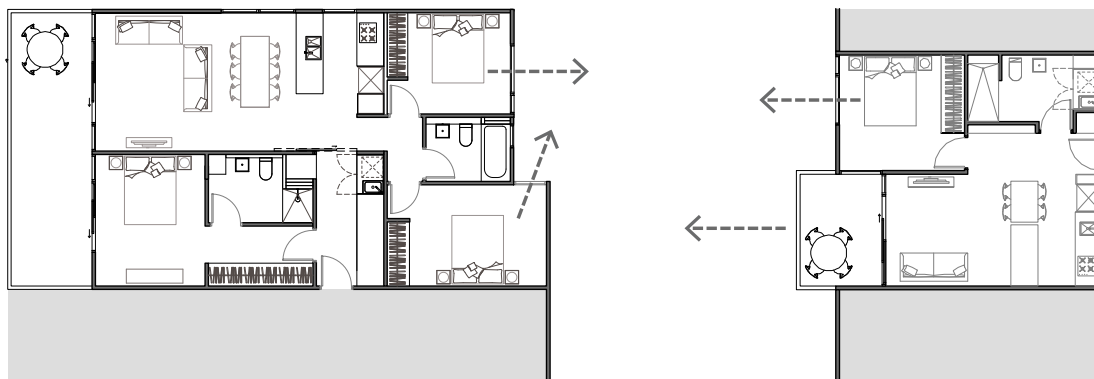
Section diagram. Setbacks typically increase with building height.

1.11 Avoid use of lightwells as the primary source of daylight to a habitable room.

→ GUIDANCE: Lightwells should only be considered as a secondary source of daylight to living rooms.

1.12 Use building setbacks and the relationship between buildings on a site, as the primary method of limiting views into habitable room windows and private open spaces.

→ GUIDANCE: Adjust building form, façade shape and window locations to further limit views into habitable room windows and private open spaces while protecting access to daylight and outlook.

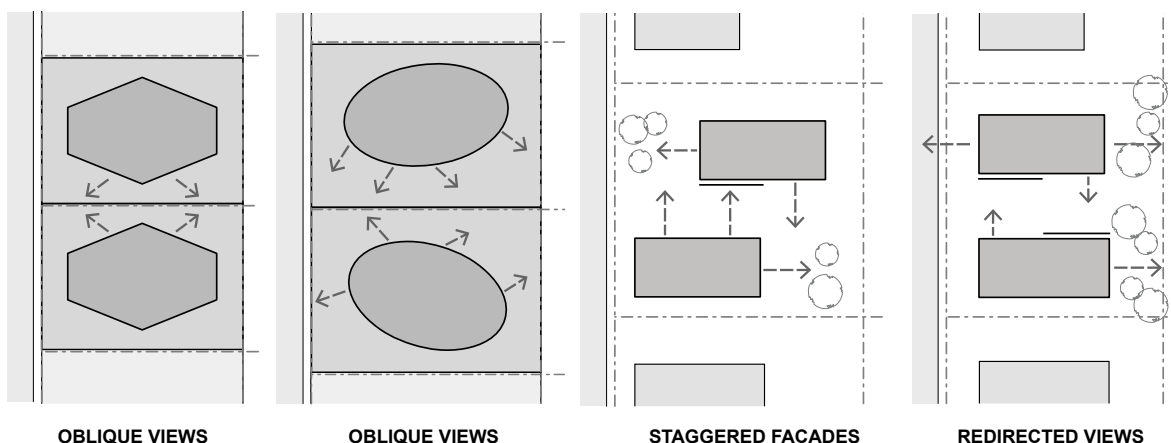


Plan diagram. Building form and facade shape can assist to limit direct views.

1.12 → GUIDANCE: In addition to building setbacks, design techniques for privacy include:

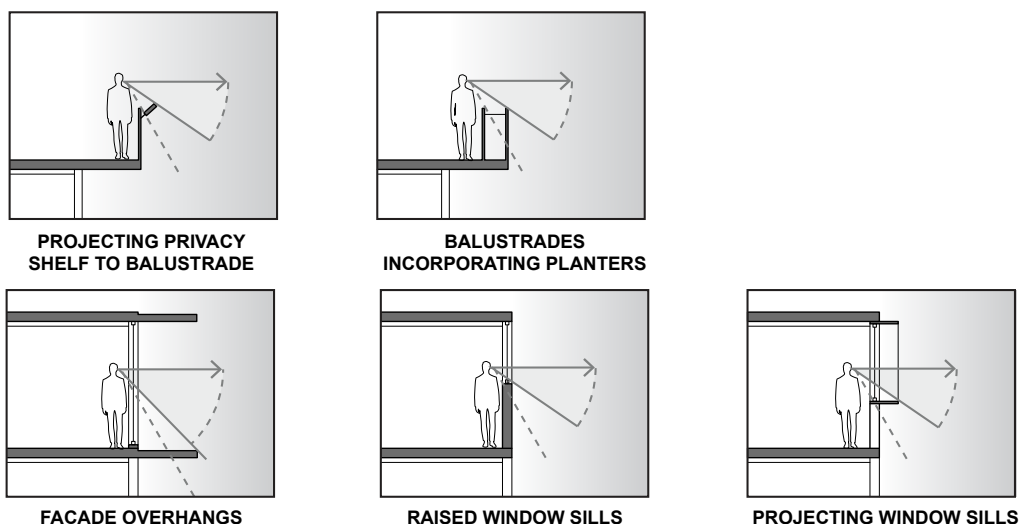
cont.

- Creating oblique and controlled views such as bay windows.
- Limiting lengths of facades that direct views towards the adjoining habitable rooms and private open spaces by shaping, staggering or realigning facades.
- Using sill and balustrade heights and depths to limit direct views downwards.
- Using pergola and shading devices to screen views to dwellings and private open spaces on lower levels.



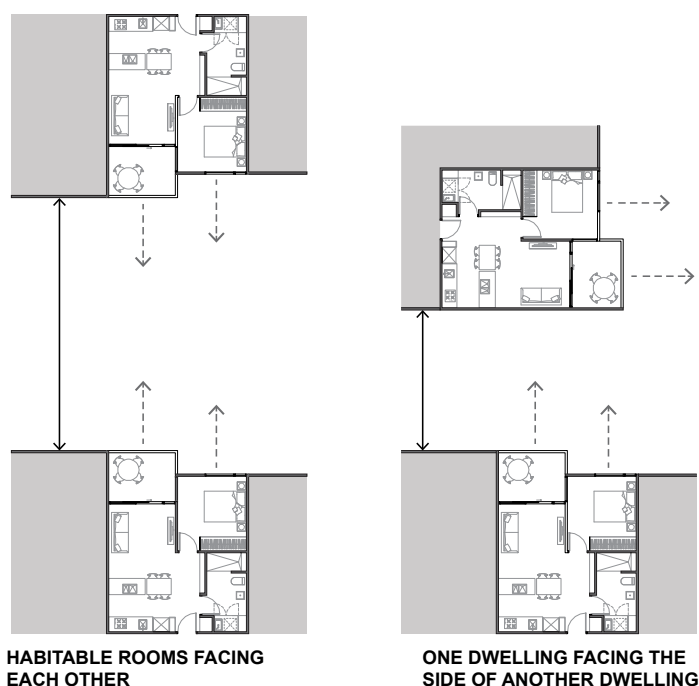
Plan diagram. Shaping, staggering and realigning facades can assist in limiting direct views.

→ GUIDANCE: These techniques limit views without compromising access to daylight, natural ventilation and outlook.



Section diagram. Design techniques to assist in limiting direct downward views.

- 1.13 When habitable room windows and private open spaces in separate dwellings directly face each other, generally provide greater building separations than where one dwelling faces the side of another dwelling.



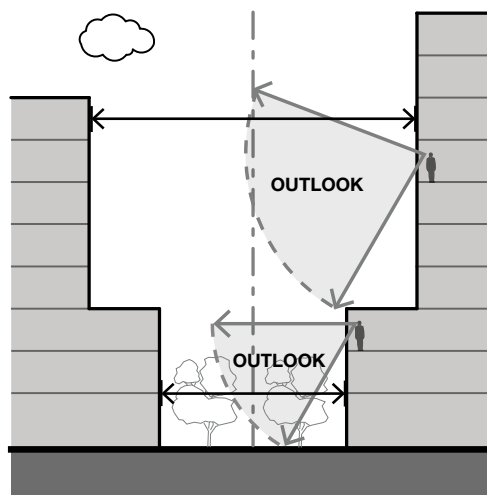
Plan diagram. Dwelling aspect informs setbacks.

- 1.14 Arrange building setbacks to control direct views into habitable room windows or private open spaces from public and communal spaces, other uses or dwellings.

→ GUIDANCE: Avoid the need for screens or opaque glass that restrict views into public spaces

- 1.15 Use building setbacks to provide outlook and a visual connection from a dwelling to its context and allowing for visual relief.

→ GUIDANCE: Greater building separation is required to achieve adequate outlook where there is not a strong connection to the street or ground such as between apartment towers.



Section diagram. Quality of outlook informs building setback.

Supporting documentation

Nominate all minimum building setbacks.

Guidance to communal open space

Why this is important

Communal open space supports the health and wellbeing of occupants and provides for a range of informal and active recreational uses. Communal open space helps establish a sense of community in apartment developments and improves safety and security.

Application

Clause 55.07-2 (Communal open space) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.03-2 (Communal open space) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Communal open space objective (Clause 58.03-2 or Clause 55.07-2)

To ensure that communal open space is accessible, practical, attractive, easily maintained and integrated with the layout of the development.

Standard (D7 or B36)

Developments with 40 or more dwellings should provide a minimum area of communal open space of 2.5 square metres per dwelling or 250 square metres, whichever is lesser.

Communal open space should:

- Be located to:
 - Provide passive surveillance opportunities, where appropriate.
 - Provide outlook for as many dwellings as practicable.
 - Avoid overlooking into habitable rooms and private open space of new dwellings.
 - Minimise noise impacts to new and existing dwellings.
- Be designed to protect any natural features on the site.
- Maximise landscaping opportunities.
- Be accessible, useable and capable of efficient management.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- Any relevant urban design objective, policy or statement set out in this scheme.
- The design response.
- The useability and amenity of the communal open space based on its size, location, accessibility and reasonable recreation needs of residents.
- The availability of and access to public open space.

Design guidance

Interpreting the Standard

When providing communal open space outdoors, landscaping can be included within the minimum area calculation for communal outdoor space where it supports usability and functionality of the space.

Internal common spaces, entry-ways and narrow service and access routes are not included in the measurement of communal open space.

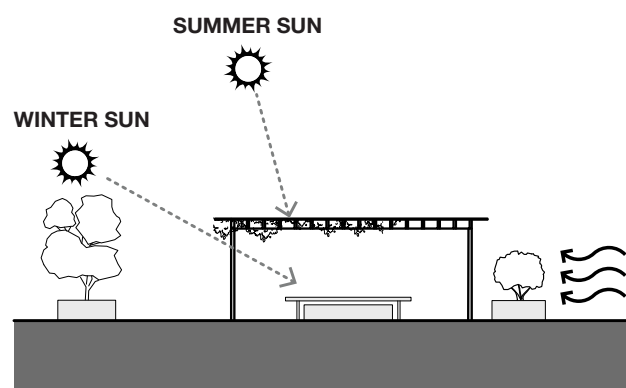
The minimum area requirements for communal open space can be configured in multiple spaces that each have usable minimum dimensions.

-
- 2.1** Use the urban context report to identify locations for the communal open space which can achieve adequate amenity and is responsive to existing uses of adjacent sites.
-

- 2.2** Provide communal open space that is usable throughout the year and in a range of weather conditions.

→ GUIDANCE: Design techniques include:

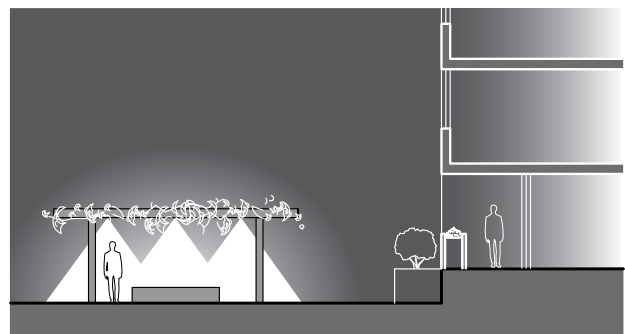
- Pergolas and shading devices
- Location of deciduous and evergreen vegetation
- Wind screening via hard and soft landscaping



Section diagram. Example of design techniques for usable communal open space.

-
- 2.3** Provide lighting in communal open space to support safe movement and evening use.

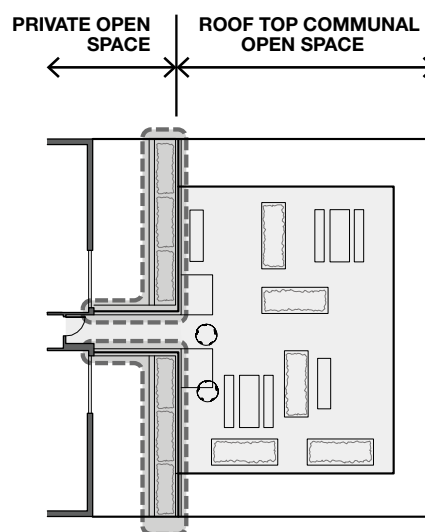
→ GUIDANCE: Avoid light spill to adjacent sensitive areas such as dwelling and private open spaces.



Section diagram. Lighting for safe communal open spaces.

- 2.4** Provide clear delineation of public, communal and private open spaces to encourage access and use by all residents.

→ GUIDANCE: When locating dwellings and private open spaces directly adjacent to communal open space, care should be taken that privacy and amenity is maintained to these dwellings and that a sense of private ownership of the communal area is not established.

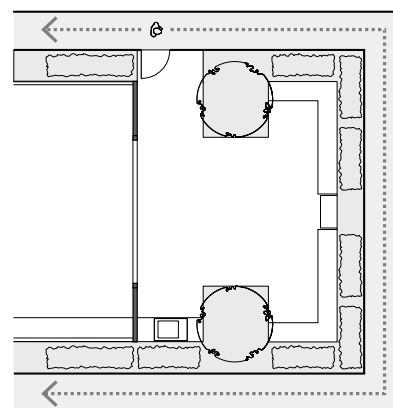


Plan diagram. Separation of private open space from communal open space.

- 2.5** Layout the communal open spaces to be usable with easy access for cleaning and maintenance.

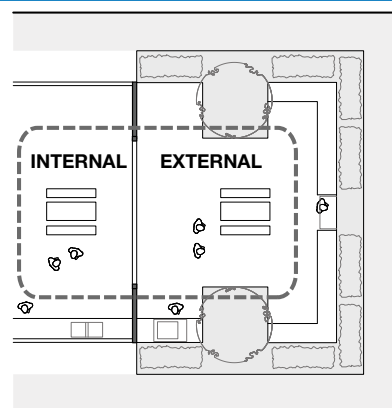
→ GUIDANCE: Responsibility for ongoing maintenance of communal open spaces should be clearly established.

→ GUIDANCE: Provide convenient access to landscaping for maintenance.



Plan diagram. Planned maintenance access.

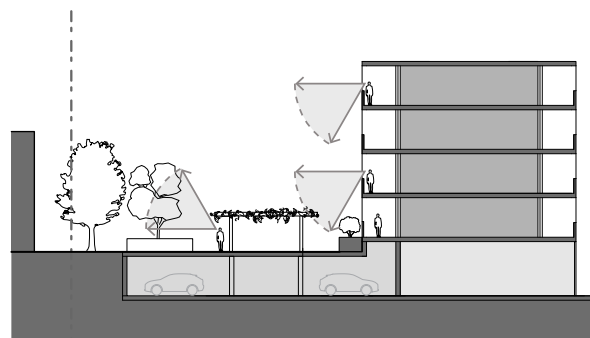
- 2.6** Integrate communal open space with internal common areas, where provided, to promote better use of both spaces.



Plan diagram. Internal common area integrated with communal open space.

2.7 Integrate landscaping into communal open space to improve the outlook into and from the communal open space.

→ GUIDANCE: Landscaping can assist in screening outlook from communal open space towards poor interfaces on adjoining sites.



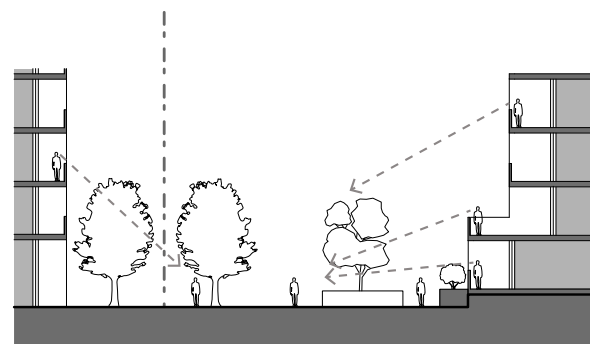
Section diagram. Landscaping improves outlook.

2.8 Layout the communal open space to minimise the visual and noise impacts of building services.

→ GUIDANCE: Provide screening of service areas that are in proximity to communal open spaces.

2.9 Layout communal open space to create informal surveillance opportunities within the development and from adjoining buildings.

→ GUIDANCE: Outlook onto communal open space from dwellings should maintain the privacy and security of residents.



Section diagram. Informal surveillance from dwellings to communal open space.

Supporting documentation

Provide dimensions and areas of communal open space.

Provide a detailed landscape plan with the application which depicts the intended use and facilities within the communal open space.

Guidance to solar access to communal outdoor open space

Why this is important

Providing good solar access to communal open space ensures these spaces are desirable and usable for residents. Well-designed communal outdoor open spaces are used more frequently and support a sense of community.

Application

Clause 55.07-3 (Solar access to communal open space) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.03-3 (Solar access to communal outdoor open space) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Solar access to communal outdoor open space objective (Clause 58.03-3 or Clause 55.07-3)

To allow solar access into communal outdoor open space.

Standard (D8 or B37)

The communal outdoor open space should be located on the north side of a building, if appropriate.

At least 50 per cent or 125 square metres, whichever is the lesser, of the primary communal outdoor open space should receive a minimum of two hours of sunlight between 9am and 3pm on 21 June.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The useability and amenity of the primary communal outdoor open space areas based on the urban context, the orientation of the building, the layout of dwellings and the sunlight it will receive.

Design guidance

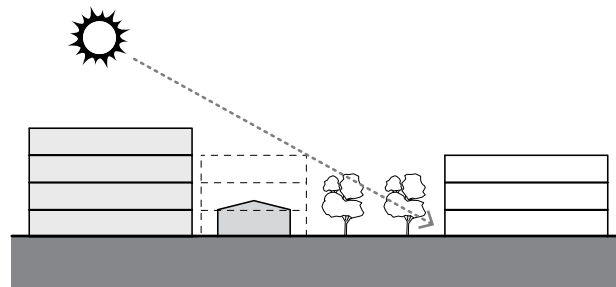
Interpreting the Standard

The minimum of two hours of sunlight does not need to be a continuous two-hour duration.

Where the communal open space is provided in multiple locations, then the solar access requirement applies to the primary space.

Where the proposal includes more than one area for communal open space, the primary communal open space should be a minimum of 50 percent of the total consolidated area.

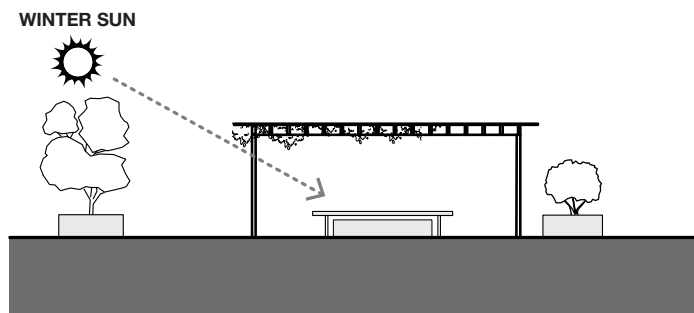
- 3.1** Locate communal open space in areas that will have minimal overshadowing from surrounding buildings.



Section diagram. Locate communal open space to have minimal overshadowing

- 3.2** When locating communal open space to achieve winter sun, also select the location to provide usability and amenity.

→ GUIDANCE: Rooftop communal open spaces provide opportunity for good solar access, however, they require careful design to prevent undesirable exposure to wind, rain and heat during summer.



Section diagram. Locate communal open space to have minimal overshadowing

Supporting documentation

Provide shadow diagrams for the communal open space for June 21 to demonstrate existing solar access, and any future overshadowing potential.

Guidance to landscaping

Why this is important

Good landscaping creates attractive and safe environments for people and makes apartment developments more energy and water-efficient. Deep soil areas support canopy trees which improve residential amenity, make neighbourhoods greener and reduce the heat island effect in urban areas.

Application

Both Clause 55.03-8 (Landscaping) and Clause 55.07-4 (Deep soil areas and canopy trees) apply to apartment developments of four storeys or less (excluding a basement).

Clause 58.03-5 (Landscaping) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Note: For simplicity, only the Objective and Standard relating to Clause 58.03-5 is shown below.

Landscaping objectives (Clause 58.03-5)

To encourage development that respects the landscape character of the area.

To encourage development that maintains and enhances habitat for plants and animals in locations of habitat importance.

To provide appropriate landscaping.

To encourage the retention of mature vegetation on the site.

To promote climate responsive landscape design and water management in developments that support thermal comfort and reduces the urban heat island effect.

Standard (D10)

The landscape layout and design should:

- Be responsive to the site context.
- Protect any predominant landscape features of the area.
- Take into account the soil type and drainage patterns of the site and integrate planting and water management.
- Allow for intended vegetation growth and structural protection of buildings.
- In locations of habitat importance, maintain existing habitat and provide for new habitat for plants and animals.
- Provide a safe, attractive and functional environment for residents.
- Consider landscaping opportunities to reduce heat absorption such as green walls, green roofs and roof top gardens and improve on-site storm water infiltration.
- Maximise deep soil areas for planting of canopy trees.

Development should provide for the retention or planting of trees, where these are part of the urban context.

Development should provide for the replacement of any significant trees that have been removed in the 12 months prior to the application being made.

The landscape design should specify landscape themes, vegetation (location and species), paving and lighting.

Development should provide the deep soil areas and canopy trees specified in Table D2.

If the development cannot provide the deep soil areas and canopy trees specified in Table D2, an equivalent canopy cover should be achieved by providing either:

- Canopy trees or climbers (over a pergola) with planter pits sized appropriately for the mature tree soil volume requirements.
- Vegetated planters, green roofs or green facades.

Table D2 Deep soil areas and canopy trees

| Site area | Deep soil areas | Minimum tree provision |
|---------------------------|---|--|
| 750 – 1000 square metres | 5% of site area (minimum dimension of 3 metres) | 1 small tree (6-8 metres) per 30 square metres of deep soil |
| 1001 – 1500 square metres | 7.5% of site area (minimum dimension of 3 metres) | 1 medium tree (8-12 metres) per 50 square metres of deep soil, or 1 large tree per 90 square metres of deep soil |
| 1501 – 2500 square metres | 10% of site area (minimum dimension of 6 metres) | 1 large tree (at least 12 metres) per 90 square metres of deep soil, or 2 medium trees per 90 square metres of deep soil |
| >2500 square metres | 15% of site area (minimum dimension of 6 metres) | 1 large tree (at least 12 metres) per 90 square metres of deep soil, or 2 medium trees per 90 square metres of deep soil |




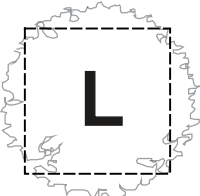
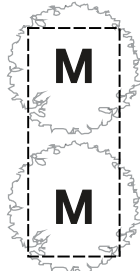
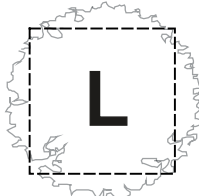
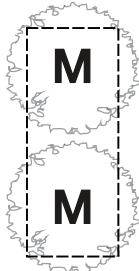
Note: Where an existing canopy tree over 8 metres can be retained on a lot greater than 1000 square metres without damage during the construction period, the minimum deep soil requirement is 7% of the site area.


Decision guidelines

Before deciding on an application, the responsible authority must consider:


- Any relevant plan or policy for landscape character and environmental sustainability in the State Planning Policy Framework and Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- The design response.
- The location and size of gardens and the predominant plant types in the area.
- The health of any trees to be removed.
- The suitability of the proposed location and soil volume for canopy trees.
- The ongoing management of landscaping within the development.
- The soil type and drainage patterns of the site.

Minimum tree provision

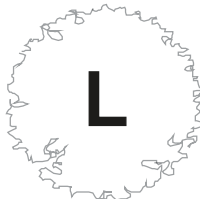
| 750 - 1000 | 1001 - 1500 | 1501 - 2500 | > 2500 |
|---|--|---|---|
| <div>  </div> <p>PER 30 SQUARE METRES DEEP SOIL AREA</p> | <div>  </div> <p>PER 50 SQUARE METRES DEEP SOIL AREA</p> <p><u>OR</u></p> <div>  </div> <p>PER 90 SQUARE METRES DEEP SOIL AREA</p> | <div>  </div> <p>PER 90 SQUARE METRES DEEP SOIL AREA</p> <p><u>OR</u></p> <div>  </div> <p>PER 90 SQUARE METRES DEEP SOIL AREA</p> | <div>  </div> <p>PER 90 SQUARE METRES DEEP SOIL AREA</p> <p><u>OR</u></p> <div>  </div> <p>PER 90 SQUARE METRES DEEP SOIL AREA</p> |



SMALL TREE
6-8 METRES
HIGH

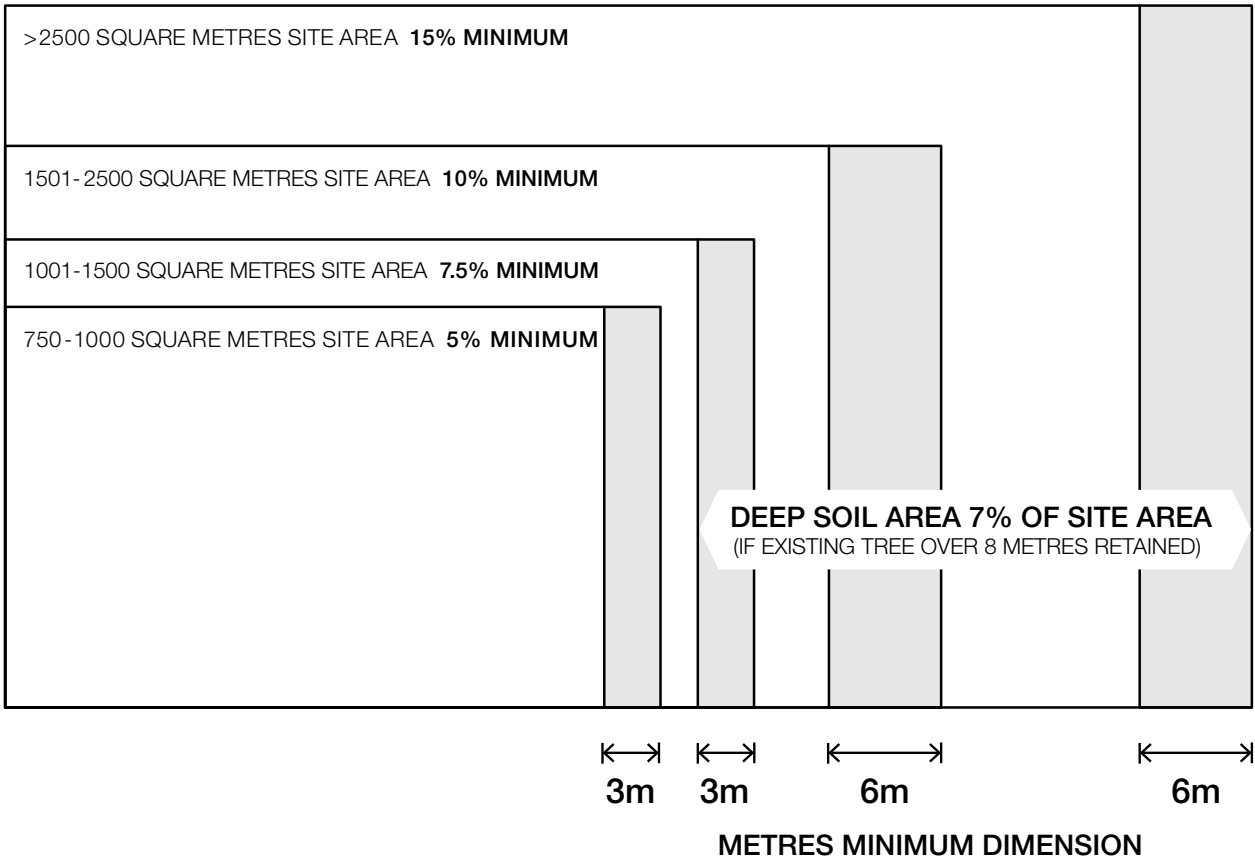


MEDIUM TREE
8-12 METRES
HIGH

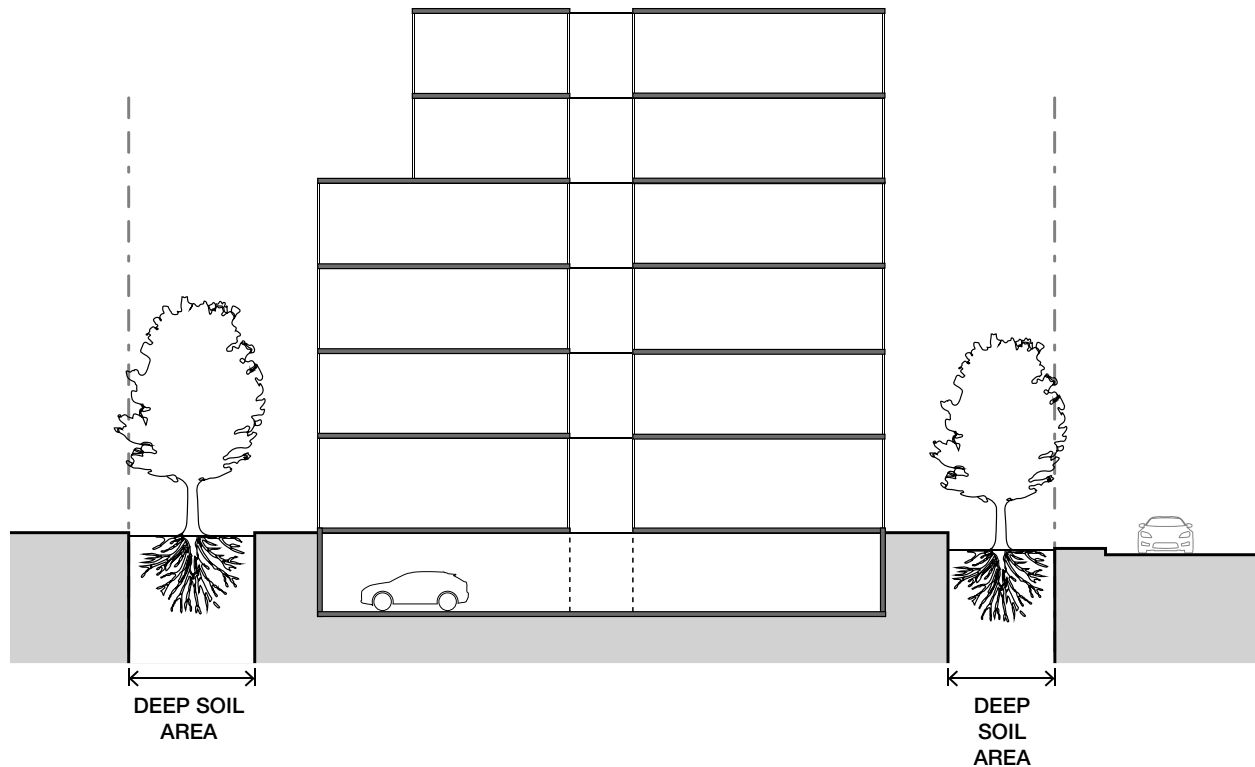


LARGE TREE
OVER 12 METRES
HIGH

Minimum deep soil areas



Deep soil locations



Design guidance

Interpreting the Standard

Where the number of trees to be provided according to the standard is not a whole number, the fraction should be provided with small or medium trees rounded to the nearest whole number.

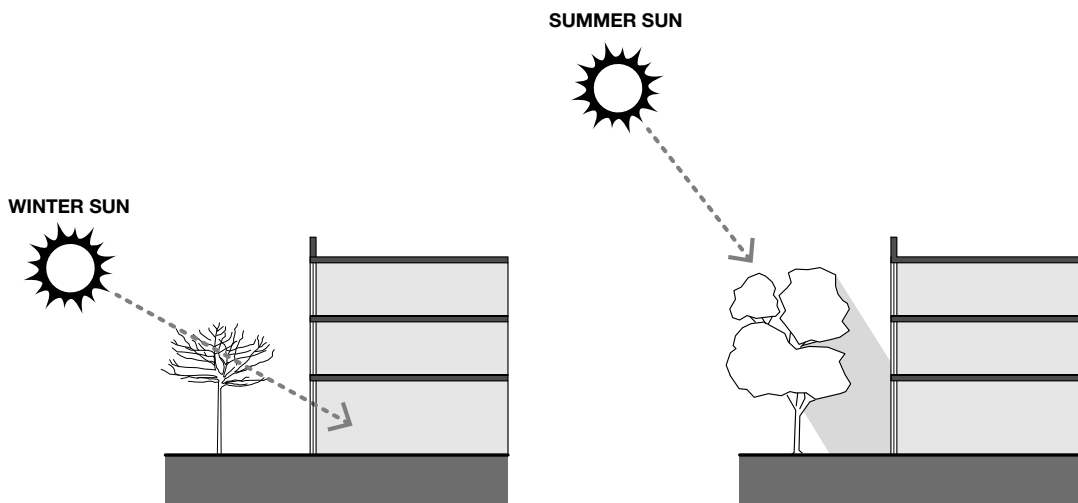
Equivalent canopy cover is assessed on the basis of achieving the same percentage site coverage of vegetated cover. It can comprise a green wall, vegetated pergola or green roof, and the equivalent canopy cover of trees and shrubs in planter boxes.

4.1 Retain significant vegetation where appropriate.

- GUIDANCE: Involve a landscape architect or horticulturalist early in the design to improve integration of the landscaping into the existing landscape context and the development.
- GUIDANCE: Where existing trees are proposed for retention, obtain advice from an arborist to assess tree retention value, tree health, and required tree protection zones during construction.

4.2 Select and locate evergreen and deciduous trees to optimise winter sunlight and summer shading of surrounding dwellings to encourage passive cooling opportunities.

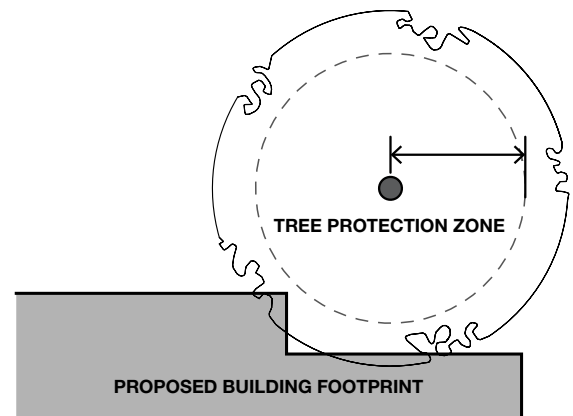
- GUIDANCE: Deciduous trees are best for providing shade to north facing windows to prevent summer heat gain, with loss of leaves allowing winter sun to reach glazing. Evergreen trees are better used for shading east and west facing windows to provide consistent shade year round.
- GUIDANCE: Canopy trees are particularly effective in shading lower sun angles on exposed east and west facades.
- GUIDANCE: In context with tall buildings avoid planting in areas of sustained shade.
- GUIDANCE: Local councils may have planting lists that assist in selecting appropriate species for local conditions and habitat.



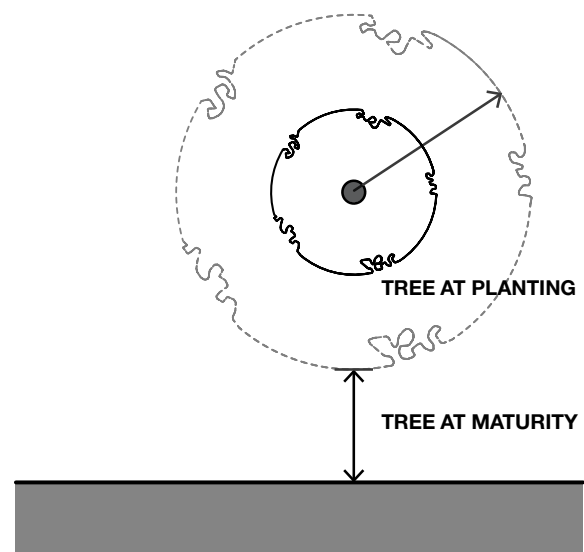
Section diagram. Deciduous trees can allow sun in winter and provide shade in summer.

- 4.3** Locate and size appropriate canopy trees and other vegetation away from basements or other obstructions to allow for future growth to protect built structures.

→ GUIDANCE: Provide space and soil for the canopy and spread of roots at maturity. The Cornell formula is an established method used for determining soil volume requirements of mature trees and shrubs. The responsible authority, landscape architect or horticulturalist may prefer an alternative method.



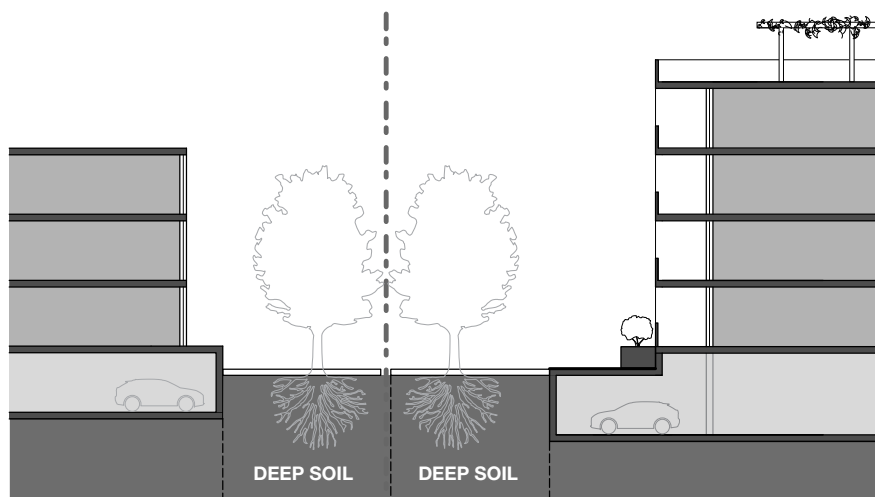
Plan diagram. Tree protection zone.



Plan diagram. Space for tree size at maturity.

- 4.4** Consolidate deep soil areas where possible, to support healthier trees and provide adequate growing room for larger trees between buildings.

→ GUIDANCE: Locate deep soil areas where the microclimate will support favourable growing conditions with appropriate sunlight and wind protection.



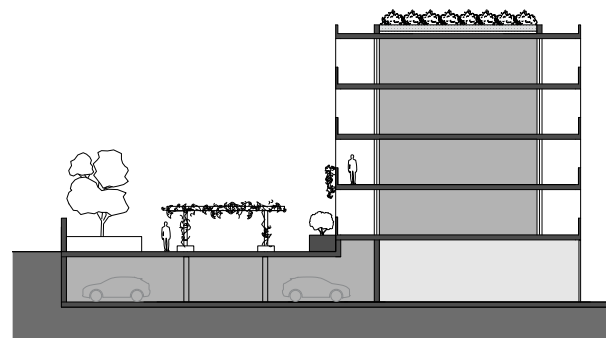
Section diagram. Deep soil location.

4.5 Optimise urban heat reduction through integrating planting, stormwater management, water sensitive urban design and selection of surface materials.

- GUIDANCE: Use trees and other plantings to provide shade for otherwise heat exposed locations. Selecting a diversity of tree species can assist in moderating temperatures day and night, by providing variation to the canopy cover. Canopies should provide adequate shade and allow sufficient air movement.
- GUIDANCE: Where trees are not possible, use pergolas with deciduous climbers and/or artificial shade structures.
- GUIDANCE: Rain gardens, grassed areas, green walls, green roofs, permeable pavements and water features contribute to cooling the microclimate.
- GUIDANCE: To reduce heat build-up and protect thermal comfort, use of lighter coloured materials and permeable surfaces will also reduce heat storage. Avoid dark coloured pavers and landscaping materials (e.g for forecourts and paths) as they absorb, trap and re-radiate heat throughout a hot evening.

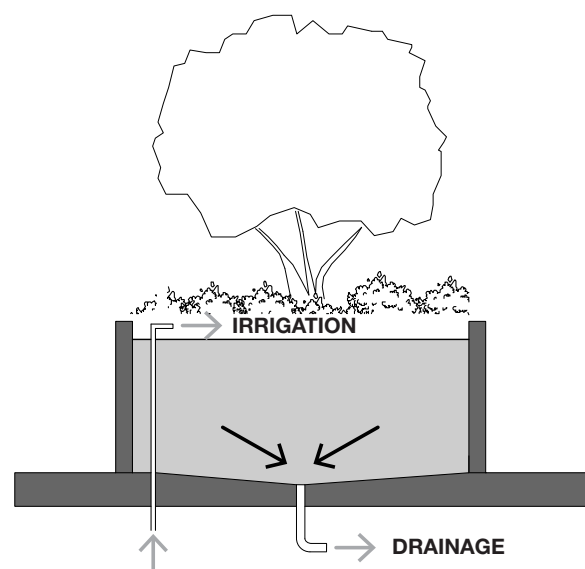
4.6 Where the deep soil standard cannot be met due to the urban context, alternative forms of landscaping should demonstrate equivalent canopy cover.

- GUIDANCE: Planting over structures and green facades and roofs can assist to integrate landscape into small or constrained sites.



Plan diagram. Alternative forms of landscaping without deep soil.

- GUIDANCE: Planters with adequate soil depth, soil quality, drainage and irrigation can support significant tree planting and climbing planting over structures to provide shade and vertical greenery.



Plan diagram. Planter with soil depth, irrigation and drainage.

Supporting information

- Provide a site plan which locates the type and size of trees on the site, including those trees that have been removed within 12 months prior to the application.
- Provide a landscape plan which includes a summary table with the area of deep soil and number and size of canopy trees at maturity, or where the minimum number of trees is not provided, indicate how the alternative solution provides for equivalent canopy cover.
- An arborists' report, where relevant, including information relating to removed trees (such as aerial photography or survey).
- Where existing trees are proposed to be retained, a tree protection zone should be nominated in an arborists report and shown on application plans, together with details of protection to be undertaken during construction.

Guidance to building entry and circulation

Why this is important

Apartment entries add to the quality and character of the street and pedestrian experience. Well-designed apartment entries and circulation spaces create a sense of identity, encourage social interaction and support safe and convenient access for occupants and visitors to apartment developments.

Application

Clause 55.07-8 (Building entry and circulation) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.05-2 (Building entry and circulation) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Building entry and circulation objectives (Clause 58.05-2 or Clause 55.07-8)

To provide each dwelling and building with its own sense of identity.

To ensure the internal layout of buildings provide for the safe, functional and efficient movement of residents.

To ensure internal communal areas provide adequate access to daylight and natural ventilation.

Standard (D18 or B42)

Entries to dwellings and buildings should:

- Be visible and easily identifiable.
- Provide shelter, a sense of personal address and a transitional space around the entry.

The layout and design of buildings should:

- Clearly distinguish entrances to residential and non-residential areas.
- Provide windows to building entrances and lift areas.
- Provide visible, safe and attractive stairs from the entry level to encourage use by residents.
- Provide common areas and corridors that:
 - Include at least one source of natural light and natural ventilation.
 - Avoid obstruction from building services.
 - Maintain clear sight lines.

Decision guidelines

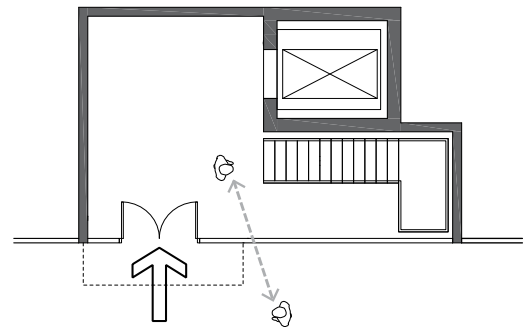
Before deciding on an application, the responsible authority must consider:

- The design response.
- The useability and amenity of internal communal areas based on daylight access and the natural ventilation it will receive.

5.1 Locate the main pedestrian entry to provide a sense of address by being clearly visible and accessible from the street.

- GUIDANCE: Building entrances help visitors orient themselves. Entries and foyers should be comfortable, sheltered, safe, convenient and visible during the day and night.
- GUIDANCE: Emphasise residential entry lobbies with prominent design features, signage or landscape treatments
- GUIDANCE: Provide a sense of identity to individual dwellings with an internal entry that can be easily recognised.

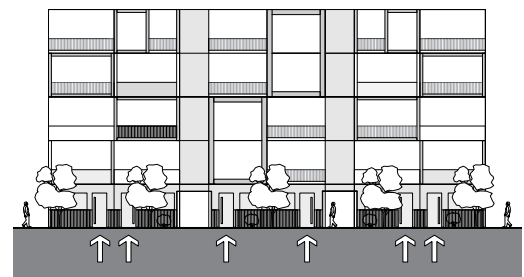
5.2 Provide clear sightlines from the foyer to the street so people can see both in and out when entering or leaving the building.



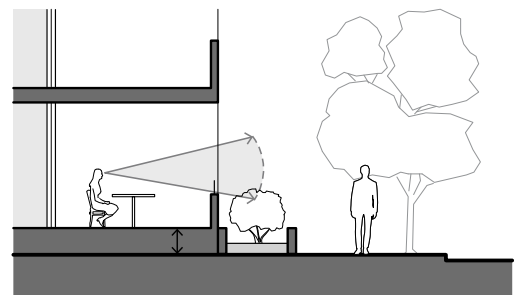
Clear sightlines to entry lobby.

5.3 Where ground floor dwellings face the street, individual entrances can assist in promoting a sense of personal address and activate the street.

- GUIDANCE: Elevating dwelling floors and balcony spaces slightly above the street level provides both a sense of privacy and better sightlines to streets and public spaces.
- GUIDANCE: Where ground level units are raised above street level, achieve level access via the main apartment entry door off the circulation corridor.



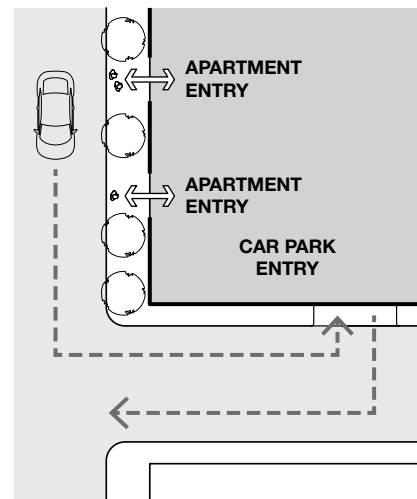
Section diagram. Ground floor dwellings with individual entries.



Section diagram. Elevated dwelling above the street level.

5.4 Separate the pedestrian and vehicle entries to the buildings.

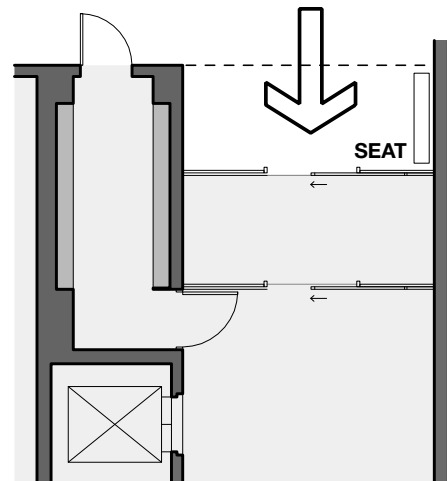
- GUIDANCE: Separating vehicle entries from pedestrian entries enhances pedestrian safety.
- GUIDANCE: Vehicle entries that are designed to be less prominent or recessive improve the streetscape.



Plan diagram. Separate pedestrian and vehicle entry.

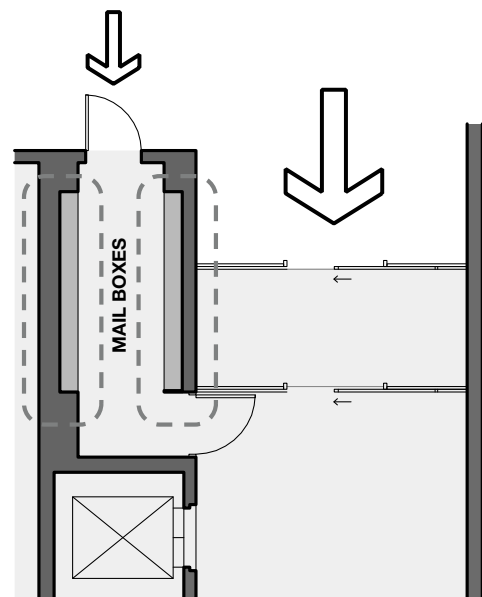
5.5 Provide shelter and waiting space on the street at pedestrian entries to buildings.

- GUIDANCE: Design sheltered areas outside the secure entry areas in higher density residential buildings with canopies or building overhangs.



Plan diagram. Shelter and waiting space outside a lobby.

5.6 Provide mail boxes and parcel post facilities close to the building entries in a well-lit and weather protected area, with potential for informal surveillance.

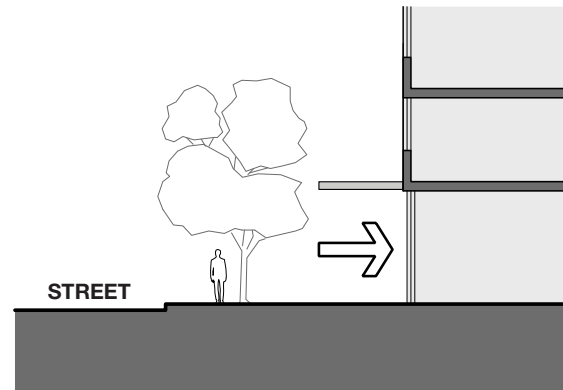


Plan diagram. A separate mailbox room with glass doors.

5.7 Locate and arrange utility service installations to minimise their impact on the building's active street frontage.

5.8 Provide appropriate access between street ground level and the entry lobby floor level for safe, functional and efficient movement.

→ GUIDANCE: Where possible, avoid steps and long ramps up to the building foyer.



Section diagram. Convenient access to an entry lobby.

5.9 Design windows and openings in corridors to respond to the site context.

→ GUIDANCE: Design the type, placement and size of windows to respond to access to sunlight and daylight, surrounding buildings, view opportunities and outlook, informal surveillance to public and communal areas, natural and cross ventilation and any adjacent noise sources.

Supporting documentation

Nominate the source of natural light and ventilation into common areas and circulation on application plans.

Section 2 | BUILDING PERFORMANCE

Guidance to noise impacts

Why this is important

Reducing internal and external noise impacts is important to occupant wellbeing and amenity. Apartments located in urban environments near industrial areas, major roads and railway lines are subject to significant noise impacts requiring careful design responses.

Application

Clause 55.07-6 (Noise impacts) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.04-3 (Noise impacts) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Noise impacts objectives (Clause 58.04-3 or Clause 55.07-6)

To contain noise sources in developments that may affect existing dwellings.

To protect residents from external and internal noise sources.

Standard (D16 and B40)

Noise sources, such as mechanical plants should not be located near bedrooms of immediately adjacent existing dwellings.

The layout of new dwellings and buildings should minimise noise transmission within the site.

Noise sensitive rooms (such as living areas and bedrooms) should be located to avoid noise impacts from mechanical plants, lifts, building services, non-residential uses, car parking, communal areas and other dwellings.

New dwellings should be designed and constructed to include acoustic attenuation measures to reduce noise levels from off-site noise sources.

Buildings within a noise influence area specified in Table D3 and B6 should be designed and constructed to achieve the following noise levels:

- Not greater than 35dB(A) for bedrooms, assessed as an LAeq,8h from 10pm to 6am.
- Not greater than 40dB(A) for living areas, assessed LAeq,16h from 6am to 10pm.

Buildings, or part of a building screened from a noise source by an existing solid structure, or the natural topography of the land, do not need to meet the specified noise level requirements.

Noise levels should be assessed in unfurnished rooms with a finished floor and the windows closed.

Table D3 and B6 Noise influence area

| Noise source | Noise influence area |
|--|---|
| Zone interface Industry | 300 metres from the Industrial 1, 2 and 3 zone boundary |
| Roads Freeways, tollways and other roads carrying 40,000 Annual Average Daily Traffic Volume | 300 metres from the nearest trafficable lane |
| Railways Railway servicing passengers in Victoria | 80 metres from the centre of the nearest track |
| Railway servicing freight outside Metropolitan Victoria | 80 metres from the centre of the nearest track |
| Railway servicing freight in Metropolitan Melbourne | 135 metres from the centre of the nearest track |

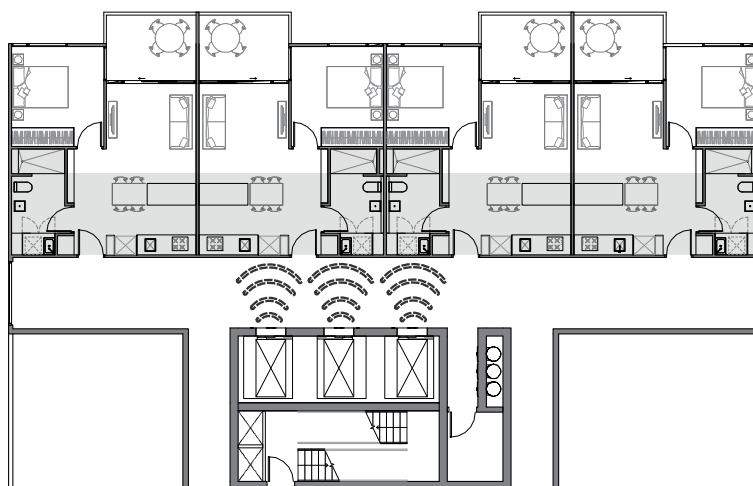
Note: The noise influence area should be measured from the closest part of the building to the noise source.

Decision guidelines

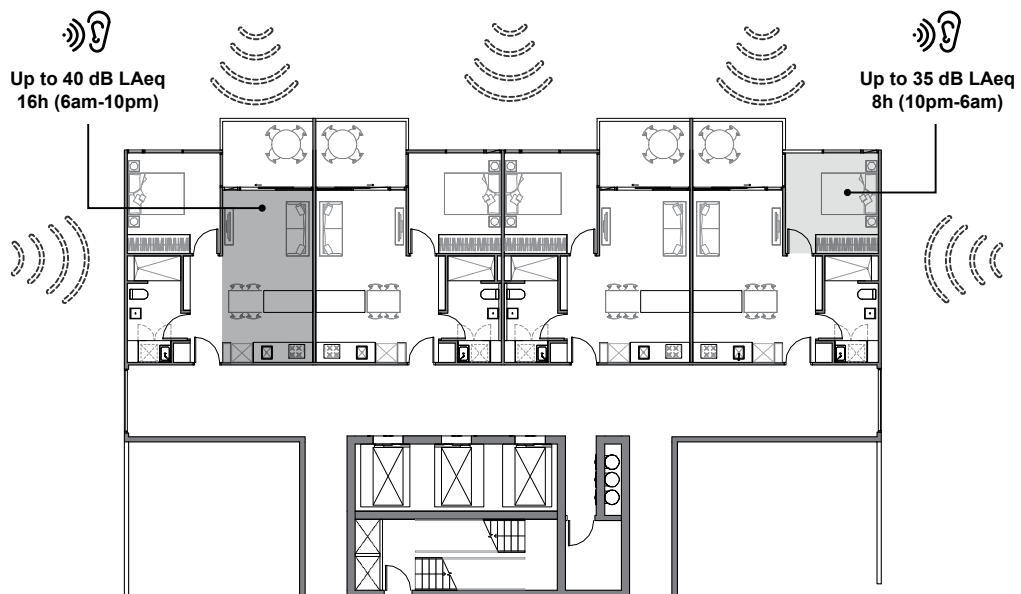
Before deciding on an application, the responsible authority must consider:

- The design response.
- Whether it can be demonstrated that the design treatment incorporated into the development meets the specified noise levels or an acoustic report by a suitably qualified consultant submitted with the application.
- Whether the impact of potential noise sources within a development have been mitigated through design, location and siting.
- Whether the layout of rooms within a dwelling mitigates noise transfer within and between dwellings.
- Whether an alternative design meets the relevant objectives having regard to the amenity of the dwelling and the site context.

Internal noise sources



External noise sources



Design guidance

Interpreting the Standard

An apartment development located within a noise influence area specified in Table D3 and B6 of the Standard is required to meet the specified noise levels by undertaking an assessment of the impact of external noise through either an acoustic report prepared by a suitably qualified consultant or by applying an appropriate design treatment. In some instances, an acoustic report is not required if standard design treatment for noise is used.

An acoustic report is a detailed acoustic assessment incorporating external noise exposure measurements or modelling of the proposed building design to demonstrate suitable design responses can achieve the standard.

The acoustic report must be prepared by an experienced, professional acoustic engineering consultant who should either be a member of, or have the qualifications to become a member of the Australian Acoustic Society (AAS) or the Association of Australian Acoustical Consultants (AAAC).

A standard design treatment for noise is a prescribed building construction method based on the known performance of the construction materials used including documentation, plans and product certification specifying the level of sound attenuation performance of the materials used for the relevant level of noise exposure.

When a standard design treatment for noise is applied the selection of materials must be supported by evidence of the acoustic performance of the material. A product performance specification certificate from a National Association of Testing Authorities (NATA) accredited laboratory (or international equivalent) is considered sufficient evidence.

Where a standard design treatment for noise is not available a detailed acoustic assessment will be required to demonstrate compliance with the noise standard.

Further information about an acoustic report or applying a standard design treatment for noise to meet the standard is provided in *Planning Practice Note 83: Assessing external noise impacts for apartments*.

Which approach is applicable within a Noise Influence Area?

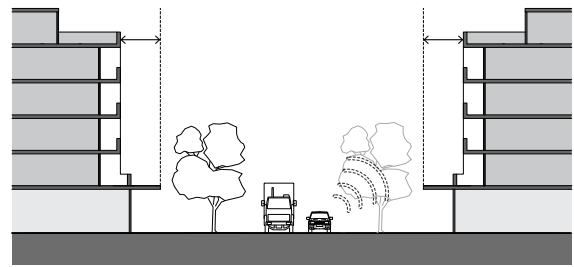
- **Industry Noise Influence Area** – an acoustic report is required to meet the standard. There is no standard design treatment available to meet the standard.
- **Roads Noise Influence Area** – an acoustic report or a standard design treatment for noise can be used depending upon the traffic volume, speed limit and distance of road kerb.
- **Railways Noise Influence Area** – an acoustic report or a standard design treatment for noise can be used to meet the standard depending upon the type of railway line and the distance from the railway line.

Note: Refer to Planning Practice Note 83: Assessing external noise impacts for apartments to determine what standard design treatments are acceptable within a Railways or Roads Noise Influence Area.

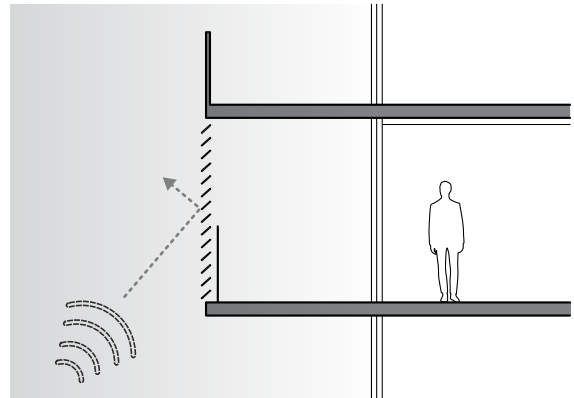
6.1 If the development is not within a Noise Influence Area

→ GUIDANCE: Use building siting, layout and design of dwellings to reduce the impact of external noise sources. Design techniques to mitigate noise include:

- Locating windows of habitable rooms away from noise sources or limiting the extent of openings facing the noise source.
- Physically separating residential uses from a noise source by additional setbacks or the use of a podium.
- Providing acoustic glazing, or enclosed balconies (winter gardens).
- Solid balustrades incorporated into balconies to act as a shield to the noise source below.
- Providing acoustic seals to openings.
- Using materials with mass and/or sound absorption properties.



Section diagram. Podiums and barriers oriented and sized to screen noise.



Section diagram. Wintergardens may screen noise.

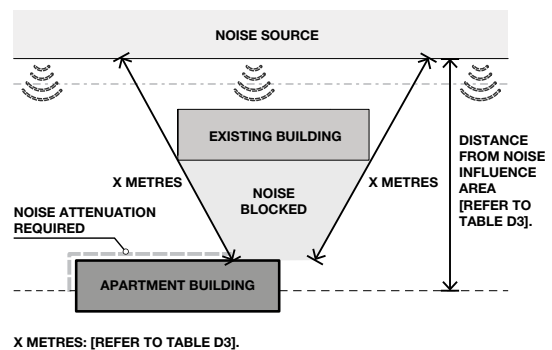
6.2 If the development is within a Noise Influence Area

→ GUIDANCE: Measure distances from the designated noise source specified in Table D3 or B6 to the nearest point of the building's external facade. Oblique line-of-sight exposure applies even if exposure is obscured directly in front of the dwelling.

→ GUIDANCE: Identify portions of the external facade that are exposed to the designated noise source. Portions of the external facade obscured by a solid, permanent structure such as a noise barrier, an earth mound, an existing building or the natural topography of the land may not need to be assessed.

→ GUIDANCE: While low rise buildings may benefit from shielding provided by topography, barriers or other buildings, high rise buildings usually receive less shielding and noise mitigation needs to be considered at the outset in the layout and building design.

→ GUIDANCE: Demonstrate the adequacy of any 'line of sight' shielding from a new or pre-existing noise barrier wall. Refer to *Planning Practice Note 83: Assessing external noise impacts for apartments* for further technical guidance on this matter.



Plan diagram. Determining Noise Influence Area.

6.3 Ventilation

→ GUIDANCE: In particularly high noise locations a separate means of ventilation beyond operable windows should be considered because occupants are likely to keep windows closed and so may suffer from poor indoor air quality. Design responses can include locations ventilation openings on a quieter facade, use of borrowed ventilation, attenuated air relief openings or mechanical ventilation.

Mechanical ventilation can take many forms from wall mounted fan assisted acoustic units to central ventilation systems, but attenuated relief openings should be appropriately rated to achieve suitable sound insulation.

6.4 Meet the noise requirements through an acoustic report or a standard design treatment.

→ GUIDANCE: Provide an acoustic report prepared by a suitably qualified acoustic consultant to demonstrate that the specified noise levels are achieved.

→ GUIDANCE: Where an acoustic report is provided, the report should ensure noise modelling of the proposed building design demonstrates suitable design responses can be achieved.

- For road traffic noise, the assessment should include a minimum of three days during which the noise measurements have not been adversely affected by meteorological conditions.
- For rail noise, the assessment should include a minimum of 20 train pass-by events over a 24-hour peak day of the week period. For train lines carrying freight, the freight timetable should be consulted to ensure measurements include peak events.
- For industrial areas, where noise can be highly inconsistent, the assessment should include seven days of continuous 24 hour measurement.
- When preparing the report, noise attenuation should be applied for the whole room where the living room or bedroom is partially within the noise influence area. Bedrooms should include all ensuites and walk-in robes that do not have a permanent door separating them from the bedroom. Living areas should include all kitchen or study areas that are included within the room in open plan designs.

→ GUIDANCE: Where a standard design treatment is applied the construction material should be appropriate to the external noise exposure category. Refer to *Planning Practice Note 83: Assessing external noise impacts for apartments* for guidance on the acoustic performance of the construction material.

→ GUIDANCE: Where a standard design treatment is applied documentation to verify use of appropriate construction materials is required.

Supporting information

- Provide an acoustic report from a suitably qualified acoustic consultant including validated design and construction responses to demonstrate compliance (modelled for exposed unfurnished units with a finished floor consistent with submitted design).
- Where a standard design treatment has been adopted, provide documentation to verify appropriate materials and construction responses have been applied.
- Plans should show the distances from any designated noise sources in Table D3 and B6 Noise influence area, including details of any permanent structure that obscures (or partially obscures) the proposed building, and natural ground levels where topography of the land attenuates noise sources.

Guidance to energy efficiency

Why this is important

Apartments that are energy efficient through passive design provide good thermal comfort and daylight access and reduce energy costs. With the ongoing effects of climate change ensuring the thermal performance of apartments over summer will become increasingly important. Reducing energy costs is important for housing affordability and reducing the effects of fossil fuel consumption.

Application

Clause 55.07-1 (Energy efficiency) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.03-1 (Energy efficiency) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Energy efficiency objectives (Clause 58.03-1 or Clause 55.07-1)

To achieve and protect energy efficient dwellings and buildings.

To ensure the orientation and layout of development reduce fossil fuel energy use and make appropriate use of daylight and solar energy.

To ensure dwellings achieve adequate thermal efficiency.

Standard (D6 or B35)

Buildings should be:

- Oriented to make appropriate use of solar energy.
- Sited and designed to ensure that the energy efficiency of existing dwellings on adjoining lots is not unreasonably reduced.

Living areas and private open space should be located on the north side of the development, if practicable.

Developments should be designed so that solar access to north-facing windows is optimised.

Dwellings located in a climate zone identified in Table D1 should not exceed the maximum NatHERS annual cooling load in the following table.

Table D1 Cooling load

| NatHERS climate zone | NatHERS maximum cooling load MJ/M ² per annum |
|-----------------------------|---|
| Climate zone 21 Melbourne | 30 |
| Climate zone 22 East Sale | 22 |
| Climate zone 27 Mildura | 69 |
| Climate zone 60 Tullamarine | 22 |
| Climate zone 62 Moorabbin | 21 |
| Climate zone 63 Warrnambool | 21 |
| Climate zone 64 Cape Otway | 19 |
| Climate zone 66 Ballarat | 23 |

Note: Refer to NatHERS zone map, Nationwide House Energy Rating Scheme (Commonwealth Department of Environment and Energy).

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The size, orientation and layout of the site.
- The existing amount of solar access to abutting properties.
- The availability of solar access to north-facing windows on the site.
- The annual cooling load for each dwelling.

Design guidance

Interpreting the Standard

The cooling loads in Table D1 complement the energy efficiency requirements in the National Construction Code (NCC). Adoption of the cooling load cap for each apartment in a development is in addition to NCC requirements which are based on a 6-star average across an apartment development and 5-star minimum for an individual apartment.

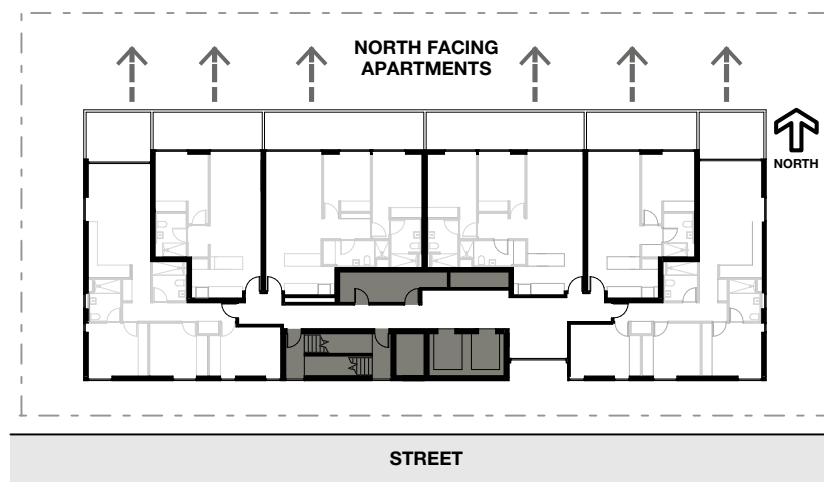
Applying a cooling cap will improve the energy efficiency and thermal comfort of the poorer performing apartments of an apartment building compared to compliance with the NCC standard alone.

The different cooling loads reflect the varied climatic contexts across Victoria. The relevant NatHERS climate zone maps can be determined from: http://www.nathers.gov.au/sites/all/themes/custom/nathers_2016/climate-map/index.html

Energy efficiency in construction is complex and use of current best practice design and energy assessment reporting tools are normally required to demonstrate that the objectives of this Standard are met

The cooling load measure is built into the existing star rating tool (NatHERS) and compliance is demonstrated with the standard NatHERS certificate.

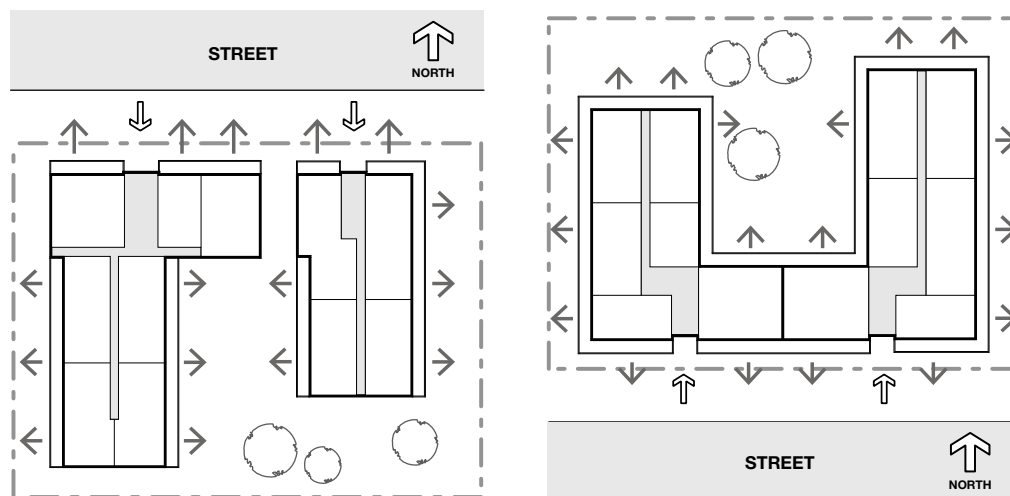
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- 7.1** Plan for energy efficiency of buildings and involve a specialist ESD consultant early in the design process to make energy efficient design integral to the building form and layout.



Plan diagram: Example internal layouts with good solar access.

- GUIDANCE: Configure internal apartment layouts to optimise solar access opportunities.
- GUIDANCE: Passive design principles such as correct solar orientation should be considered part of the urban context report and design response.

→ GUIDANCE: Building orientation, and layout should balance addressing the street with achieving optimum solar access.



Plan diagram. Example orientation with good solar access.

7.2 Apply the cooling load caps for all apartments.

→ GUIDANCE: Note this measure targets the worst performing 15% of dwellings in apartment buildings subject to excessive heat load over summer. The proportion of dwellings affected may be higher in buildings where site constraints mean that the majority of windows face east and west.

7.3 Reduce building cooling loads through design and construction responses.

→ GUIDANCE: Design techniques include:

- Reducing area of glazing for windows facing east or west will lower heat gains in summer (and reduce the cooling load), as well as lower heat losses in winter. Window size reduction will typically be the most cost effective straightforward means of reducing cooling loads.
- External sun shading and solar control devices should be integrated into the building design where possible. Vertical shading is suited to east and west aspects and horizontal shading to northern aspects. North facing sun shading should be designed to allow winter sun and shade summer sun. Adjustable external shading of windows allows for occupant control. This is effective in climates with highly variable weather.
- Maximising the use of effective natural ventilation. Cross ventilated apartments are also an effective means of reducing cooling loads. Refer to the natural ventilation standard.
- Hard floor surfaces allow the thermal mass of the floor to better moderate the impact of solar heat gain on the performance of the dwelling.
- Providing insulation on the outer side of building elements with high thermal mass materials like brick or concrete ensures they do not heat up as much in hot weather
- Selecting glazing with low Solar Heat Gain Coefficient (SHGC) particularly on the west and east where highest solar heat gain is experienced, will support thermal performance. Note, low solar heat gain glazing includes tinted and/or Low E coated glass with a maximum solar heat gain co-efficient of 0.4.
- Use of ceiling fans. Particularly in warmer climate zones these help the occupant at least delay the onset of cooling on hot days or avoid cooling altogether on milder days.

Supporting documentation

Provide the standard outputs from existing NatHERS tools. The NatHERS certificate provides verification of the cooling load performance.

Guidance to waste and recycling

Why this is important

Good waste management promotes recycling, protects the environment and addresses health and safety risks. Apartment developments with good waste management facilities minimise the impacts of waste on the health and wellbeing of occupants and the amenity of the public realm.

Application

Clause 55.07-11 (Waste and recycling) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.06-3 (Waste and recycling) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Waste and recycling objectives (Clause 58.06-3 or Clause 55.07-11)

To ensure dwellings are designed to encourage waste recycling.

To ensure that waste and recycling facilities are accessible, adequate and attractive.

To ensure that waste and recycling facilities are designed and managed to minimise impacts on residential amenity, health and the public realm.

Standard (D23 or B45)

Developments should include dedicated areas for:

- Waste and recycling enclosures which are:
 - Adequate in size, durable, waterproof and blend in with the development.
 - Adequately ventilated.
 - Located and designed for convenient access by residents and made easily accessible to people with limited mobility.
- Adequate facilities for bin washing. These areas should be adequately ventilated.
- Collection, separation and storage of waste and recyclables, including where appropriate opportunities for on-site management of food waste through composting or other waste recovery as appropriate.
- Collection, storage and reuse of garden waste, including opportunities for on-site treatment, where appropriate, or off-site removal for reprocessing.
- Adequate circulation to allow waste and recycling collection vehicles to enter and leave the site without reversing.
- Adequate internal storage space within each dwelling to enable the separation of waste, recyclables and food waste where appropriate.

Waste and recycling management facilities should be designed and managed in accordance with a Waste Management Plan approved by the responsible authority and:

- Be designed to meet the best practice waste and recycling management guidelines for residential development adopted by Sustainability Victoria.
- Protect public health and amenity of residents and adjoining premises from the impacts of odour, noise and hazards associated with waste collection vehicle movements.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- Any relevant waste and recycling objective, policy or statement set out in this scheme.

Design guidance

8.1 Prepare a Waste Management Plan (WMP) that details how different waste streams (including hard waste) will be stored and collected in the development.

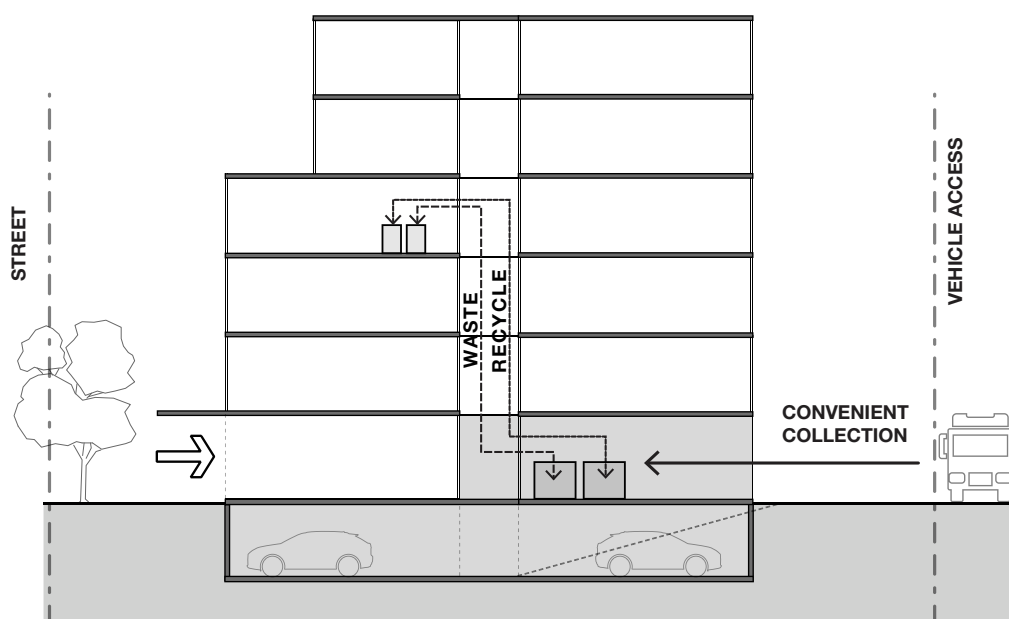
- GUIDANCE: A waste management plan should be prepared by a suitably qualified waste consultant. The typical contents of a WMP are outlined under the supporting documentation. The responsible authority may have additional requirements.
- GUIDANCE: The waste management plan should provide a clear method for storage, collection, and disposal of household waste, recyclables, green waste and hard waste.

8.2 Provide bins suitably sized to accommodate all categories of waste. Provide a waste room that is sufficiently sized to accommodate all bins.

- GUIDANCE: Refer to local council waste management guidelines to determine required waste provision and information requirements.
- GUIDANCE: Minimise the need for multiple collections over a week to reduce disruptive noise by providing adequate waste storage for weekly collection.
- GUIDANCE: Provide adequate space to manoeuvre and access the bins to encourage tidy use and ease collection.
- GUIDANCE: On floors where there are apartments that comply with the accessibility standards, common storage areas for waste and recyclables should be accessible for residents with limited mobility.
- GUIDANCE: Where residents must access the basement or common storage areas to dispose of waste or recyclables, ensure that these areas are accessible for residents with limited mobility.

8.3 Nominate waste collection vehicle size, access points and movement paths.

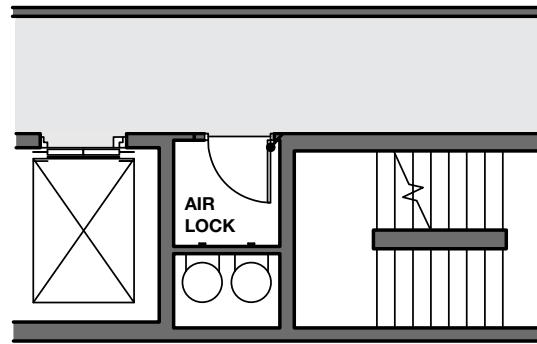
- GUIDANCE: Design access to waste storage areas to minimise the movement of waste collection vehicles to reduce traffic disruption and increase safety. Limiting reversing of trucks limits noise associated with reversing alarms.
- GUIDANCE: Provide adequate clearance above collection points taking into account the height of collection vehicles while lifting bins.
- GUIDANCE: Use swept path analysis to determine if a design will meet the manoeuvring requirements of the collection vehicle. It will also inform design responses to limit reversing of trucks and associated noise from reversing alarms.



Waste and recycling management.

- 8.4** Provide dual waste and recycling chutes (or equivalent system) in taller buildings with openings on each floor to provide convenient access for residents.

→ GUIDANCE: Waste chutes should be accessible from each level and located in a convenient, centrally located position, e.g. adjacent to the lift shaft.



Section diagram. Airlock design for accessibility and amenity.

- 8.5** Design waste facilities to provide adequate drainage, noise and odour controls including provisions for a bin wash down area.

→ GUIDANCE: Provide adequate ventilation to the bin room to prevent the build-up of odours. Providing a bin wash down area to allow bins to be cleaned will prevent the generation of odours.

→ GUIDANCE: Ensure bin room drainage does not lead to stormwater pollution.

→ GUIDANCE: Locate the waste chutes, bin rooms and waste collection points to minimise noise impacts for residents and uses adjacent to the site. Use acoustic insulation to reduce noise impacts where waste chutes are provided.

Supporting documentation

Locate and dimension waste storage facilities on plans.

Typical Checklist for a Waste Management Plan

When preparing a Waste Management Plan (WMP) complete and include the following checklist with the WMP.

| Plan Element | Completed |
|--|-----------|
| Project details: | |
| • Site address | |
| • Development/ land use type | |
| • Number of storeys | |
| • Number of dwellings | |
| – 1 Bedroom | |
| – 2 Bedroom | |
| – 3 or more bedrooms | |
| • Floor area of any additional space types, e.g. communal facilities or commercial spaces. | |
| Estimated Waste Generation: | |
| • Waste generation rates of each waste type. | |
| • Waste generation for each space type | |
| • Total waste generation rates for the development | |
| Bin Requirements: | |
| • Volume and dimensions (relative to demand and aim to reduce collection frequency) | |
| • Number | |
| • Type and colour | |

| Plan Element | Completed |
|--|-----------|
| Waste Storage: | |
| • Size and location of waste room, and facilities at each floor level | |
| • Bin chutes (Design e.g. dual chute) | |
| • Odour, pest, noise, and pollution management | |
| • Description of how hard waste will be managed | |
| • Green waste management (and Food waste) (where applicable) | |
| • Description of any waste and recycling equipment used, e.g. compactors, carousels. | |
| Bin Collection: | |
| • Access points | |
| • Collection frequency and timing | |
| • Council/Private collection | |
| • Traffic and noise management (inc swept path analysis) | |
| Additional requirements: | |
| • Details on how waste management information will be distributed to residents | |
| • Signage | |
| • Scaled waste management drawings | |
| • Accessibility to waste rooms and receptacles for residents with limited mobility | |

Guidance to integrated water and stormwater management

Why this is important

The water management standard aligns with objectives of the Victorian Government's Water for Victoria plan which supports measures to make best use of all water sources, reduce pollution of waterways, minimise the contribution of stormwater runoff to localised flooding and support cooling and greening of urban environment in the face of a changing climate.

Application

Clause 55.07-5 (Integrated water and stormwater management) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.03-8 (Integrated water and stormwater management) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Integrated water and stormwater management objectives (Clause 58.03-8 or Clause 55.07-5)

To encourage the use of alternative water sources such as rainwater, stormwater and recycled water.

To facilitate stormwater collection, utilisation and infiltration within the development.

To encourage development that reduces the impact of stormwater run-off on the drainage system and filters sediment and waste from stormwater prior to discharge from the site.

Standard (D13 or B39)

Buildings should be designed to collect rainwater for non-drinking purposes such as flushing toilets, laundry appliances and garden use.

Buildings should be connected to a non-potable dual pipe reticulated water supply, where available from the water authority.

The stormwater management system should be:

- Designed to meet the current best practice performance objectives for stormwater quality as contained in the Urban Stormwater – Best Practice Environmental Management Guidelines (Victorian Stormwater Committee 1999) as amended.
- Designed to maximise infiltration of stormwater, water and drainage of residual flows into permeable surfaces, tree pits and treatment areas.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- Any relevant water and stormwater management objective, policy or statement set out in this scheme.
- The design response.
- Whether the development has utilised alternative water sources and/or incorporated water sensitive urban design.
- Whether discharge from the site to the stormwater will adversely affect water quality entering the drainage system.
- The capacity of the drainage network to accommodate additional stormwater.
- Whether the stormwater treatment areas can be effectively maintained.

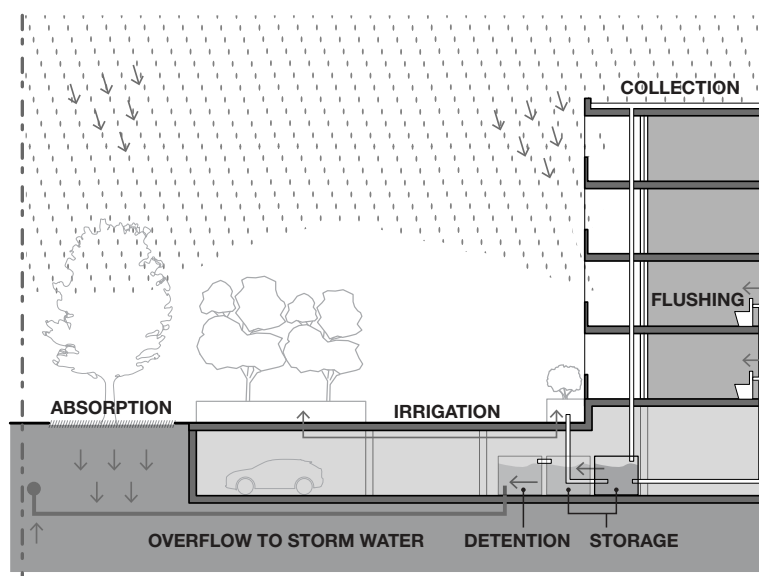
Design guidance

Interpreting the Standard

Stormwater is water which drains off the site and buildings and is discharged into waterways. It primarily consists of runoff rainwater and may contain particles, organic matter, litter, chemicals etc. that without treatment can pollute downstream waterways. Other water discharges from cooling units or basement pumps also need to be managed appropriately.

9.1 Reduce stormwater runoff from the lot to the minimum volume possible.

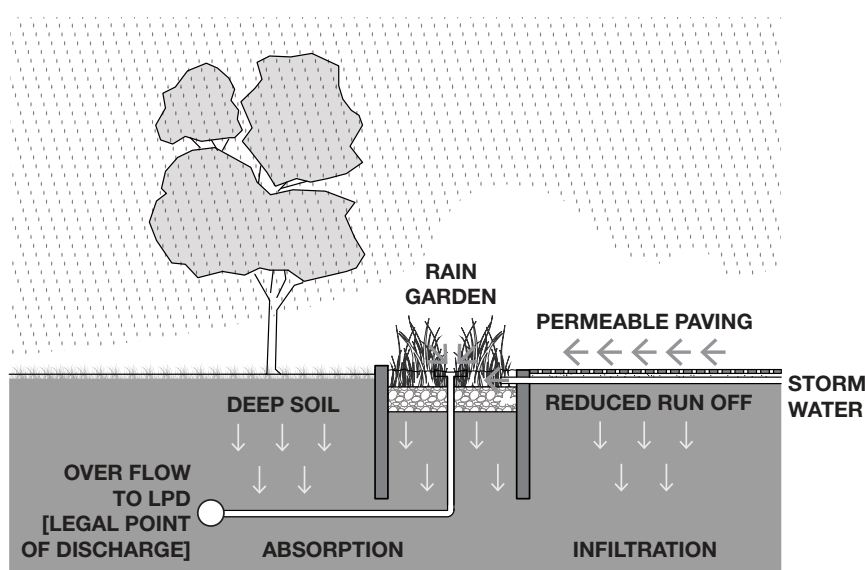
- GUIDANCE: Capture and use rainwater and stormwater to the maximum extent practicable (i.e. by maximising onsite retention) for non-potable uses including toilet flushing, clothes washing, garden watering and green roofs (where practical). Onsite detention of stormwater may also be integrated with rainwater collection to protect against localised flooding.
- GUIDANCE: Demand from one to two floors may be sufficient to utilise all collectable rainwater. Designing a tank system for prompt drawdown through increased internal use can assist with both improved pollutant reduction and minimising initial discharges during rainfall events (to reduce risk of localised flooding).
- GUIDANCE: Runoff from impervious services can be caught and filtered via suitable landscape design and treatment areas to clean and reduce discharges into waterways.



Section diagram. Integrated rainwater reuse and onsite detention.

9.2 Apply principles of water sensitive urban design (WSUD) to reduce the volume of stormwater runoff and to improve the quality of stormwater.

- GUIDANCE: Porous paving and rain gardens are practical measures suitable for most developments including constrained sites. Peak flow diversions to deal with storm events are necessary.
- GUIDANCE: Porous paving requires a basic maintenance regime (e.g., sweeping, vacuuming or high-pressure machine washing) to maintain effectiveness and should be designed to accommodate intended loading.
- GUIDANCE: Measures to buffer and slow the rate of discharge should be applied wherever possible. Design techniques include pavements with surface tapering towards tree plantings or use of swales and infiltration strips.
- GUIDANCE: Residual flows should be infiltrated into deep soil areas (See Landscape section) and filtered through garden areas and sediment traps.



Section diagram. Permeable paving, rain gardens and deep soil reduce the volume and treat stormwater.

9.3 The storm water drainage system should be designed so that any overflow during heavy rain periods is safely conveyed to the legal point of discharge (LPD) to protect public safety and property.

9.4 Connect the apartment building to a reticulated recycled water supply (purple pipe) where available.

- GUIDANCE: This can operate in conjunction with retention and use of rainwater as part of an integrated approach.

Supporting documentation

Clear demonstration of how the design response meets the standards as a part of a sustainability management plan.

Outputs from software models used (such as MUSIC or the STORM calculator) to ensure good practice water and stormwater management. Suitable design tools for smaller developments include the STORM Calculator and for larger more complex sites modelling using MUSIC is appropriate.

Section 3 | DWELLING AMENITY

Guidance to functional layout

Why this is important

Functional apartments have layouts which meet the needs of residents with room sizes and configurations which are appropriate for their intended use. Adaptable layouts provide for future household changes providing longevity of housing stock. The long-term needs of a community require a range of housing types so people of different ages, backgrounds and needs are provided for.

Application

Clause 55.07-12 (Functional layout) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.07-1 (Functional layout) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Functional layout objective (Clause 58.07-1 or Clause 55.07-12)

To ensure dwellings provide functional areas that meet the needs of residents.

Standard (D24 or B46)

Bedrooms should:

- Meet the minimum internal room dimensions specified in Table D7.
- Provide an area in addition to the minimum internal room dimensions to accommodate a wardrobe.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The useability, functionality and amenity of habitable rooms.

Table D7 Bedroom dimensions

| Bedroom type | Minimum width | Minimum depth |
|--------------------|---------------|---------------|
| Main bedroom | 3 metres | 3.4 metres |
| All other bedrooms | 3 metres | 3 metres |

Living areas (excluding dining and kitchen areas) should meet the minimum internal room dimensions specified in Table D8.

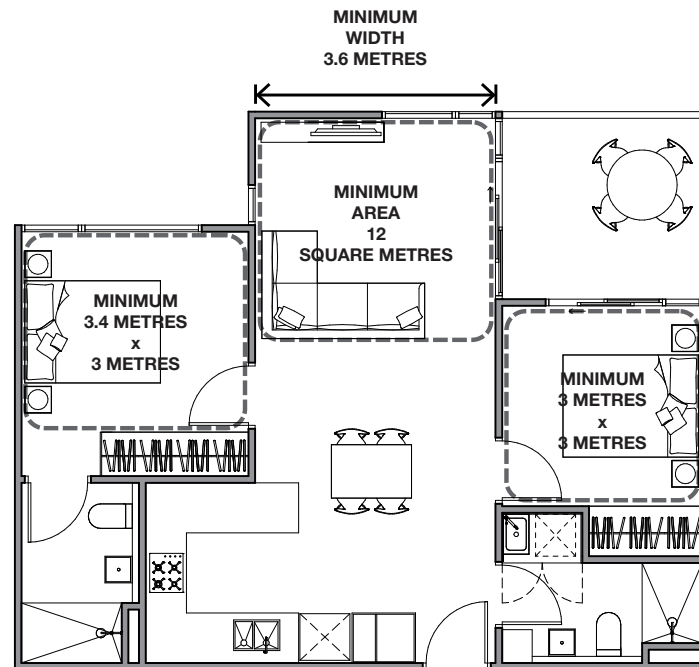
Table D8 Living area dimensions

| Dwelling type | Minimum width | Minimum area |
|-------------------------------|---------------|--------------|
| Studio and 1 bedroom dwelling | 3.3 metres | 10 sqm |
| 2 or more bedroom dwelling | 3.6 metres | 12 sqm |

Design guidance

Interpreting the Standard

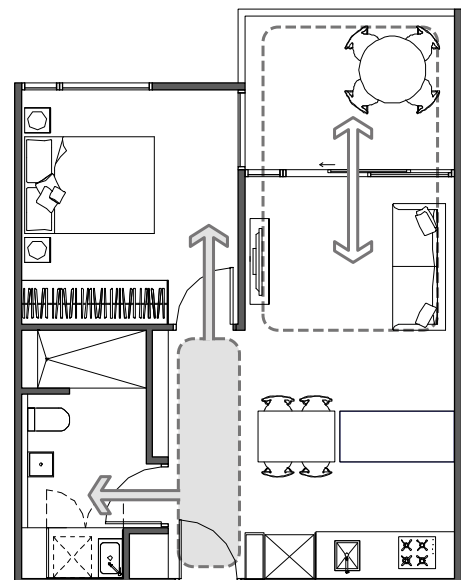
There is no restriction on how the width and depth dimensions are applied to a bedroom layout.



2 BEDROOM DWELLING

- 10.1** Demonstrate usability and functionality of room configurations by including furniture layouts with realistically scaled furniture and adequate circulation space.

- GUIDANCE: Arrange rooms with efficient circulation and appropriate privacy between spaces.
- GUIDANCE: Provide kitchen layouts with sufficient space for cooking, cleaning, food preparation and storage. Where dining is included within a kitchen, adequate bench space should be provided.



Plan diagram. Furnished layouts demonstrate the function of the rooms.

10.2 Apartment layouts which propose irregularly shaped or atypical spaces, need to demonstrate functionality and usability of the design with realistically scaled furniture and circulation.

→ GUIDANCE: Use standard bed sizes and allow for a functional circulation path.

→ GUIDANCE: Demonstrate that areas for dining provide for functional seating arrangements appropriate to the apartment size and number of bedrooms.

Supporting documentation

Provide dimensioned plans showing minimum depth, width and area outline of bedrooms and the living room.

Guidance to room depth

Why this is important

Room depth and height determine the amount and quality of daylight penetration from a window.

Adequate daylight is important for occupant health and energy efficiency.

Application

Clause 55.07-13 (Room depth) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.07-2 (Room depth) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Room depth objective (Clause 58.07-2 or Clause 55.07-13)

To allow adequate daylight into single aspect habitable rooms.

Standard (D25 or B47)

Single aspect habitable rooms should not exceed a room depth of 2.5 times the ceiling height.

The depth of a single aspect, open plan, habitable room may be increased to 9 metres if all the following requirements are met:

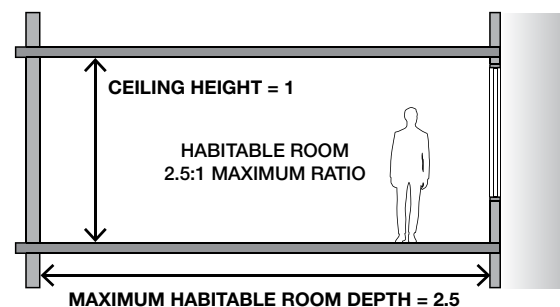
- The room combines the living area, dining area and kitchen.
- The kitchen is located furthest from the window.
- The ceiling height is at least 2.7 metres measured from finished floor level to finished ceiling level. This excludes where services are provided above the kitchen.

The room depth should be measured from the external surface of the habitable room window to the rear wall of the room.

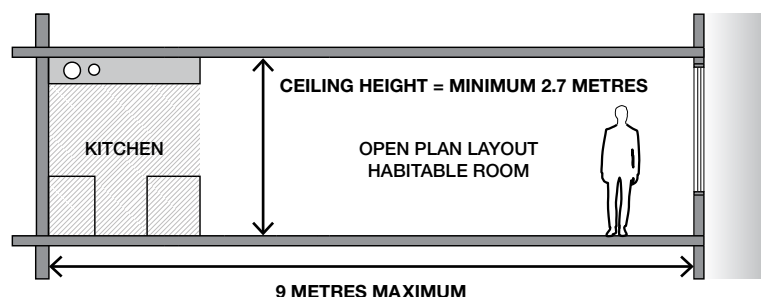
Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The extent to which the habitable room is provided with reasonable daylight access through the number, size, location and orientation of windows.
- The useability, functionality and amenity of the dwelling based on layout, siting, size and orientation of habitable rooms.
- Any overhang above habitable room windows that limits daylight access.



SINGLE ASPECT DWELLING



Design guidance

Interpreting the Standard

Depth is measured at the deepest point of the room where a room has an irregular shape.

The depth of cupboards should be included within the room depth dimension.

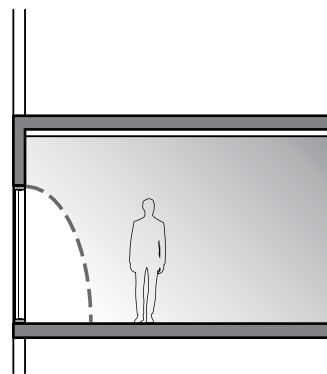
Refer to the National Construction Code for minimum ceiling heights for habitable rooms.

Where a habitable room is an open plan layout (combined living area, dining area and kitchen) with a ceiling height of 2.7m, the room depth can be extended to 9m as described in the standard above.

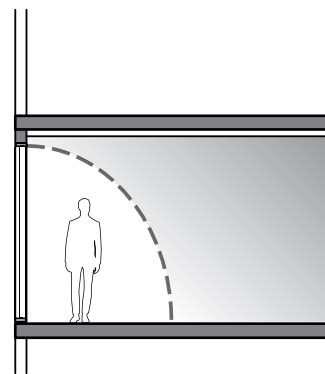
Where habitable rooms have a ceiling height of 2.4m the maximum room depth is 6m (2.5 x 2.4m).

Where habitable rooms have a ceiling height of 2.7m the maximum room depth is 6.75m (2.5 x 2.7m).

- 11.1** Increase the size and head height of windows to improve the daylight penetration into the depth of the room.



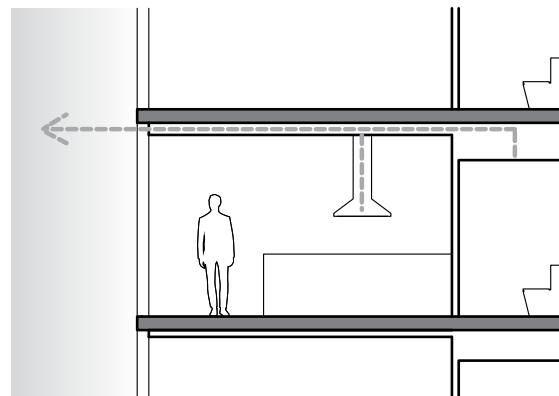
**DAYLIGHT
PENETRATION**



**INCREASED DAYLIGHT
PENETRATION**

- 11.2** Allow for sufficient structural floor to floor heights to achieve required ceiling heights for the room depth.

→ GUIDANCE: Allow space for services and insulation between the ceiling and structure.

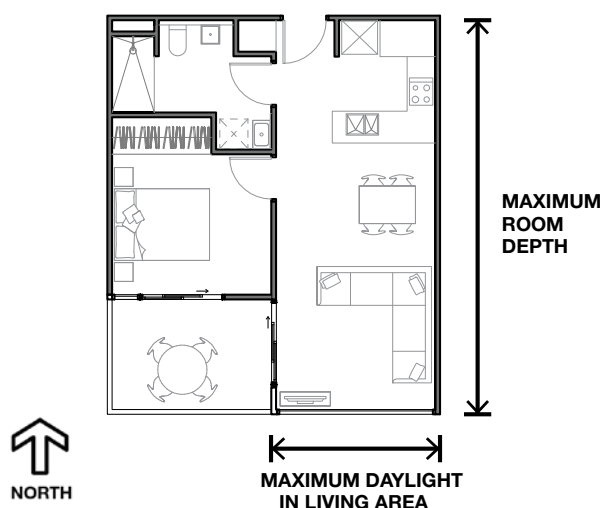
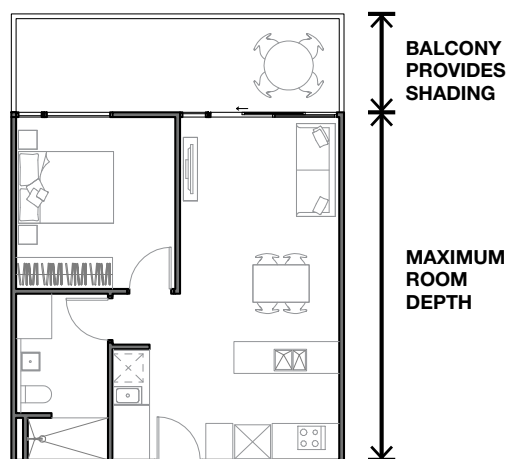


Section diagram. Ceiling space for services and insulation.

11.3 Configure balconies to suit the orientation of the apartment and increase daylight while controlling sunlight.

→ GUIDANCE: Large continuous overhangs beyond a single aspect room of 9m depth should be avoided

Refer to private open space for guidance on balcony configurations



Plan diagram. Balconies can be configured and located to improve internal daylight.

Supporting documentation

Provide dimensions of habitable room depths.

Guidance to windows

Why this is important

Windows provide access to natural daylight, direct sunlight and airflow into habitable rooms of apartments, contributing to the health and wellbeing of occupants. They can reduce energy use by enabling occupants to go about their daytime activities without using artificial lighting. Daylight conditions vary according to the time of day, the season and the weather. Apartments should preferably let in direct sunlight: it helps make the living environment pleasant and reduces energy use by providing passive heat in cooler weather.

Application

Clause 55.07-14 (Windows) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.07-3 (Windows) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Windows objective (Clause 58.07-3 or Clause 55.07-14)

To allow adequate daylight into new habitable room windows.

Standard (D26 or B48)

Habitable rooms should have a window in an external wall of the building.

A window may provide daylight to a bedroom from a smaller secondary area within the bedroom where the window is clear to the sky.

The secondary area should be:

- A minimum width of 1.2 metres.
- A maximum depth of 1.5 times the width, measured from the external surface of the window.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The extent to which the habitable room is provided with reasonable daylight access through the number, size, location and orientation of windows.
- The useability and amenity of the dwelling based on the layout, siting, size and orientation of habitable rooms.

Design guidance

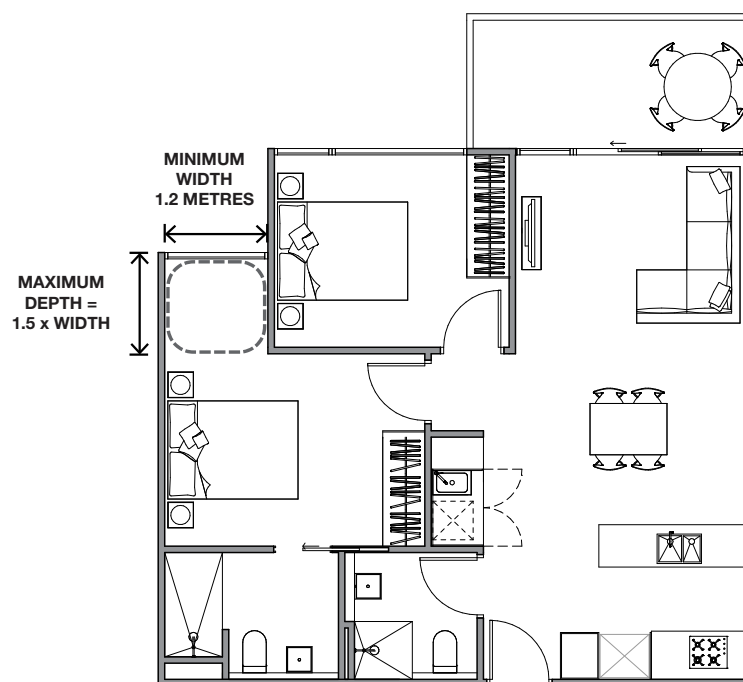
Interpreting the Standard

The functional areas of habitable rooms including living areas should be located directly adjacent to the window on an external wall.

Borrowed light arrangements (where a room borrows light via an opening to another room) do not meet the standard.

Refer to further the National Construction Code for minimum window requirements for habitable spaces.

Snorkel arrangements can only be provided for bedrooms. The maximum depth (1.5 x width) control applies to the secondary area within the room.



WINDOWS

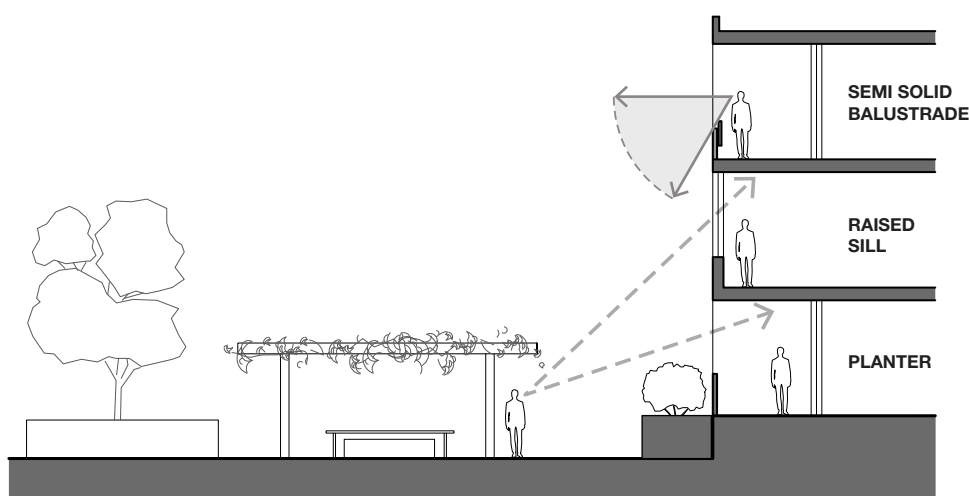
12.1 Design the window type, size, glazing selection, orientation and placement to respond to the site context and to optimise daylight.

→ GUIDANCE: Factors to consider include:

- access to and control of direct sunlight through orientation and shading
- access to daylight due to surrounding buildings for example in built up urban locations
- optimising views and outlook while protecting privacy
- opportunities for natural ventilation and the direction of prevailing breezes
- impact of low amenity interfaces with exposure to noise, pollution and poor outlook.

12.2 Design windows and other openings to balance privacy with daylight and outlook.

→ GUIDANCE: Using raised sills or semi- solid balustrades protects privacy into spaces from below while allowing views out



Section diagram. Design techniques to balance outlook and privacy.

12.3 Skylights may be used to contribute to daylight but should not provide the only source of daylight into a habitable room.

Supporting documentation

Include dimensions for bedrooms which access daylight via a smaller space within the room to demonstrate compliance with the standard.

Guidance to storage

Why this is important

Having access to convenient, accessible and secure storage improves the functionality of apartments.

Application

Clause 55.07-10 (Storage) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.05-4 (Storage) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Storage objective (Clause 58.05-4 or Clause 55.07-10)

To provide adequate storage facilities for each dwelling.

Standard (D20 or B44)

Each dwelling should have convenient access to usable and secure storage space.

The total minimum storage space (including kitchen, bathroom and bedroom storage) should meet the requirements specified in Table D6.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The useability, functionality and location of storage facilities provided for the dwelling.

Table D6 Storage

| Dwelling type | Total minimum storage volume | Minimum storage volume within the dwelling |
|----------------------------|------------------------------|--|
| Studio | 8 cubic metres | 5 cubic metres |
| 1 bedroom dwelling | 10 cubic metres | 6 cubic metres |
| 2 bedroom dwelling | 14 cubic metres | 9 cubic metres |
| 3 or more bedroom dwelling | 18 cubic metres | 12 cubic metres |

Design guidance

Interpreting the Standard

The total minimum storage volume in Table D6 includes the minimum storage volume within a dwelling.

Whitegoods and appliances such as refrigerators, ovens, dishwashers and washing machines should have dedicated spaces and are not included in the calculation of storage.

Spaces for bicycle and car parking are additional to the storage space requirements in Table D6.

13.1 Provide practical arrangement of storage appropriate to each space within the dwelling.

→ GUIDANCE: A minimum of 1.8 meters of robe length for the main bedroom and a 1.5 meters for all other bedrooms is practical for clothes storage.

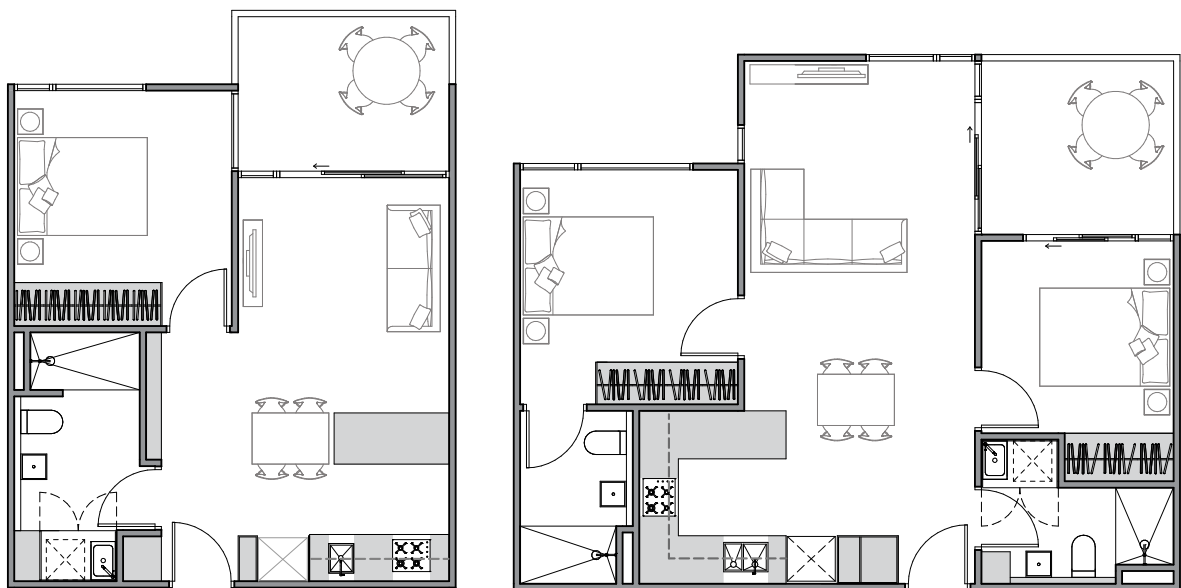
→ GUIDANCE: As a rule of thumb, storage volumes (m³) per linear meter of cupboards are as follows:

For 600mm deep cupboards

- 750mm bench height = 0.45m³
- 2400mm full height = 1.44m³

For 300mm deep cupboards

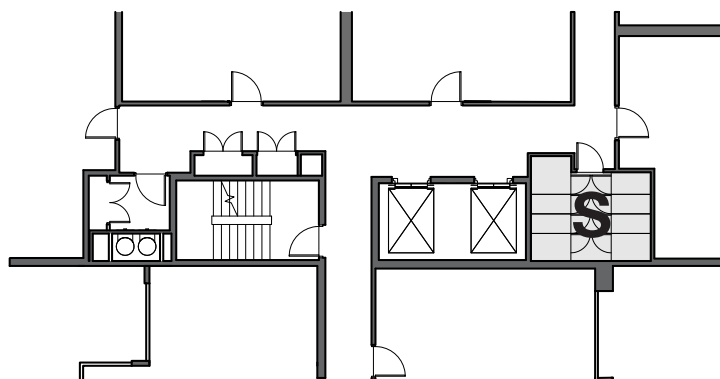
- 750mm overhead cupboard = 0.225m³



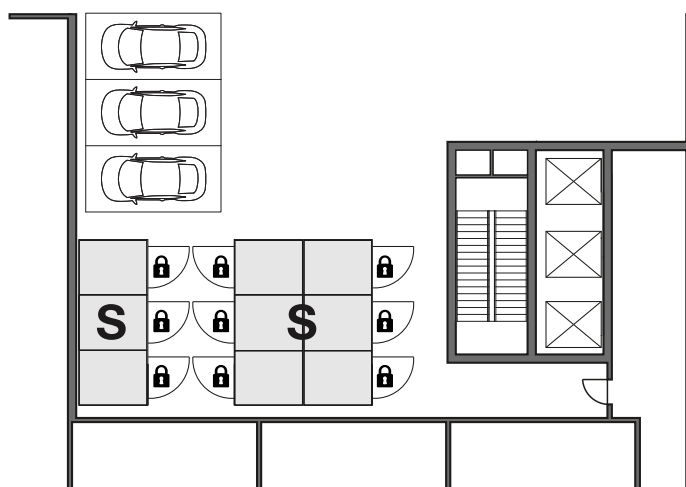
Plan diagram. Examples of storage areas in typical 1 bed and 2 bed layouts.

13.2 Long term storage provided externally to an apartment can be provided in basements and car parking areas, or in a common area convenient to the apartment.

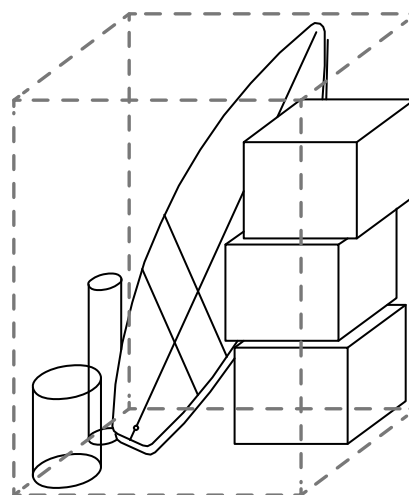
- GUIDANCE: Dedicated storage rooms can make use of areas within the floor plate which have limited access to natural light and ventilation
- GUIDANCE: Locate lockable storage in locations with good informal surveillance to improve security as they are prone to theft
- GUIDANCE: Dedicated storage lockers in basements are preferred as they provide easier access when compared to over car bonnet storage
- GUIDANCE: Make storage enclosures a functional shape and size to suit various needs such as storing bulky items.



Plan diagram. Long term storage convenient to apartments.



Plan diagram. Long term storage in a car park area.



Functional long term storage volume.

Supporting documentation

Provide a schedule with a breakdown of minimum internal and external storage provisions for each apartment type.

Guidance to natural ventilation

Why this is important

Natural ventilation is the movement and change of fresh air in internal spaces by natural means using windows that can be opened.

Cross ventilation is the movement of air through an internal space (or spaces) between one external opening and another.

Fresh air movement through an apartment is important because it contributes to thermal comfort, increases passive cooling opportunities and creates a comfortable and healthy indoor environment.

Application

Clause 55.07-15 (Natural ventilation) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.07-4 (Natural ventilation) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Natural ventilation objectives (Clause 58.07-4 or Clause 55.07-15)

To encourage natural ventilation of dwellings.

To allow occupants to effectively manage natural ventilation of dwellings.

Standard (D27 or B49)

The design and layout of dwellings should maximise openable windows, doors or other ventilation devices in external walls of the building, where appropriate.

At least 40 per cent of dwellings should provide effective cross ventilation that has:

- A maximum breeze path through the dwelling of 18 metres.
- A minimum breeze path through the dwelling of 5 metres.
- Ventilation openings with approximately the same area.

The breeze path is measured between the ventilation openings on different orientations of the dwelling.

Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The size, orientation, slope and wind exposure of the site.
- The extent to which the orientation of the building and the layout of dwellings maximises opportunities for cross ventilation.
- Whether an alternative design meets the relevant objectives having regard to the amenity of the dwelling and the site context.

Design guidance

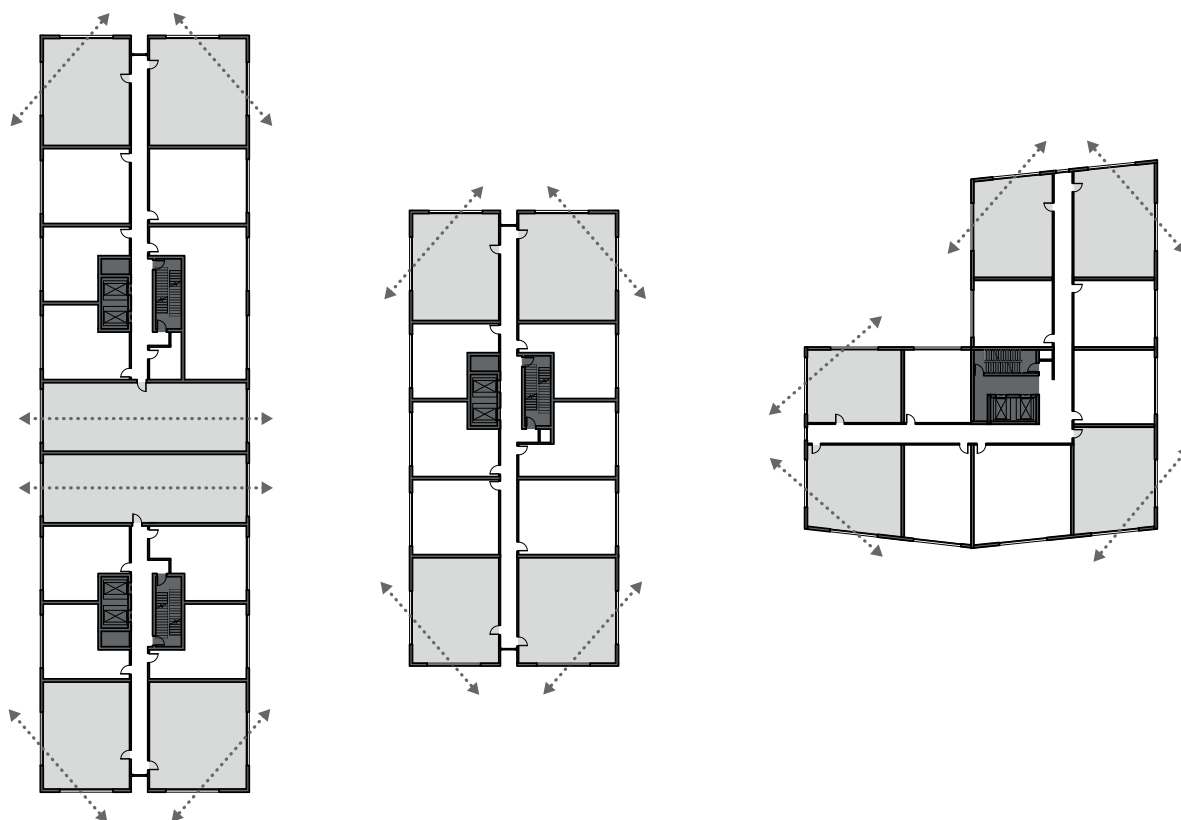
Interpreting the Standard

A breeze path is measured as a sequence of straight line segments measured from the centreline of openings.

A minimum of one breeze path needs to be nominated.

Refer to the National Construction Code further guidance for minimum ventilation requirements.

14.1 Configure floorplates with corner or through apartments to achieve effective cross ventilation.



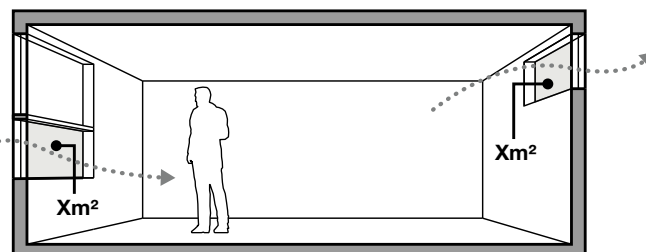
Plan diagram. Floorplates allowing for cross ventilation.

14.2 Wherever possible, provide openable windows or doors into habitable rooms to achieve natural air flow.

- GUIDANCE: Effective natural ventilation is influenced by:
 - the clear openable area of varied window types
 - prevailing wind conditions and air pressures
 - temperature differentials
 - the surrounding built environment
 - the length of breeze path and number of obstructions through an apartment.
- GUIDANCE: Use the urban context report of prevailing winds to ensure that opportunities for natural air flow are maximised.
- GUIDANCE: Tall buildings may be constrained from providing openable windows at higher levels due to environmental factors.

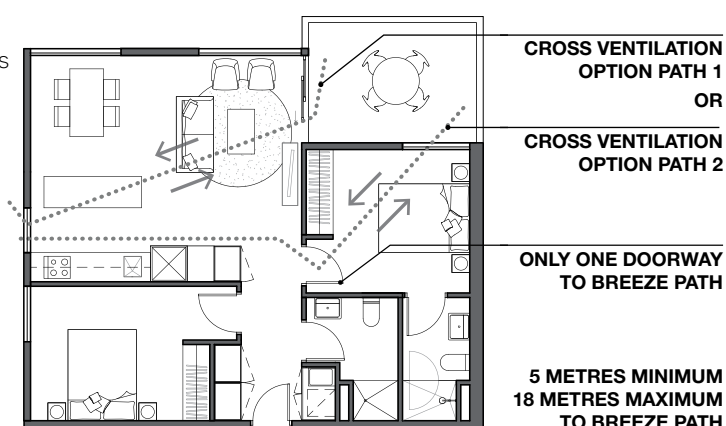
14.3 Locate and design windows that are on different orientations of a dwelling to provide cross ventilation with optimal breeze paths.

→ GUIDANCE: Effective cross ventilation is achieved when the inlet and outlet have approximately the same area allowing air to be drawn through the apartment using opposite air pressures on each side of the building.



Section diagram. Breeze path showing.

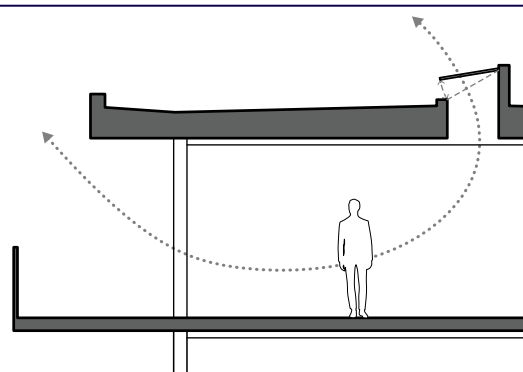
→ GUIDANCE: An effective breeze path should minimise the number of doors and obstructions along the breeze path.



Plan diagram. Examples of measuring breeze path length.

14.4 An adequately sized operable roof light in a single aspect apartment may achieve cross ventilation where adequate air flow can be demonstrated by engineering analysis.

→ GUIDANCE: Roof lights should be designed to be weather protected, secure and maintain good thermal performance.



Elevation diagram. Roof lights can provide cross ventilation.

14.5 Demonstrate alternative effective ventilation solutions where cross ventilation is constrained, for example, by consistently high wind conditions or heritage or adaptive reuse of existing buildings.

Supporting documentation

Nominate on a plan which apartments are cross ventilated and illustrate the location and length of the breeze path, or provide a ventilation report for an alternative solution.

Guidance to private open space

Why this is important

Access to functional and usable private open spaces – outdoor spaces such as balconies, courtyards and terraces accessible only to the particular apartment – allows occupants to extend their living spaces outdoors to enjoy a range of recreations.

Application

Both Clause 55.05-4 (Private open space) and Clause 55.07-9 (Private open space above ground floor) apply to apartment developments of four storeys or less (excluding a basement).

Clause 58.05-3 (Private open space) applies to apartment developments of five or more storeys (excluding a basement) in a residential

zone and all apartment developments in other zones.

Note: For simplicity, only the Objective and Standard relating to Clause 58.05-3 is shown below.

Private open space objective (Clause 58.05-3)

To provide adequate private open space for the reasonable recreation and service needs of residents.

Standard (D19)

A dwelling should have private open space consisting of:

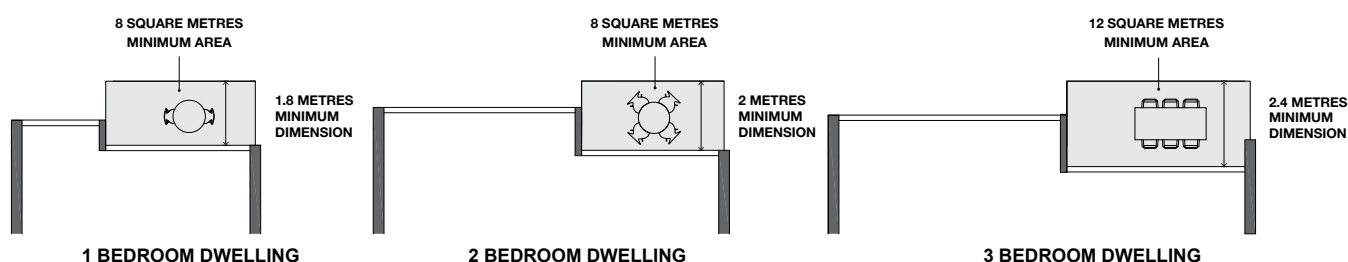
- An area of 25 square metres, with a minimum dimension of 3 metres at natural ground floor level and convenient access from a living room, or

- An area of 15 square metres, with a minimum dimension of 3 metres at a podium or other similar base and convenient access from a living room, or
- A balcony with an area and dimensions specified in Table D5 and convenient access from a living room, or
- A roof-top area of 10 square metres with a minimum dimension of 2 metres and convenient access from a living room.

If a cooling or heating unit is located on a balcony, the balcony should provide an additional area of 1.5 square metres.

Table D5 Balcony size

| Dwelling type | Minimum area | Minimum dimension |
|------------------------------|------------------|-------------------|
| Studio or 1 bedroom dwelling | 8 square metres | 1.8 metres |
| 2 bedroom dwelling | 8 square metres | 2 metres |
| 3 or more bedroom dwelling | 12 square metres | 2.4 metres |



Decision guidelines

Before deciding on an application, the responsible authority must consider:

- The design response.
- The useability and functionality of the private open space, including its size and accessibility.
- The amenity of the private open space based on the orientation of the lot, the wind conditions and the sunlight it will receive.
- The availability of and access to public or communal open space.

Design guidance

Interpreting the Standard

The additional area for an air conditioning unit does not need to meet the minimum balcony dimension.

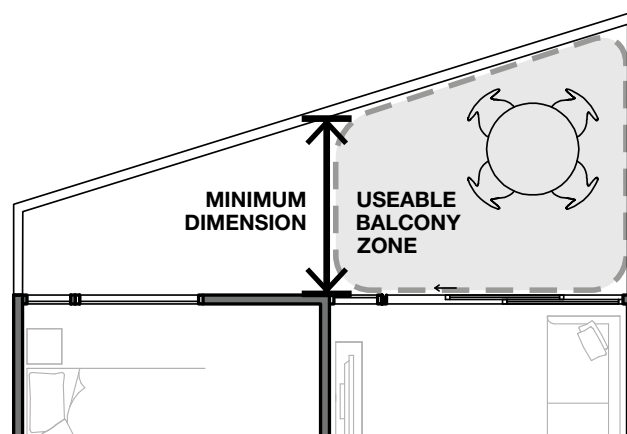
The minimum area must be provided in a single usable space. Other balcony areas may be provided in addition.

Where storage is integrated into balcony design, it is not included in the minimum area requirements.

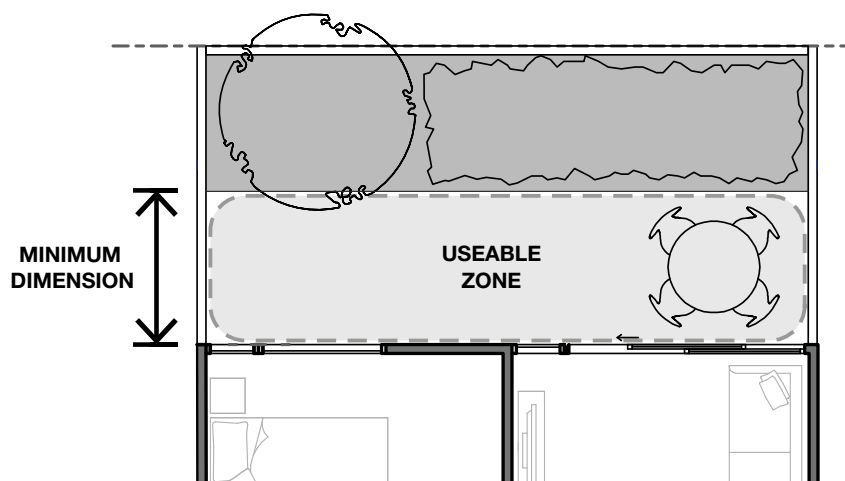
Where irregular shaped balconies are proposed, only the portion of the balcony which meets the minimum dimension will be calculated towards the minimum area.

Wintergardens can be counted as private open space, providing they do not compromise adequate daylight and ventilation to the dwelling.

Where planting areas are included in ground floor, podium or rooftop private open spaces, provide a clear usable space which meets the minimum dimensions and areas included in Table D5.



Plan diagram. The minimum area provided in a single usable space.

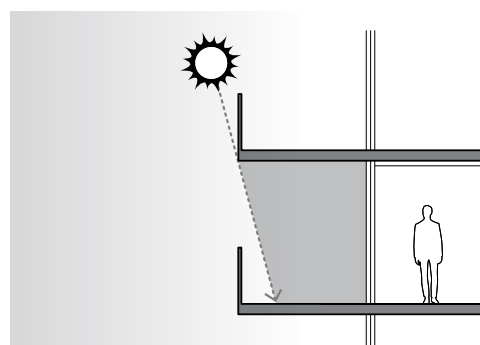


Plan diagram. Planting area are included in ground floor private open spaces with a clear usable space which meets the minimum dimensions and areas included in Table D5.

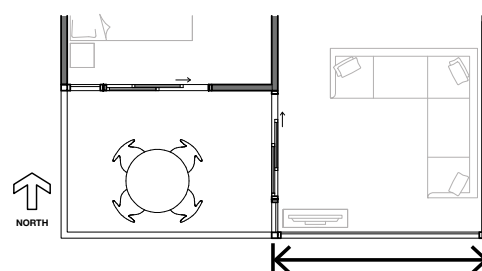
15.1 Configure balconies to support other internal apartment amenity objectives.

→ GUIDANCE: design solutions include:

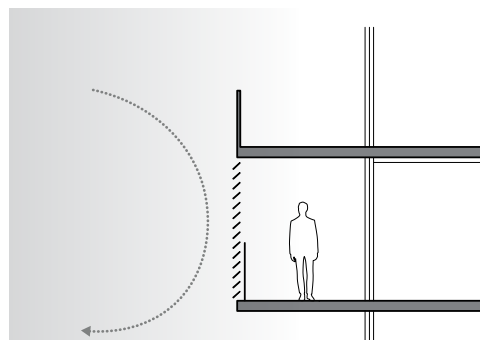
- Continuous overhanging balconies to shade windows from direct summer sun.
- Inset balconies to allow living rooms to be located at the building edge increasing daylight to the room.
- Limiting the depth of south facing balconies where they are located to the front of living spaces.
- Inset or semi screened balconies, rather than projecting balconies, to provide greater wind protection.
- locate balconies to avoid exposure to noise sources.
- Wintergardens to reduce exposure to noisy conditions.



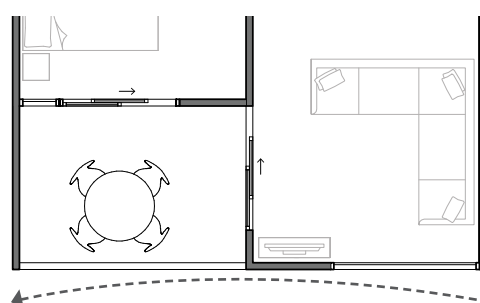
Section diagram. Overhanging balconies shade windows from direct summer sun.



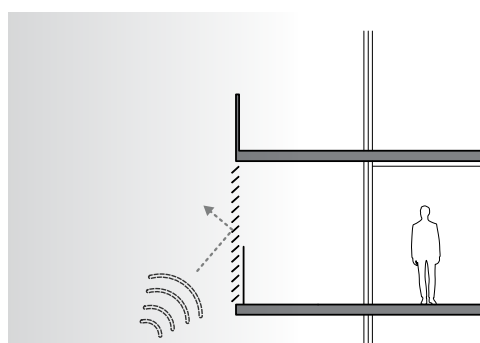
Plan diagram. Increasing daylight into living areas.



Section diagram. Wintergardens provide protection in windy conditions.



Plan diagram. Inset balconies can reduce exposure in windy conditions.



Section diagram. Wintergardens provide protection from noise.

15.2 Where the urban context and site layout constrain provision of private open space, compensate with increased areas of communal open space.

→ GUIDANCE: Examples of constrained situations include high wind conditions, proximity to high noises, and adaptive reuse of existing buildings.

Supporting documentation

Provide minimum dimensions and areas to all private open spaces.

Guidance to accessibility

Why this is important

Accessibility in design promotes equal access to apartments for all community members including those with limited mobility, families with young children and older people. Apartments which comply with the accessibility standard can be easily altered to meet changing needs of residents and ensures housing stock caters for a diverse range of household types over time.

Application

Clause 55.05-6 (Accessibility) applies to apartment developments of four storeys or less (excluding a basement).

Clause 58.05-1 (Accessibility) applies to apartment developments of five or more storeys (excluding a basement) in a residential zone and all apartment developments in other zones.

Accessibility objective (Clause 58.05-1 or Clause 55.05-6)

To ensure the design of dwellings meets the needs of people with limited mobility.

Standard (D17 or B41)

At least 50 per cent of dwellings should have:

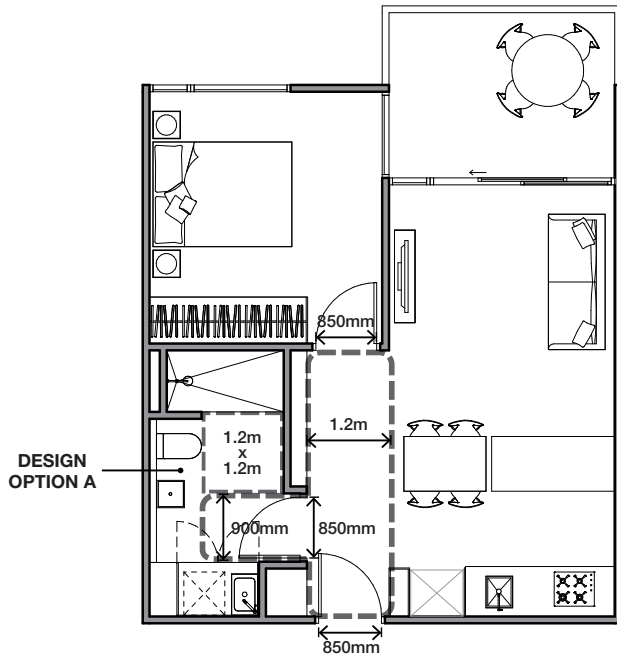
- A clear opening width of at least 850mm at the entrance to the dwelling and main bedroom.
- A clear path with a minimum width of 1.2 metres that connects the dwelling entrance to the main bedroom, an adaptable bathroom and the living area.
- A main bedroom with access to an adaptable bathroom.
- At least one adaptable bathroom that meets all of the requirements of either Design A or Design B specified in Table D4.

Table D4 Bathroom design

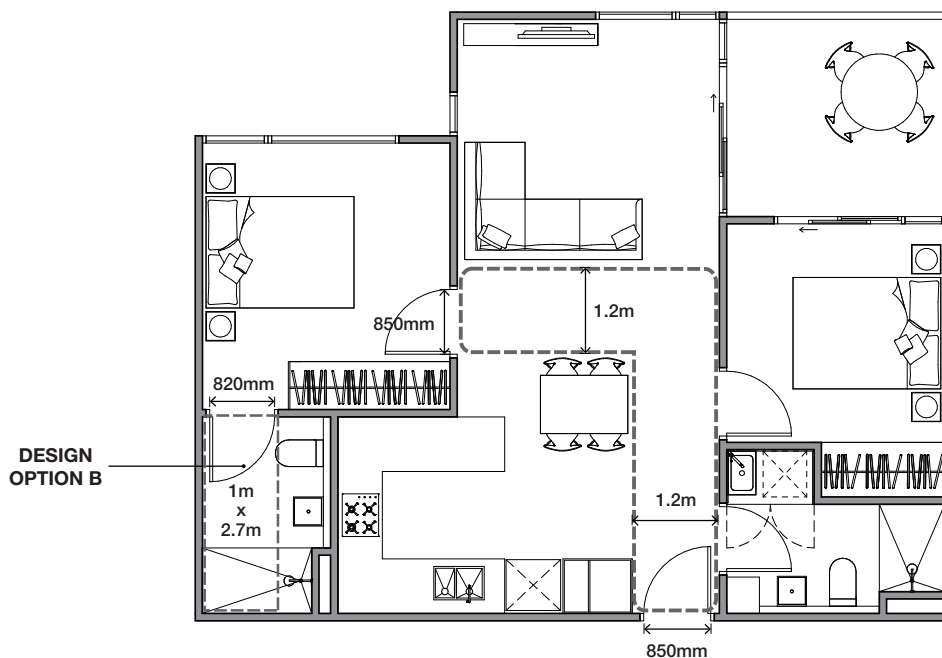
| | Design option A | Design option B |
|--------------------------|--|---|
| Door opening | A clear 850mm wide door opening. | A clear 820mm wide door opening located opposite the shower. |
| Door design | Either: 1. A slide door, or 2. A door that opens outwards, or 3. A door that opens inwards that is clear of the circulation area and has readily removable hinges. | Either: 1. A slide door, or 2. A door that opens outwards, or 3. A door that opens inwards and has readily removable hinges. |
| Circulation area | A clear circulation area that is: <ul style="list-style-type: none"> • A minimum area of 1.2 metres by 1.2 metres. • Located in front of the shower and the toilet. • Clear of the toilet, basin and the door swing. The circulation area for the toilet and shower can overlap. | A clear circulation area that is: <ul style="list-style-type: none"> • A minimum width of 1 metre. • The full length of the bathroom and a minimum length of 2.7 metres. • Clear of the toilet and basin. The circulation area can include a shower area. |
| Path to circulation area | A clear path with a minimum width of 900mm from the door opening to the circulation area. | Not applicable. |
| Shower | A hobless (step-free) shower. | A hobless (step-free) shower that has a removable shower screen and is located on the furthest wall from the door opening |
| Toilet | A toilet located in the corner of the room. | A toilet located closest to the door opening and clear of the circulation area. |

Design guidance

Minimum accessible room dimensions



1 BEDROOM ACCESSIBILITY



2 BEDROOM DWELLING ACCESSIBILITY

Design guidance

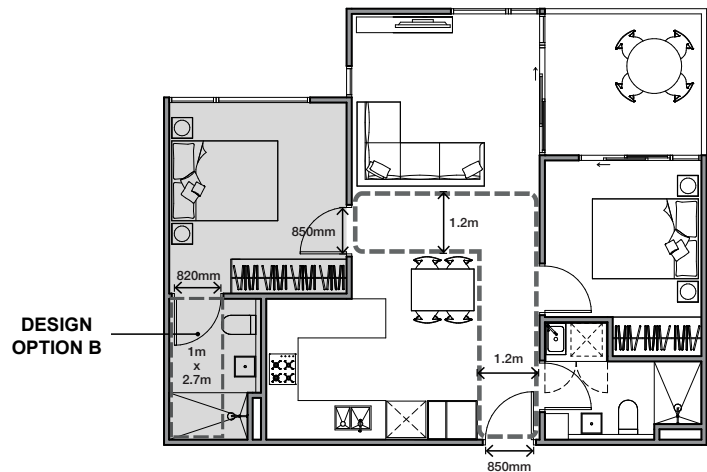
Interpreting the Standard

To meet the design options specified in Table D4 all the requirements of either option A or option B must be met.

For bathroom design option A, a corner of the bathroom is achieved where a nib wall is provided which can be fitted with a grab rail.

- 16.1 Locate the main bedroom with convenient access to the adaptable bathroom.

→ GUIDANCE: Where the main bedroom has an ensuite, it should be nominated as the adaptable bathroom.

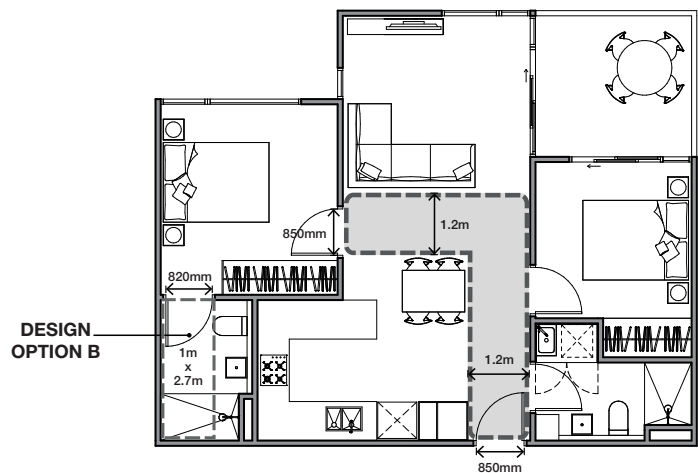


2 BEDROOM DWELLING ACCESSIBILITY

Plan diagram. An adaptable bathroom convenient to the larger bedroom.

- 16.2 Configure spaces to achieve clear access paths while allowing for functional furniture arrangements.

→ GUIDANCE: Design openings and the path of travel so that turning movements into bedrooms and bathrooms are minimised.

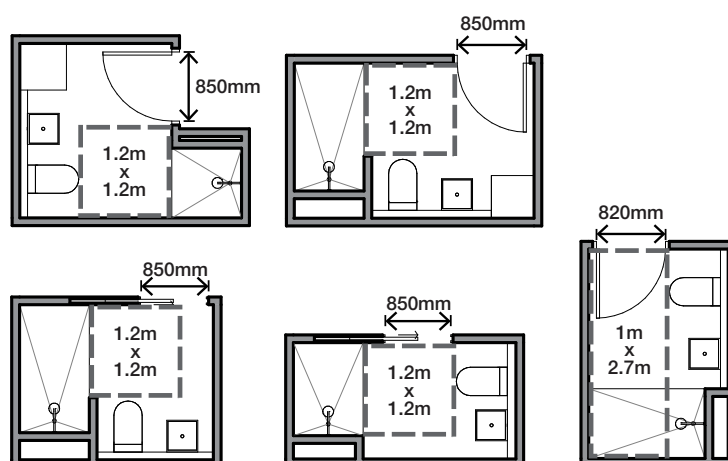


2 BEDROOM DWELLING ACCESSIBILITY

Plan diagram. Clear access paths between entry, living and larger bedroom.

- 16.3 When providing an adaptable bathroom to meet either option A or option B make use of the typical configurations illustrated or demonstrate that the standard is met with an alternative layout.

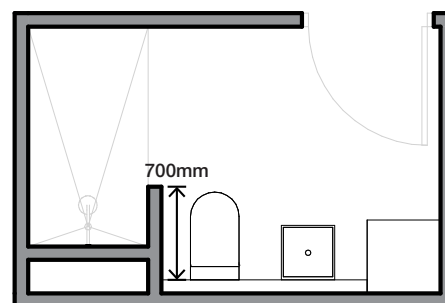
→ GUIDANCE: A step free shower should have a maximum 5mm height level change between adjacent surfaces with a bevelled or rounded edge with falls to the waste outlet.



Plan diagram. Typical bathroom configurations to comply with Table D4.

- 16.4 When applying bathroom design option A, if the toilet cannot be located in the corner of the room, include a nib wall adjacent to the toilet

→ GUIDANCE: A nib wall adjacent to a toilet needs to be 700mm long to enable future fitting of a grab rail.



Plan diagram. A nib wall adjacent to a toilet.

Supporting documentation

Identify apartments which have been designed to meet the accessibility requirements.

Provide dimensions for clear openings, pathways and the adaptable bathrooms.

Glossary

Apartment

A dwelling located above the ceiling level or below the floor level of another dwelling and is part of a building containing two or more dwellings.

Borrowed light

When a room has no window directly to the outside and accesses daylight from adjacent rooms, it is known as 'borrowed light'.

Building separation

The distance between two separate buildings clear to the sky.

Communal open space

The outdoor area(s) of a building at ground level or incorporated in or on the building for the exclusive use of occupants.

Cooling load

Cooling load means the calculated amount of heat energy removed from the cooled spaces of the building annually by artificial means to maintain the desired temperatures in those spaces. Cooling load is measured as MJ/m² per annum.

Cross or cross flow ventilation

The natural movement of air through an internal space (or spaces) between one external opening and another.

Deep soil

An area of natural ground unimpeded by a structure below (and above), providing opportunities for groundwater infiltration and canopy trees.

Dual aspect apartments

An apartment with external walls facing more than one direction that allows for the possibility of natural cross ventilation from openings in those walls. This includes corner apartments, through-block apartments and crossover apartments.

Dwelling

A building used as a self-contained residence which must include a kitchen sink, food preparation facilities, a bath or shower, and a closet pan and wash basin. It includes outbuildings and works normal to a dwelling.

Habitable room

Any room of a dwelling or residential building other than a bathroom, laundry, toilet, pantry, walk-in wardrobe, corridor, stair, lobby, photographic darkroom, clothes drying room and other space of a specialised nature occupied neither frequently nor for extended period.

Light well

An unroofed space bounded on all sides which provides daylight to more than one storey of a building and which may also provide ventilation.

Natural ventilation

The movement and change of air in internal spaces by natural means through the use of a window that can be opened rather than the use of mechanical systems.

One bedroom apartment

An apartment that contains an additional habitable room separated from the main habitable room by a wall.

Orientation

The compass direction that an apartment, apartment building or habitable room faces, typically defined by the location of primary openings in external walls.

Outlook

A place from which a view is possible; a vantage point.

Private open space

An outdoor space of an apartment for the exclusive use of occupants.

Snorkel arrangement

A arrangement in an apartment where the bedroom is connected to a window in an exterior wall of the building via an adjoining space that is used to access daylight.

Setback

The minimum distance from any allotment boundary to a building.

Single-aspect apartment

An apartment with windows in external walls facing only in one direction.

Sunlight

Direct rays from the sun, providing radiant heat.

Thermal comfort

The perception of physical comfort in a space, which is influenced by air temperature and movement, humidity, radiant heat, glare and the sense of having some control of these factors.

Urban heat island effect

The heating of an urban area that is warmer than surrounding rural areas because vegetated areas have been replaced with buildings, roads and other impervious surfaces as the area has urbanised.

Wintergardens

Wintergarden balconies have an additional layer of operable glass, that can be readily enclosed and does not compromise access to daylight.

