Building Future Homes

Adaptation guide

FUTURE HOMES

planning.vic.gov.au/policy-and-strategy/future-homes

VICTORIA State Government

Acknowledgement

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.

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Note: The Department of Environment, Land, Water and Planning (DELWP) also refers to the Planning Group' successor department, the Department of Transport and Planning (DTP).

Version	Date	Summary of Changes
2	05/09/2023	Technical corrections to address omissions
3	10/11/2023	Updates to reflect Future Homes expansion

Contents

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Introduction

The purpose of the *Building Future Homes - Adaptation guide* is to guide the successful adaptation of the Future Homes exemplar designs for access to a simpler and faster planning approval process.

1.1 About Future Homes and the exemplar designs

While Melbourne's metropolitan and major activity centres have dramatically increased in density in recent decades and outer ring housing growth is strong, it is increasingly clear that the suburbs are where more people want to live. Plan Melbourne supports new housing in established areas, to create 20-minute neighbourhoods with homes close to services, jobs and public transport.

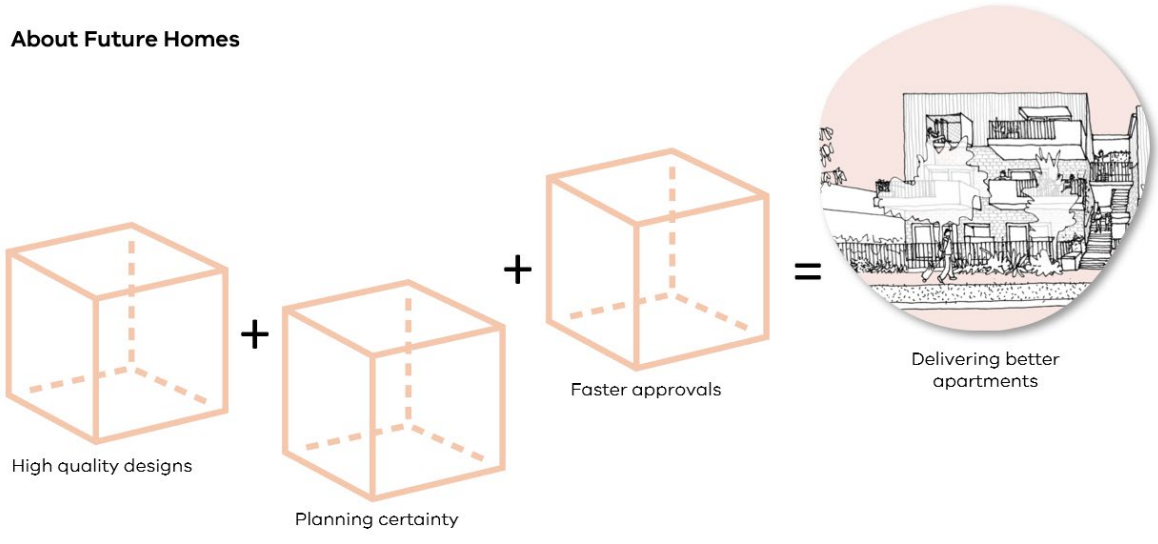
The redevelopment of the city's suburbs must be planned and managed sensitively. The suburbs have unique characters developed over decades by past and current residents. Therefore, changes to established residential areas must increase public and residential amenity.

In 2019, the then Department of Environment, Land, Water and Planning (DELWP) and the Office of the Victorian Government Architect (OVGA) jointly began the Future Homes project. The project's purpose is to increase housing diversity through gentle density increases. It will facilitate the building of apartment developments that are world-leading in their design quality, liveability and sustainability.

The Future Homes project began with an architectural design competition, open to all Victorian registered architects and building designers, to develop exemplar designs for apartment developments in the suburbs. The competition was designed to encourage innovative, design-led solutions to increase the density of the suburbs with liveable, sustainable apartments that contribute to the amenity and legacy of their locality. As a response to Victoria's predicted population growth, Future Homes aims to increase the density, diversity and quality of housing.

Four competition winners were selected to refine their entries and create the Future Homes exemplar designs. These are scalable, replicable and flexible designs for three-storey apartment developments that can be adapted to various sites and project requirements. They provide cost-effective apartment building designs that make good design available to more people. This means delivering design solutions that, under typical market conditions, are feasible and attractive to industry and home owners.

The Department of Transport and Planning (DTP) is making the exemplar designs available for purchase to all interested people and organisations. If an exemplar design is adapted correctly, a proposal could be granted a planning permit within four months of purchase. This compares favourably with the current processing time of a standard planning application for an apartment development, which could take between 12 and 24 months.



1.2 Purpose and contents of this guide

This guide supports all those involved in the Future Homes process, to ensure an adapted design fulfils the intent and ambitions of the Future Homes project: to build apartments that are great homes, great neighbours, and great for the environment. It:

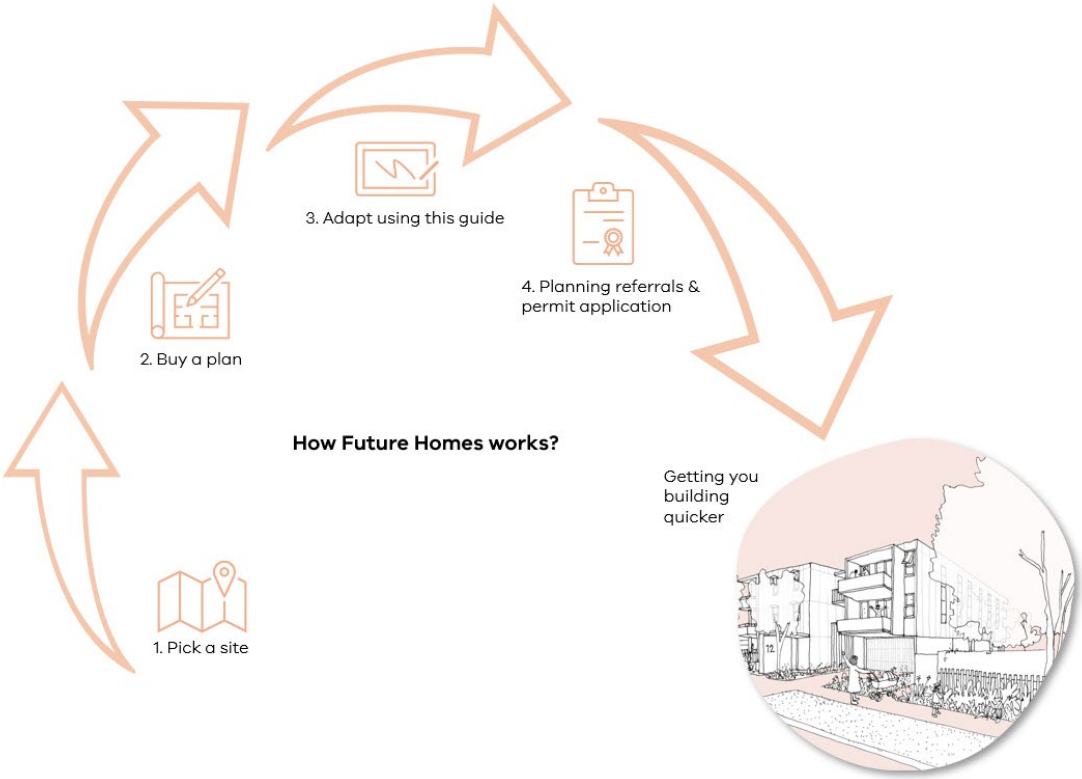
- guides designers to prepare a Future Homes adapted design that is high quality and respects the Future Homes project's objectives and principles
- helps decision-makers including DTP and council to understand what are acceptable approaches, outcomes and variations for a Future Homes adapted design
- provides best practice approaches to apartment design in a suburban context for people interested in improving and investing in the quality of residential development in Victoria
- gives the community clarity and confidence about what a Future Homes adapted design might look like and what it can achieve.

Clause 55 of the Victoria Planning Provisions (VPP) sets out the residential development standards with which a planning application for an apartment development would typically need to comply. A Future Homes adapted design does not need to consider Clause 55, instead it must:

- comply with the Future Homes provision at Clause 53.24 of the VPP, the requirements of which are set out under the **Mandatory requirements** headings in Part 1 of this guide
- consider the non-mandatory guidance in this guide
- satisfy DTP, as the determining referral authority, that the principles set out for each of the Future Homes objectives in this guide has been met.

This guide has four sections:

- Introduction
- Part 1: Objectives and principles for exemplar apartment designs
- Part 2: Adapting an exemplar apartment design
- Part 3: Appendices



About Part 1: Objectives and principles for exemplar apartment designs

Objectives

Future Homes is about developing apartments that are great homes for residents, great neighbours to those living next door, and great for the environment by achieving eight objectives shown in Table 1.1. These objectives provide the main organising structure for this guide.

Table 1.1: Future Homes objectives

Objective	A Future Homes development...
Responsive to need	is designed to respond to the needs of its residents
Liveable	has desirable homes with high-quality interior amenity, social spaces, natural light and a good outlook
Good neighbours	respects neighbours' amenity and enriches the street and surrounding public realm
Enduring	has apartments that are of a high-quality built standard, accepted by the community, adaptable to change, resilient, safe and family-friendly
Sustainable	demonstrates how apartment living can exceed current sustainability requirements and be zero-carbon ready
Adaptable	is adaptable and replicable on typical suburban lots in Victoria, meeting or exceeding planning, policy and environmental objectives
Viable	responds appropriately to market expectations, regulation and construction viability
Affordable designs	makes great design available to more people

Part 1 doesn't address the Affordable Designs and Viable objectives as the principles for these objectives are embedded in the exemplar designs.

Planning elements

Each Future Homes objective has planning elements. For example, the objective 'Responsive to need' has the planning elements 'Dwelling diversity', 'Garden area', 'Parking: car' and 'Parking: bicycle' included within it.

Each planning element comprises items shown in Table 1.2.

Table 1.2: Future Homes planning element items

Item	Content	Purpose
Rationale	The issue the objective addresses and how a Future Homes adapted design can respond to it	This provides context about the intent of the principles, performance targets and design considerations
Principles	The criteria that the adapted designs are to meet	Designers must ensure their adapted design meets these principles
Mandatory requirements	Specific layout or built form requirements, usually amenity-related	These are mandatory requirements set out in the Future Homes provision at Clause 51 of the VPP. Designers must ensure their adapted design complies with these requirements, which cannot be varied
Performance targets	Specific requirements for adapted designs; the Future Homes exemplar designs comply with these targets	Adapted Future Homes designs should achieve these targets. If there are no specific quanitifiable requirements, performance targets are considered to be met if the principles have been satisfied
Design considerations	Detailed guidance about preferred design approaches	These are ideas about good practices to achieve the performance targets
Alignment with VPP	The relevant planning requirements traditionally contained in Clause 55 of the VPP	This is a quick, visual reference to the relevant traditional planning requirements

About Part 2: Adapting an exemplar apartment design

Part 2 has four sections, one for each of the exemplar design options.

Part 2 provides:

- general adaptation guidance for the exemplar designs
- specific approaches to adapting an exemplar design for a particular site and context, by illustrating how a designer can manage common design challenges.

This guidance is not exhaustive, and other ideas may be appropriate depending on a development's particular circumstances.

Table 1.3 explains the structure of each section of Part 2.

Table 1.3: Part 2 structure

Item	Content	Purpose
General adaptation guidance	Guidance about how exemplar designs can be adapted to a range of different sites and contexts	• To be used by designers to understand how a plan can successfully adapt to a particular site scenario and maintain the principles and status of a Future Homes exemplar design • To outline approaches to adaptations for different conditions, such as lot sizes and shapes, orientation, topography, surrounding contexts, dwelling mixes and amenity impacts
Exemplar guidance	Guidance relevant to the exemplar design, authored by the architects	• To provide an overview of the designer's thinking and intent for adaptation

About Part 3: Appendices

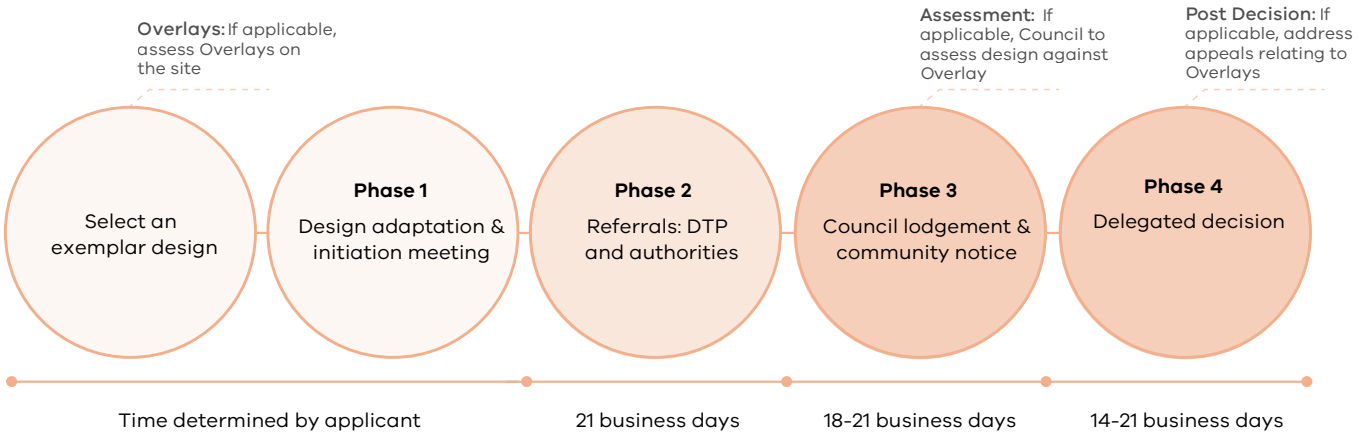
The appendices include technical information, compliance assumptions and opportunities to enhance and exceed the Future Homes mandatory requirements.
There are eight appendices:

- Appendix 1: Structure
- Appendix 2: Fire safety
- Appendix 3: Landscape
- Appendix 4: Waste
- Appendix 5: Services and equipment
- Appendix 6: Environmentally sustainable design
- Appendix 7: Construction cost rates
- Appendix 8: Accessibility

1.3 The Future Homes process

The Future Homes process is a faster, streamlined process that could result in a proposal being granted a planning permit within four months of purchase of an exemplar design. It has a preliminary step followed by four phases, which Figure 1.1 shows.

Figure 1.1: Future Homes phases



Timeframes provided are indicative. Sites affected by Overlays may increase timing

Determine site eligibility

Before Phase 1, there is a preliminary step: to determine if your site is eligible.

Future Homes designs are for three-storey apartment buildings that are scalable, replicable and adaptable. Future Homes can be built on an eligible site:

- that is of a size that typically results from the consolidation of two or more suburban blocks
- in the General Residential Zone and;
  - is within 800 metres of a pedestrian entrance to a railway station; or
  - is within 800 metres of a metropolitan major or neigbbourhood activity centre in Metropolitan Melbourne; or
  - is within 800 metres of a nominated activity centre outside of Metropolitan Melbourne and
- does not require a planning permit under a Heritage Overlay or Neighbourhood Character Overlay.

The Future Homes exemplar designs show how to deliver 14–17 apartments on two consolidated lots with a total site area of about 1,200 square metres. A different number of apartments may be achieved depending on other factors including number of consolidated lots, total site area and apartment type mix.

If you are unsure, you may check your site's eligibility on DTP's interactive maps at: https://mapshare.vic.gov.au/futurehomes or alternatively, send the Future Homes project team an email at: FutureHomes@delwp.vic.gov.au.

Phase 1 : Project initiation

The applicant determines the timing of this phase.

In this phase, the applicant:

- selects a design and pays for its use
- adapts the design to their site
- attends a 'design direction review meeting' with DTP and OVGA, with council also invited to attend.

Phase 2 : Referrals

The timing of this phase is 21 business days.

In this phase:

- The applicant undertakes upfront referrals to DTP and other determining referral authorities as required (Melbourne Water and Transport for Victoria).
- DTP:
  - assesses the adaptation against this guide and Future Homes provision at Clause 53.24
  - If applicable , DTP will also assess the adaptation against the overlays affecting the site
  - provides copies of the adapted design to OVGA and council for their review, internal referrals and initial comments
  - holds an internal 'general understanding meeting' with the OVGA, council and other technical consultants eg. sustainability consultant as required
  - provides consolidated comments to the applicant
  - holds a prescheduled 'referral meeting' with the applicant to resolve any outstanding matters with OVGA and council also invited to participate
- The applicant submits revised plans to DTP
- DTP reviews revised plans and issues formal referral sign off.

Phase 3 : Application lodgement

The timing of this phase is 18-21 statutory days (anticipated).

In this phase, the applicant lodges the adapted design and associated supporting material to the relevant council as the responsible authority. All major planning and design matters should have already been resolved through Phase 2, including any Council concerns. Once the application is lodged, council will undertake:

- usual planning application checks
- assessment against any applicable overlays
- internal referrals (if not already undertaken as part of Phase 2)
- third party notification.

If no overlays apply to the site, in its notification letter, council will identify that any objections received can only be considered against the requirements under the Future Homes provision at Clause 53.24 and that third party appeal rights are not possible.

However, if overlays do apply and trigger a permit, in its notification letter, council should identify that any objections received can be considered against the requirements under the Future Homes provision and the applicable overlays, and that third party appeal rights are only possible in relation to the applicable overlay (if not exempt under the overlay).

Phase 4 : Decision

The timing of this phase is 14-20 statutory days (anticipated).

In this phase, council:

- will undertake formal assessment against the Future Homes provision at Clause 53.24, including the mandatory provisions and decision guidelines
- undertake formal assessment against any applicable overlays
- will consider any objections received which have not been withdrawn
- if no overlays affect the site, issue a permit under delegation from council's Chief Executive Officer
- third party review rights are only applicable to Future Homes sites that are affected by overlays. Appeals can only be made in relation to those overlays.

Post permit issuing

Once a planning permit is issued there may be some changes required by council or by the applicant. A streamlined process has been established for the following:

- **Condition one plans:** amendments may be required before council can endorse the plans.
- **Secondary consent:** to modify minor details on the plans.
- **Amendment to the planning permit (section 72 of the Act):** DTP will be required to review the application as a determining referral. This will be done prior to formal lodgement of the amendment with council. DTP will review the request within 10 business days

1.4 Changes to planning requirements

There are a number of changes to existing planning requirements. Future Homes exemplar designs go above and beyond current planning rules by including mandatory requirements, as set out in the Future Homes provision at Clause 53.24 of the VPP for:

- above industry standard environmentally sustainable design features (section 6.1)
- accessibility enhancements so people can age in place gracefully (section 3.5)
- bedroom and living room depth (section 3.4)
- bicycle parking for residents and visitors (section 2.4)
- car parking (section 2.3)
- communal open space and solar access to communal open space (section 3.3)
- external windows to all bedrooms (section 3.1)
- functional layout (section 3.4)
- generous deep soil and canopy cover (section 5.2)
- natural ventilation for all apartments (section 6.4)
- storage for residents (section 3.4)
- wider building entry and circulation spaces (section 3.1) These requirements cannot be varied.

These requirements cannot be varied.

Future Homes also recognises the need to carefully balance high-quality, liveable and sustainable apartments with commercial viability. To enable this, some planning requirements have been adjusted. These include:

- streamlining the permit application process for a Future Homes adapted design, as explained above
- front setbacks guided by the predominant street setback rather than the two properties that directly adjoin
- increase to site coverage by 5 percent
- determining the side and rear setbacks by its impact on neighbouring amenity rather than by strict numeric compliance
- reducing requirements for on-site car parking.

1.5 Understanding site context

Under the Victorian planning system, understanding the context of a site and its surrounding neighbourhood is the starting point for designing apartment developments. A Future Homes adapted design must:

- provide a neighbourhood and site description
- provide a design response that explains how the design anticipates the future character of its area
- consider opportunities and challenges arising from the site context and how they will affect the adaptation of the exemplar design.

While the Future Homes exemplar designs were created for a typical suburban site, an adapted design must address its specific site and its surroundings. A Future Homes development does not need to mimic the form, height and character of its neighbourhood, but an exemplar design should not be adapted without a considered approach. Each site has individual characteristics that must be accounted for in the design process. This will ensure a Future Homes development makes a positive contribution to its neighbourhood.

Site conditions that may need to be considered include:

- different lot sizes, shapes and configurations
- the site orientation
- access points
- topography
- on-site assets or features including existing vegetation
- street assets including power poles and street trees
- the street setbacks of other buildings in the street
- sensitive interfaces and neighbouring uses
- other planning overlay controls.

Part 1

Objectives and principles for exemplar apartment designs

2 Responsive to need

A Future Homes development is designed to respond to the needs of its residents.

2.1 Apartment diversity

Rationale

Future Homes seeks to increase housing density and diversity, to respond to the state's population growth. For this reason, Future Homes exemplar designs deliver 14–17 apartments on two consolidated lots with a total site area of about 1,200 square metres. However, a lesser number of apartments are acceptable for design adaptations that cater for larger households and a greater number of apartments may be acceptable for larger sites or adaptations with different apartment type needs and mix.

Future Homes provides housing options for various households, inlcuding families with children, who have typically relied on single, detached dwellings in suburban locations. The outcome should be that households of all compositions can choose to live in an apartment and not be restricted to detached homes and townhouses to have their needs met.

Principles

A. The development supports a greater density than that of a typical suburban townhouse project.

B. The development comprises a range of apartment sizes and types, to cater for a range of households.

C. Apartments suit a range of age groups and households including singles, couples, elderly people and families.

Performance targets

1. The development should provide a range of apartment sizes and types including family-sized apartments, as Table 1.4 shows.

Alignment with VPP: Standard B3 Dwelling diversity (55.02-3)

Table 1.4: Minimum apartment sizes

Apartment type	Minimum size
Studio	35 sqm
1 bedroom	50 sqm
2 bedrooms	75 sqm
3 bedrooms	87 sqm
4 bedrooms	105 sqm
5 bedrooms	125 sqm

Note: For the purposes of calculating the minimum apartment size, net saleable area (NSA) is used. NSA is the total floor area of a building measured from the external face of external walls (façades) and/or the centreline of all inter-tenancy walls, to the face of any structural walls, where adjacent to a common lift, common service risers and common stair shaft. This includes the corridor face of all corridor walls and all engaged columns, internal stairs and mullions to glazed façades. Balconies should be measured separately to internal areas.

2. All apartments should have generous bench space beside the stove and sufficient fridge and pantry space.
3. Apartments with two or more bedrooms must include family-friendly features such as:
    - a bathtub separate to a shower recess; a shower above a bathtub may be acceptable if there is a second shower elsewhere in the dwelling
    - a laundry trough.

Design considerations

1. Where possible, locate larger apartments at ground level and/or with convenient access to open and green space.
2. For three-bedroom apartments, consider including an additional toilet separate from the main bathroom. A separate toilet is not required if there are two full bathrooms.
3. To support family-friendly living, use the spatial requirements in Table 1.5 as a guide when designing a kitchen.

Table 1.5: Kitchen spatial requirements

Type	Furniture and fittings to be accommodated
One bedroom	• Minimum single bowl sink and cupboard • Adequate clear benchtop of 600 mm minimum depth (including sink area) ranging from 2.5 m to 3.9 m in length, including cupboards with drawers • Pantry face dimension with 450 mm to 600 mm minimum width • Cooking appliances with 400 mm minimum length adjoining bench space on both sides • Minimum 1.2 m wide circulation space between bench tops • Provide space for refrigerator 900 mm wide • The recommended minimum width of a kitchen should be 2.7 m
Two or more bedrooms	• As above, with clear benchtop increased to 2.8 m to 4.2 m in length • The recommended minimum width of a kitchen should be 2.7 m

2.2 Garden area

Rationale

The green, open garden character is an appealing amenity aspect of Victoria's suburbs. A Future Homes adapted design will provide a high-quality garden area and landscaping, contributing to the liveability of the development and the wellbeing of residents and their neighbours.

Principles

A. The development is green, leafy and has an open-garden character that also contributes to the street.

Mandatory requirement

1. A development must provide a minimum garden area equivalent to at least 35 percent of the total site area. This does not apply if:
    - a schedule to the General Residential Zone exempts a development from the garden area requirements
    - the site is designated as a medium-density housing site in an approved:
        - precinct structure plan
        - equivalent strategic plan
        - development plan
    - the site is designated as medium-density housing in an incorporated plan.

For additional guidance on landscaping, refer to Appendix 3: Landscape.

Performance targets

There are no performance targets for this planning element.

Design considerations

There are no design considerations for this planning element.

2.3 Parking: cars

Rationale

Car parking is a significant determinant of the layout, built form and viability of a development. At the same time, transport options and preferences are changing, particularly to more sustainable transport options and more active transport.

A Future Homes adapted design is a good neighbour and will accommodate residents' cars on site. The adapted design will consider changes to resident's transport preferences over time. It will not allow car parking to dominate the appearance or amenity of the site.

Principles

A. The development provides sufficient, convenient car parking on-site for residents.

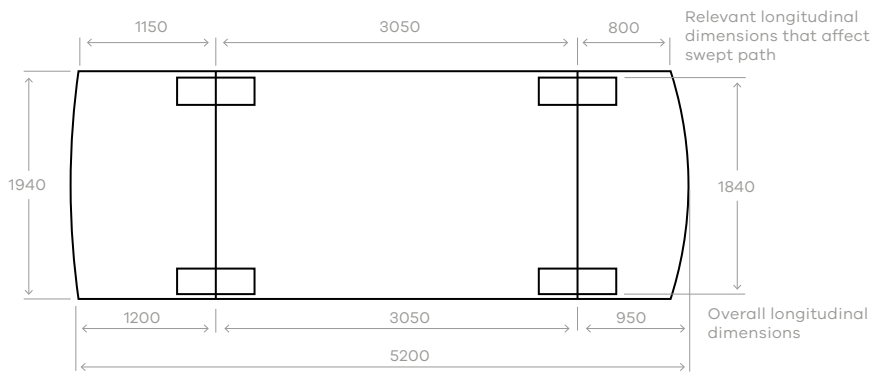
B. The development supports the short- and long-term adaptation of car parking areas for more sustainable transport options.

C. The development supports sustainable transport alternatives to fossil-fuel-based cars.

Mandatory requirements

1. One car parking space per apartment must be located on site. If a parking overlay specifies a lesser parking requirement, the lesser amount applies over the mandatory requirement.
2. Where used, mechanical parking must meet the dimensions and requirements for a B99 vehicle as per AS2890.1 2004 (off street), which Figure 1.2 shows.

Figure 1.2: B99 (99.8th percentile) vehicle



Performance targets

Alignment with VPP: Clause 52.06 (Car parking)

Car parking

1. Car parking facilities should:
   - be reasonably close and convenient to dwellings and residential buildings
   - be secure
   - meet minimum exhaust extraction requirements if enclosed.
2. If vehicle access is provided from a road in a Transport Zone 2, an adapted design must comply with the relevant design guidelines to the satisfaction of Transport for Victoria (TfV).
3. Height clearance of at least 2.1 metres must be provided under all overhead obstructions such as fire sprinklers, lighting fixtures and signs.
4. Where mechanical parking is used, designs may need swept paths to show all spaces are accessible by an Australian Standard B85 vehicle.

Accessways

5. Accessways should:
   - be at least 3 metres wide, with an internal radius of at least 4 metres at changes of direction or intersections; or be at least 4.2 metres wide
   - allow vehicles parked in the last space of a dead-end accessway to exit in a forward direction with one manoeuvre
   - provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres. Clearances shall be measured to the lowest projection from the roof including fire sprinkler and pipes in accordance with Figure 3.2 of AS 2890.1:2004 Parking facilities Part 1: Off-street car parking (off street) Part 1: Off-street car parking

- be designed so a car can exit the site in a forward direction, if the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or 3
- provide a passing area at the entrance at least 6.1 metres wide and 7 metres long, if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or 3
- have a corner splay or area at least 50 percent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900 mm high.

6. If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or 3, the access to the car spaces should be at least 6 metres from the road carriageway.
7. If entry to the car space is from a road, the width of the accessway may include the road.
8. If located on an arterial road, provide left-in left-out access with clear directional signs.

Car parking spaces

9. Car parking spaces and accessways should have the minimum dimensions shown in Table 1.6. The table does not apply to accessways for mechanical parking, as alternate requirements apply. Where mechanical parking is proposed, a traffic engineer will be required to assess the adequacy of the spaces, accessway width and swept path.

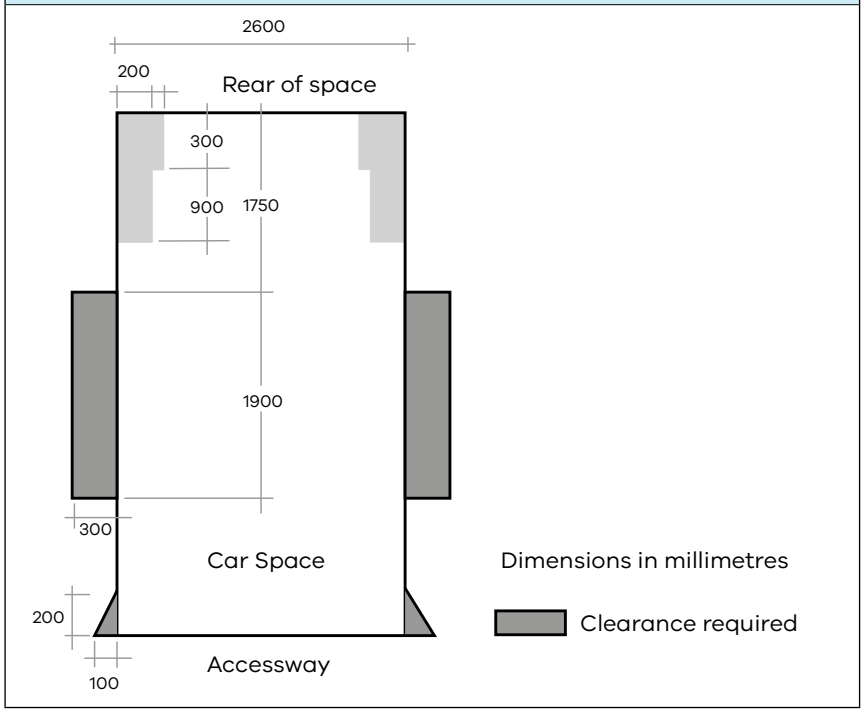
Table 1.6: Minimum dimensions of car parking spaces and accessways

Angle of car parking spaces to accessway	Accessway width	Car space width	Car space length
Parallel	3.6 m	2.3 m	6.7 m
45°	3.5 m	2.6 m	4.9 m
60°	4.9 m	2.6 m	4.9 m
90°	6.4 m	2.6 m	4.9 m
	5.8 m	2.8 m	4.9 m
	5.2 m	3.0 m	4.9 m
	4.8 m	3.2 m	4.9 m

Note: Some dimensions in Table 1.6 vary from those shown in AS 2890.1:2004 Parking facilities Part 1: Off-street car parking. The dimensions in Table 1.6 allocate more space to aisle widths and less to marked spaces, to provide improved operation and access. The dimensions in Table 1.6 are to be used in preference to AS 2890.1:2004 Parking facilities Part 1: Off-street car parking, except for disabled spaces which should achieve AS 2890.6:2009 (Parking facilities Off-street parking for people with disabilities).

10. A wall, fence, column, tree, tree guard or any other structure that abuts a car space should not encroach into the area marked 'Clearance required' on Figure 1.3 other than:
    - a column, tree or tree guard, which may project into a space if it is within the area marked 'Tree or column permitted' on Figure 1.3
    - a structure, which may project into the space if it is at least 2.1 metres above the space.

Figure 1.3: Clearance to car parking spaces



11. Car spaces in garages or carports should be at least 6 metres long and 3.5 metres wide for a single space and 5.5 metres wide for a double space, measured inside the garage or carport.
12. Where parking spaces are provided in tandem — one space is behind the other — an additional 500 mm in length should be provided between each space.
13. 50 percent of car spaces provided, excluding mechanical parking spaces, should have a vertical clearance over the parking space of at least 2.5 metres in accordance with the accessibility requirements in Table 1.13 in section 3.5 Accessibility. Disabled car parking spaces should be designed in accordance with AS 2890.6:2009 (Parking facilities Off-street parking for people with disabilities) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 1.6 by 500 mm.

Gradients

14. Accessway grades should not be steeper than 1:10 (10 percent) within 5 metres of the frontage, to ensure the safety of pedestrians and vehicles. The design should have regard to the wheelbase of the vehicle being designed for, pedestrian and vehicular traffic volumes, the nature of the car park and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three apartments or less.
15. Ramps (except within 5 metres of the frontage) should have the maximum grades shown in Table 1.7 and be designed for vehicles travelling in a forward direction.

Table 1.7: Ramp gradients

Type of car park	Length of ramp	Maximum grade
Private or residential car park	20 m or less	1:4 (25%)
	Longer than 20 m	1:5 (20%)

16. Where the difference in grade between two sections of a ramp or floor is greater than 1:8 (12.5 percent) for a summit grade change, or greater than 1:6.7 (15 percent) for a sag grade change, the ramp should include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.
17. Plans should include an assessment of grade changes of greater than 1:5.6 (18%) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.

Mechanical parking

18. Mechanical parking may be used to meet the car parking requirement provided:
    - spaces meet the dimensions and requirements for a B99th percentile vehicle (shown in Figure 3)
    - aisles and swept paths meet the requirements for a B85th percentile vehicle
    - at least 25 percent of the mechanical car parking spaces can accommodate a vehicle height of at least 1.8 metres, although a higher percentage is encouraged
    - mechanical parking spaces that require the operation of the system are not allocated to visitors, unless used in a valet parking situation
    - the design and operation of the mechanical parking facility is to the satisfaction of the responsible authority
    - drainage is resolved as part of the site stormwater drainage strategy.
19. Where mechanical parking is proposed, consider the design and material of the parking structure including sight lines, potential blind spots and acoustic treatment.

Urban design

20. Ground-level car parking, garage doors and accessways should not visually dominate public space.
21. Car parking within buildings (including visible portions of partly underground basements) should be visually screened or obscured where possible, including through the use of, but not limited to:
    - occupied tenancies
    - landscaping
    - architectural treatments
    - artworks.
22. The design of a car park should consider its use as an entry point to the site.
23. Where applicable, the design of new internal streets in the development should maximise on-street parking opportunities.

Safety

24. Car parking should be well-lit and clearly signposted.
25. The design of a car park should maximise natural surveillance and pedestrian visibility from adjacent buildings.
26. Pedestrian access to car parking areas from the street should be convenient.
27. In high-activity parking areas, pedestrian routes through car parking areas and building entries and other destination points should be clearly marked and separated from traffic.

Landscaping

28. The design of car parking areas should provide for Water Sensitive Urban Design (WSUD) treatment and landscaping.
29. Landscaping and trees should be planted to provide shade and shelter, soften the appearance of ground-level car parking and aid in the clear identification of pedestrian paths.
30. Ground-level car parking spaces should include trees planted with flush grilles. The spacing of trees should be determined considering the expected size of the selected species at maturity.

Disabled spaces

31. Spaces allocated as disabled parking spaces must be in accordance with AS 2890.6:2009 (Parking facilities Off-street parking for people with disabilities) and the Building Code of Australia.

Design considerations

1. Visitor car parking may be provided on-site.
2. Vehicles must enter and exit the site in a forward direction.
3. Limit vehicular noise and exhaust, to protect residents and neighbours.
4. Locate most of the car parking and driveway underneath the building footprint, to maximise deep soil and the garden area. In areas where the car park extends outside the building footprint, a permeable surface should be used for future adaptation and to reduce stormwater run-off.
5. Avoid locating basements near the front boundary where in-ground services are concentrated and sensitive to ground settlement because of construction.
6. Consider the safety implications of one-way access driveways, where visibility is limited.
7. Any mechanical parking system that meets the minimum dimensions and standards specified in the exemplar designs can be adopted.
8. Some councils might prohibit a ‘wet’ drained basement, so consider the on-site treatment of drained groundwater.
9. Consider how car parking spaces can be utilised for other purposes, temporarily and for future adaptive re-use.
10. Consider providing space for the future installation of electric vehicle charging infrastructure to each car park including conduit of adequate capacity and charging stations. An appropriate size to allow for the provision of electric vehicle charging is 550 mm high, 350 mm wide and 200 mm deep, with 600 mm of free space in front, on a wall adjacent to each car parking spot.

2.4 Parking: Bicycles

Rationale

Bicycles have become a viable alternative transport option, particularly with different bicycles for different needs being widely available.

A Future Homes adapted design will accommodate a range of bicycle types on site by providing high-quality bicycle parking facilities.

Principles

A. The development provides sufficient, convenient bicycle parking on site for residents and visitors.

B. The development supports the provision of charging areas for electrical bicycles and secure parking for larger bicycles.

Mandatory requirements

1. Bicycle parking must be provided at a rate of one space per apartment for residents and one space per five apartments for visitors.
2. A minimum of 20 percent of residents' bicycle parking must be provided as horizontal spaces.
3. All visitor bicycle parking must be provided as horizontal spaces and conveniently accessible.
4. Bicycle parking dimensions must be a minimum of 1.8 metres long, 500 mm wide and provide 1.5 metres aisle for horizontal spaces or 1.2 metres clearance behind the bicycle for vertical spaces.

Alignment with VPP: Clause 52.34 (Bicycle facilities)

Performance targets

1. At least 5 percent of bicycle parking locations should have a general-purpose outlet conveniently located nearby, for charging electrical bicycles.
2. A bicycle space should:
    - be secure
    - be located so the bicycle can be ridden to within 30 metres of the bicycle parking space
    - be located to provide convenient access from surrounding bicycle routes and main building entrances
    - be covered to encourage residents to leave their bicycles outside
    - not interfere with reasonable access to doorways, loading areas, access covers, furniture, services and infrastructure
    - not cause a hazard
    - be adequately lit during periods of use.
3. A bicycle rail should:
    - be securely fixed to a wall or to the floor or ground
    - be in a highly visible location for bicycle security (when not in a compound)
    - be of a shape that allows a cyclist to easily lock the bicycle frame and wheels
    - be located to allow easy access to park, lock and remove the bicycle.

4. Where provided, a bicycle compound or a bicycle locker should:
    - be located to provide convenient access to other bicycle facilities
    - be able to be locked
    - if outside, provide weather protection for the bicycle
    - include wall or floor rails for bicycle parking
    - provide an internal access path at least 1.5 metres wide
    - not be unsightly if visible from the street.

Design considerations

1. Bicycle parking dimensions should comply with AS 2890.3:2015 Parking facilities Bicycle parking.
2. The location and design of bicycle parking should be based on visual amenity, safety, security, ease of use and a convenient location.
3. If bicycle parking is provided in a basement car park or on an upper level, the lift should be designed to accommodate a bicycle at least 1.8 m long.
4. Bicycle parking should be of a type to encourage all residents to use it, including people with limited mobility or upper body strength.
5. Consider the spatial requirements of emerging types of vehicles such as electric bicycles, cargo bicycles and electric scooters.

3 Liveable

A Future Homes development has desirable homes with high-quality interior amenity, social spaces, natural light and a good outlook.

3.1 Site and building layout

Rationale

The site layout and orientation of a development are elements fundamental to the amenity of residents. They largely determine solar access, by maximising useful solar penetration in winter and mitigating direct solar penetration in summer, as well as views, safety and security. Ease of movement through the development and relationships with the street and existing neighbours are also determined by site layout and orientation.

A Future Homes adapted design will ensure the development is oriented so the built form, open spaces and adjoining developments have good solar access, visual privacy and amenity.

Principles

A. The building and site layout promotes the safe, functional, accessible and efficient movement of residents.

B. The building and site layout promotes passive surveillance and contributes to a positive interface between the private and public realms.

C. Designs are adapted to respond to the site's orientation to optimise solar access, views and natural landscapes and to provide a sense of communal security.

D. Solar access is maximised in winter and unwanted solar penetration is minimised in summer.

E. The site layout ensures each apartment receives adequate sunlight during the day and mitigates the impact on solar access of neighbouring dwellings and their private open space.

F. Buildings and private open spaces are oriented to maximise views, without compromising visual privacy.

G. The development and apartments are provided with their own sense of entry and identity.

H. The development provides for the safety and security of the residents and their property.

I. The site layout creates a convenient pattern of pedestrian movement within the site and connects seamlessly to external movement networks.

J. Built form and open space are designed harmoniously and as a whole.

Mandatory requirements

1. Common corridors and passageways providing access to apartment entries must be at least 1.2 metres wide.
2. Entries to apartments and buildings must:
   - be visible and easily identifiable from the street and internal accessways
   - provide shelter, a sense of personal address and a transitional space around the entry.
3. The layout and design of buildings must:
   - clearly distinguish entrances to residential and non-residential areas
   - provide windows to building entrances and lift areas where enclosed, to encourage passive surveillance
   - 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.
4. Habitable rooms must have a window in an external wall of the building.
5. 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 must:
   - be at least 1.2 metres wide
   - have a maximum depth of 1.5 times the width, measured from the external surface of the window.

Alignment with VPP: Standard B12 Safety (55.03-7), Standard B19 Daylight to existing windows (55.04-3), Standard B42 Accessibility (55.07-8) & Standard B48 Windows (55.07-14)

Performance targets

1. Planting that creates unsafe spaces along streets and accessways should be avoided.
2. Developments should be designed to provide good lighting, visibility and surveillance of car parks and internal accessways.
3. Private spaces within developments should be protected from inappropriate use as public thoroughfares.
4. A window in a habitable room should be located to face:

   a. an outdoor space clear to the sky, or a light court with an area of at least 3 square metres and a minimum dimension of 1 metre clear to the sky, not including land on an abutting lot or

   b. a verandah provided it is open for at least one-third of its perimeter or a carport or circulation space provided it has two or more open sides and is open for at least one-third of its perimeter.

Alignment with VPP: Standard B27 Daylight to new windows (55.05-3)

Design considerations

1. Increase opportunities for movement and circulation between the development and surrounding areas.
2. Consider opportunities for glazing at entries, within doors and adjacent to entry spaces, to enable light and surveillance.
3. Maximise north-facing living spaces and north-facing glazing generally while minimising south-facing living rooms and balconies, unless there is a clear benefit. Generally, bedrooms should be located to the south, east or west to allow living spaces to be located to the north.
4. Provide operable shading to all east- and west-facing glazing, and minimise the extent of the glazing where possible.
5. Where provided, fixed shading should account for a range of sun positions at different times of day and in summer.
6. Avoid heavily tinted glazing to provide solar control- it may compromise the useful daylight performance of the space.

3.2 Private open space

Rationale

Private open space is a 'must have' for most homeowners, but apartments have less open space than a traditional detached dwelling. Maximising the amenity of the open space that is provided is very important.

All apartments within the Exemplar designs contain private open space which must be retained throughout the adaptation process. Future Homes adapted design will carefully integrate an apartment's private open space with its internal layout and provide access to an attractive outdoor area.

Principles

A. Adequate private open space or a suitable alternative is provided for each apartment, for the reasonable recreation and service needs of its residents.

B. The amenity for private open space is maximised through its location, integration with the apartment, landscape elements and optimised solar access.

Performance targets

1. An apartment should have private open space consisting of at least one of the following:
    - an area at the ground level of at least 25 square metres, with a minimum dimension of 3 metres and convenient access from a living room
    - a balcony with at least the area and dimension shown in Table 1.8 and convenient access from a living room; if a cooling or heating unit is located on the balcony, the minimum balcony area shown in Table 1.8 should be increased by at least 1.5 square metres
    - an area on a podium or other similar base of at least 15 square metres, with a minimum dimension of 3 metres and convenient access from a living room
    - an area on a roof of at least 10 square metres, with a minimum dimension of 2 metres and convenient access from a living room.

Alignment with VPP: Standard B43 Private open space (55.07-9) & Standard B29 Solar access to open space (55.05-5)

2. The private open space should be located on the north side of the apartment or residential building, when possible.
3. The southern boundary of any ground-level secluded private open space should be set back from any wall on the north of the space at least 2 metres plus 0.9 times the height of the wall.

Table 1.8: Balcony size

Apartment orientation	Apartment type	Minimum balcony area	Minimum balcony dimension
North (between north 20 degrees west to north 30 degrees east)	All	8 sqm	1.7 m
South (between south 30 degrees west to south 20 degrees east)	All	8 sqm	1.2 m
Any other orientation	Studio or one bedroom	8 sqm	1.8 m
	Two bedrooms	8 sqm	2 m
	Three or more bedrooms	12 sqm	2.4 m

Design considerations

1. Consider visual privacy and acoustic separation when locating and designing private open space.
2. Manage visual privacy without using excessive screening.
3. Orient balconies for northern light as a priority.
4. South-facing balconies may be appropriate where balconies have good east and west aspects and if being good neighbours is prioritised through softening the built form.
5. Manage internal overlooking into and from private open spaces through site layout and other design techniques which do not affect internal amenity. Excessive screening should be avoided.
6. Encourage views from private open space into communal open space areas, to foster a sense of community interaction.
7. Fences enclosing private open space within the front setback should be no higher than 1.5 metres and set back from the title boundary, to enable meaningful planting in front of any fencing.

3.3 Circulation and communal open space

Rationale

In denser apartment developments, residents particularly want and need high-quality communal open space, shared facilities and circulation spaces. Common areas including circulation spaces and shared facilities enable residents to meet with neighbours, space for children to play, and opportunities to build social connections.

A Future Homes adapted design will provide high-quality communal open space, shared facilities and communal circulation spaces that are integrated with the rest of the development.

Principles

1. Social gathering spaces for residents and their visitors are provided in internal and/or external areas.
2. Communal open space is integrated with the rest of the development, enhances amenity for residents and meets their recreation needs.
3. Communal open space has good solar access and provides opportunities for landscaping, particularly with canopy trees in deep soil.
4. Communal open space is accessible, functional, easily maintained and strategically located, to ensure access and views from as many apartments as possible.
5. Shared facilities are provided, to improve the amenity and enjoyment of the development and to foster a sense of community. Shared facilities include recreational areas, indoor or outdoor multi-use spaces, clothes drying, communal gardens, barbecue areas, tables and chairs.
6. Communal circulation spaces are provided, and they have adequate access to daylight and natural ventilation.
7. Landscape schemes support multiple purposes including neighbourhood greening, biodiversity, climate change adaptation and shade.

Mandatory requirements

1. A development of ten or more apartments must provide a minimum area of communal outdoor open space of 30 square metres.
2. A development of 13 or more apartments must also provide an additional minimum area of communal open space of 2.5 square metres per apartment, or 220 square metres, whichever is the lesser. This additional area may be indoors or outdoors and may consist of multiple separate areas of communal open space.
3. Each area of communal open space must be:
    - accessible to all residents
    - a useable size, shape and dimension
    - capable of efficient management
    - located to:
        - provide passive surveillance, where appropriate
        - provide outlooks for as many apartments as practicable
        - limit overlooking into the habitable rooms and private open spaces of new dwellings
        - minimise noise impacts on new and existing dwellings.

Alignment with VPP: Standard B36 Communal open space (55.07-2) & Standard B37 Solar access to communal open space (55.07-3)

4. Any area of outdoor communal outdoor open space must be landscaped and where possible include canopy cover and trees.
5. At least 50 percent 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 9 am and 3 pm on 21 June.

Performance target

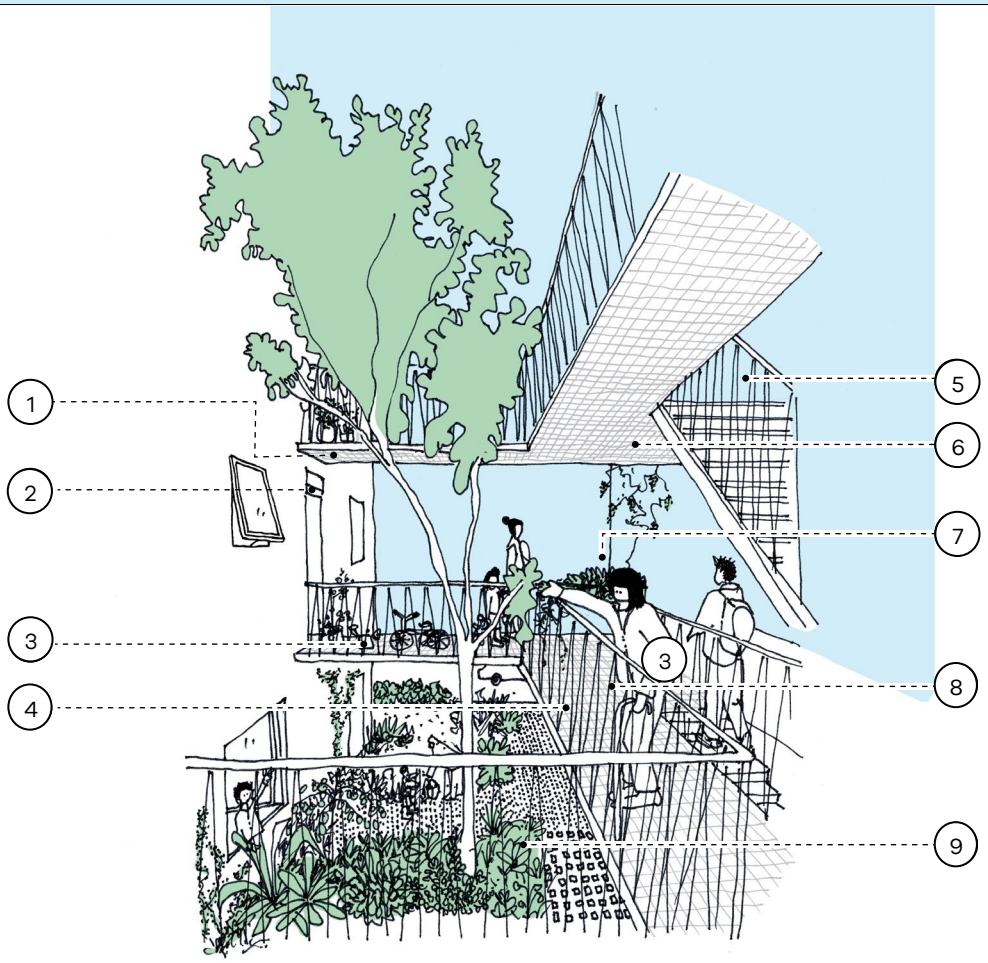
There are no performance targets for this planning element.

Design considerations

1. Open corridors and passageways improve natural ventilation and access to light. If corridors are fully or partially open, weather protection measures should be provided, particularly at the entrances to apartments.
2. Communal corridors and walkways should:
    - have direct access to daylight
    - allow people to socially distance where passing each other
    - include informal breakout and gathering spaces
    - provide protection from the prevailing wind direction.
3. Encourage the use of communal staircases, through generous dimensions and locations which support intuitive use and the movement of large items, rather than lifts being a default option.
4. Communal open space should:
    - be appropriately located and designed to manage noise and privacy, particularly considering the location of bedrooms
    - include canopy trees, consolidated areas for gardens and landscaping
    - be separated from cars, to enable children to play safely
    - provide areas with access to sunlight, particularly in the early morning and evening during winter
    - be sized and designed as flexible spaces that can serve diverse functions and provide opportunities for residents to interact, gather, relax and play such as space to grow fresh fruit and vegetables, long tables and chairs for gatherings of small groups or households, and canopy trees combined with seating facilities, and clothes drying.
5. If communal open space is provided in multiple locations, connections between these spaces should be clear, accessible and integrated with the development's wider circulation network to encourage residents to use and enjoy them.
6. Options for the extent and location of communal open spaces should consider cost and maintenance implications, particularly for spaces on upper-level terraces and roof areas.
7. Communal areas at roof level should consider the use of paving pedestals to allow for the easy collection of surface run-off and cleaning.
8. The development should include meaningful, consolidated areas for gardens and landscaping.

Figure 1.4 and Figure 1.5 illustrate examples of design treatments for shared spaces.

Figure 1.4: Example design treatments for shared spaces



1 - Entry covered by a walkway above

2 - Fly screen and window above entry door for light, air and privacy

3 - Space for belongings and individualisation

4 – Robust and durable materials

5 – External stairs with generous dimensions and a central location supports intuitive use, rather than defaulting to lifts

6 – Accessways at upper levels can be pulled away from the façade line to create private, separated entries and increased solar access to habitable entries

7 – Planters create opportunities for upper-level greening

8 – Accessways are wide enough to accommodate residents passing and stopping to socialise

9 – The void creates an area suitable for deep-root-zone planting. Within the zone, vegetation and small trees should be deployed as a visual privacy buffer between habitable rooms and communal access

Figure 1.5: Example design treatments for shared spaces

1 - Passive surveillance over communal space from balconies

2 - Planted climbers on a metal mesh frame reduce heat island effect

3 - Inbuilt planters reduce need for screens

4 – Deep façade reveals create occupiable space for reading and relaxing

5 – Extensive communal planting supports resident care, ownership and collaboration

6 – Planter boxes create opportunities for productive gardens

7 – Built-in seating and tables for communal meal sharing and activities to encourage interaction and connection

8 – Covered, planted communal walkways create weather protected spaces for mingling and quick catchups

9 – Voids create areas suitable for deep soil planting. Within this zone, small trees can be planted to create a privacy buffer between habitable rooms and communal zones

3.4 Comfortable living

Rationale

Apartments can offer an alternative to detached dwellings as a common form of housing in the suburbs. When they are designed well, they can offer similar levels of amenity, internal flexibility and comfortable living to accommodate a diversity of lifestyles.

A Future Homes adapted design will address the storage, dining, living space, bedroom and noise mitigation needs of tomorrow's apartment dwellers.

Principles

A. Apartments provide functional areas that meet residents' needs.

B. The development provides adequate storage for each apartment.

C. Dining and living spaces are large enough for a dining table and sofa commensurate with the number of bedrooms in the apartment.

D. Bedrooms are large enough for a bed, furniture and storage space.

E. Bedrooms receive direct access to daylight and natural ventilation.

F. Single-aspect habitable rooms receive adequate daylight.

G. The development contains its noise and protects residents and neighbours from external noise sources, now and in the future.

Mandatory requirements

Alignment with VPP: Standard B47 Room depth (55.07-13), Standard B46 Functional layout (55.07-12), Standard B44 Storage (55.07-10)

1. A bedroom must:
   - have an external window
   - meet the minimum internal room dimensions shown in Table 1.9
   - provide an area in addition to the minimum internal room dimensions, to accommodate a 600 mm deep built-in robe.

Table 1.9: Bedroom dimensions

Bedroom type	Minimum width	Minimum depth
Main bedroom	3 m	3.4 m
All other bedrooms	3 m	3 m

2. A living area (excluding a dining and kitchen area) must meet the minimum internal room width and area shown in Table 1.10.

Table 1.10: Living area minimum width and area

Apartment type	Minimum width	Minimum area
Studio and one bedroom	3.3 m	10 sqm
Two or more bedrooms	3.6 m	12 sqm

3. A single-aspect habitable room must not exceed a room depth of 2.5 times the ceiling height.
4. The depth of a single-aspect, open-plan, habitable room may be increased to 9 metres if **all of** the following requirements are met:
   - the room combines the living area, dining area and kitchen, **and**
   - the kitchen is located furthest from the window, **and**
   - the ceiling is at least 2.7 metres high, measured from the finished floor level to the 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.
5. Each apartment must have convenient access to usable and secure storage space.

6. The total minimum storage space (including kitchen, bathroom and bedroom storage) must meet the requirements shown in Table 1.11.

Table 1.11: Storage requirements

Apartment type	Total minimum storage volume	Minimum storage volume within the apartment
Studio	8 m3	5 m3
One bedroom	10 m3	6 m3
Two bedrooms	14 m3	9 m3
Three bedrooms or more	18 m3	12 m3

7. All apartments with three or more bedrooms must have access to adequately sized external storage.

Performance targets

Alignment with VPP: Standard B41 Noise impacts (55.07-7)

1. Adaptations should mitigate noise and other pollution associated with mechanical services when these are located next to habitable rooms.
2. Buildings within a noise influence area shown in Table 1.12 should be designed and constructed to achieve the noise levels:
   - not greater than 35 dB(A) for bedrooms, assessed as LAeq,8h from 10 pm to 6 am
   - not greater than 40 dB(A) for living areas, assessed as LAeq,16h from 6 am to 10 pm.
3. Buildings or parts 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 noise level requirements in Table 1.1.

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

Table 1.12: Noise influence area

Noise source	Noise influence area
Zone interface	
Industry	300 m from the Industrial 1, 2 and 3 Zone boundary
Roads	
Freeways, tollways and other roads carrying 40,000 annual average daily traffic volume	300 m from the nearest trafficable lane
Railway	
Railway servicing passengers in Victoria	80 m from the centre of the nearest track
Railway servicing freight outside metropolitan Melbourne	80 m from the centre of the nearest track
Railway servicing freight in metropolitan Melbourne	135 m 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.

Design considerations

1. A bedroom or living room should not rely on borrowed light or borrowed ventilation.
2. Manage views from a bedroom by the placement of windows or fixed structures rather than by the excessive use of highlight windows, screening or obscured glass.
3. Where a bedroom has an outlook to a void, consider screening the void so the bedroom can have a full-sized window for light and air.
4. The dining area in a one-bedroom apartment should be large enough for a table for two to four people.
5. The dining area in a two-bedroom apartment should be large enough for a table for four to six people.
6. The dining area in an apartment with three or more bedrooms should be large enough for a table for six or more people.
7. Where external storage is not provided, consider the need to store bulky items within apartments.

3.5 Accessibility

Rationale

Apartments are designed to a high level of accessibility to provide homes for more people regardless of age, disability, background, or other factors. They enable residents to age in place, and enable people to live in the apartment throughout different stages of their lives.

A Future Homes adapted design will apply the principles of accessibility and a long term home to that is safe and liveable for our diverse community.

The term accessible has multiple meanings to different industries. In this instance, it relates to creating livable and more versatile homes with wider corridors, doorways, and more circulation space around entries, kitchens, laundry areas and in bathrooms.

Principles

A. The development is accessible to meet the needs of diverse types of residents, and apartments can be adapted in future to meet their changing needs.

Mandatory requirement

1. At least 50 percent of apartments must be designed to meet the design outcomes in Table 1.13. For the purpose of a planning application, plans must demonstrate compliance with Table 1.13 and clearly identify areas where compliance is achieved.

Alignment with VPP: Standard B42 Accessibility (55.07-8)

Table 1.13: Accessiblity design outcomes[1]

Item	Design outcome
Apartment access	• Slip resistant continuous step free pathway from the street and car parking area to the apartment entry door • Pathways with a minimum clear width of 1.2 m, no steps, a maximum gradient of 1:14 and a cross fall not steeper than 1:40 • Where ramps with landings are required as part of the pathway, landings must be no less than 1.2 m in length; gate and door swings must not overlap minimum landing requirements • Landings must be provided at the start and end of ramps • Where there is a change in height of 190 mm or less at an apartment entrance, a step ramp with a gradient not steeper than 1:10 can be used • Car parking spaces provide: - a level surface with a gradient not exceeding 1:40 in any direction - a vertical clearance over the parking space of at least 2.5 m free of obstructions; the 2.5 m clearance is not required where mechanical parking is used

Table 1.13: Design outcomes[1] (continued)

Item	Design outcome
Apartment entrance	• A clear opening width of at least 850 mm at the entrance to the apartment • A level, step-free transition and threshold • A level landing on the arrival side of the entrance door of at least 1.35 m by 1.35 m • A threshold ramp can be provided in compliance with AS1428.1
Internal doors and passageways	• A clear opening width of at least 850 mm at doorways to rooms • A level, and step-free transition and threshold • A level landing on the arrival side of the entrance door of at least 1.35 m x 1.35 m
Toilet	• At least one toilet on the entry level of the apartment with: - secure fixing surface to enable installation of grab rails at a future date; - a minimum 1.2 m by 1.2 m circulation area located in front of the toilet and that is clear of the basin and the door swing and - a room width of 1.2 m if located in a room separate to the bathroom; or - the toilet located in the corner of the room when in a bathroom with the centreline of the pan 450-650mm from the adjacent wall
Shower	• A least one bathroom on the entry with a hobless, step-free shower that has a removable shower screen • The hobless shower will: - have minimum clear internal dimensions of 900 mm by 900 mm - have a minimum 1.2 m by 1.2 m clear circulation area located in front of the shower - be located in the corner of the room to enable installation of grab rails at a future date
Future grab rails	• Provide a secure fixing surface for the installation of future grab rails at the toilet, shower and bath in accordance with Appendix 8 diagrams Note: Where walls are not constructed of solid masonry or concrete, provide additional wall framing and structural lining behind the finished wall surface
Kitchen and laundry	• A kitchen and laundry with a minimum 1.2 m clear circulation area in front of appliances and benches • Extend floor finishes under appliances and cabinets to allow for future modifications

1. *Future Homes accessibility requirements are equivalent to or exceed 'Gold Performance Level' under Livable Housing Australia's Livable Housing Design Guidelines*

See **Appendix 8: Accessibility** for diagrams.

Performance targets

There are no performance targets for this planning elements.

Design considerations

1. Consider applying universal design principles for common and private areas.
2. A lift should be provided to service all levels including the basement if proposed, or space should be provided so a lift can be included or retrofitted later.
3. Ensure shared spaces and services such as communal gardens, waste storage facilities and bicycle storage allow for safe, convenient access.
4. Consider obtaining certification of an adaptation design and/or the final as-built product with Livable Housing Australia.

4 Good neighbours

A Future Homes development respects neighbours' amenity and enriches the street and surrounding public realm.

4.1 Relationship to the street and neighbours

Rationale

While a street in a suburb typically has unique elements and a distinctive local character, most have things in common: buildings that sit within their landscape setting, address and engage with the street, reference rather than replicate aspects of the existing character and include materials that age well over time.

A Future Homes adapted design will respond to the valued characteristics of its street and neighbourhood. It will contribute to the emerging new character of its suburb with a high-quality appearance and garden character. It won't mimic established buildings, but rather contribute positively to its local area.

Principles

A. The development is a good neighbour and respects the privacy and amenity of adjoining dwellings.

B. The development acknowledges existing character and context but does not seek to replicate it.

C. The development creates a new, emerging character which includes higher, denser built form.

D. The development has a positive street presence and supports a safe public realm.

E. The development is integrated and activates the street frontages.

F. The development supports good connections to surrounding areas.

G. The development is attractive and enduring.

H. The development is inherently innovative, inclusive and sustainable.

Mandatory requirements

1. Unless a greater height is allowed under a schedule to a zone, the development must not exceed 11 metres or contain more than three storeys at any point. The height of the development is measured as the vertical distance from the natural ground level to the roof or parapet at any point. This distance does not include any plant equipment, service installations, lift and stairwell overrun or other ancillary building elements that protrude above the maximum height.
2. A building may exceed the applicable maximum building height or contain more than the applicable maximum number of storeys if:
    - it replaces an immediately pre-existing building and the new building does not exceed the building height or contain a greater number of storeys than the pre-existing building

Alignment with VPP: General Residential Zone (32.08) and Standard B7 Building height (55.03-2)

- there are existing buildings on both abutting allotments that face the same street and the new building does not exceed the building height or contain a greater number of storeys than the lower of the existing buildings on the abutting allotments
- it is on a corner lot abutted by lots with existing buildings and the new building does not exceed the building height or contain a greater number of storeys than the lower of the existing buildings on the abutting allotments
- it is constructed pursuant to a valid building permit that was in effect prior to the introduction of this provision.

3. An extension to an existing building may exceed the applicable maximum building height or contain more than the applicable maximum number of storeys if it does not exceed the building height of the existing building or contain a greater number of storeys than the existing building.
4. A building may exceed the maximum building height by up to 1 metre if the slope of the natural ground level, measured at any cross-section of the site of the building wider than 8 metres, is greater than 2.5 degrees.
5. A basement is not a storey for the purposes of calculating the number of storeys contained in a building.

Performance targets

1. The development should be oriented to front existing and proposed streets.
2. Along street frontages, the development should:
   - incorporate pedestrian entries, windows, balconies or other active spaces
   - limit blank walls
   - provide low and visually permeable front fences, where proposed; planting should be used to further soften the appearance of fencing
   - conceal car parking and internal waste collection areas from the street.
3. If next to existing public open space, the development should complement the open space and facilitate passive surveillance.
4. The front fence, unless it is enclosing secluded private open space, should be no higher than 1.2 m. On a main road, the front fence can be up to 1.8 metres high.
5. If the front fence encloses an area of secluded private open space, it should not be higher than 1.5 metres on a local road. Planting in front of the fence is encouraged.
6. A new wall constructed on or within 200mm of a boundary of a lot constructed within 1 metre of a boundary should not abut the boundary for a length of more than:
   - 10 metres plus 25 per cent of the remaining length of the boundary of an adjoining lot, or
   - where there are existing or simultaneously constructed walls or carports abutting the boundary on an abutting lot, the length of the existing or simultaneously constructed walls or carports whichever is greater.
7. A new wall or carport may fully abut a side or rear boundary where the effective height of a wall or carport is less than 2 metres on the abutting property boundary.
8. A building on a boundary includes a building set back up to 200mm from a boundary.
9. The height of a new wall constructed on or within 200mm of a side or rear boundary constructed within 1 metre of a side or rear boundary should not exceed an average of 3.2 metres with no part higher than 3.6 metres.

Alignment with VPP: Standard B51 Integration with the street (55.07-17), Standard B32 Front fence (55.06-2) and Standard B18 Walls on boundaries (55.04-2)

Design considerations

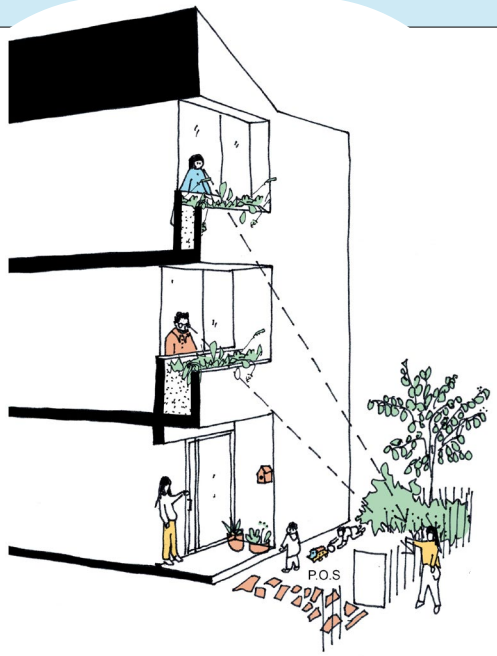
Building height

1. The development can be located next to an existing single-storey dwelling, but it should respect the amenity of neighbours, the street and the surrounding public realm.

Integration with the street

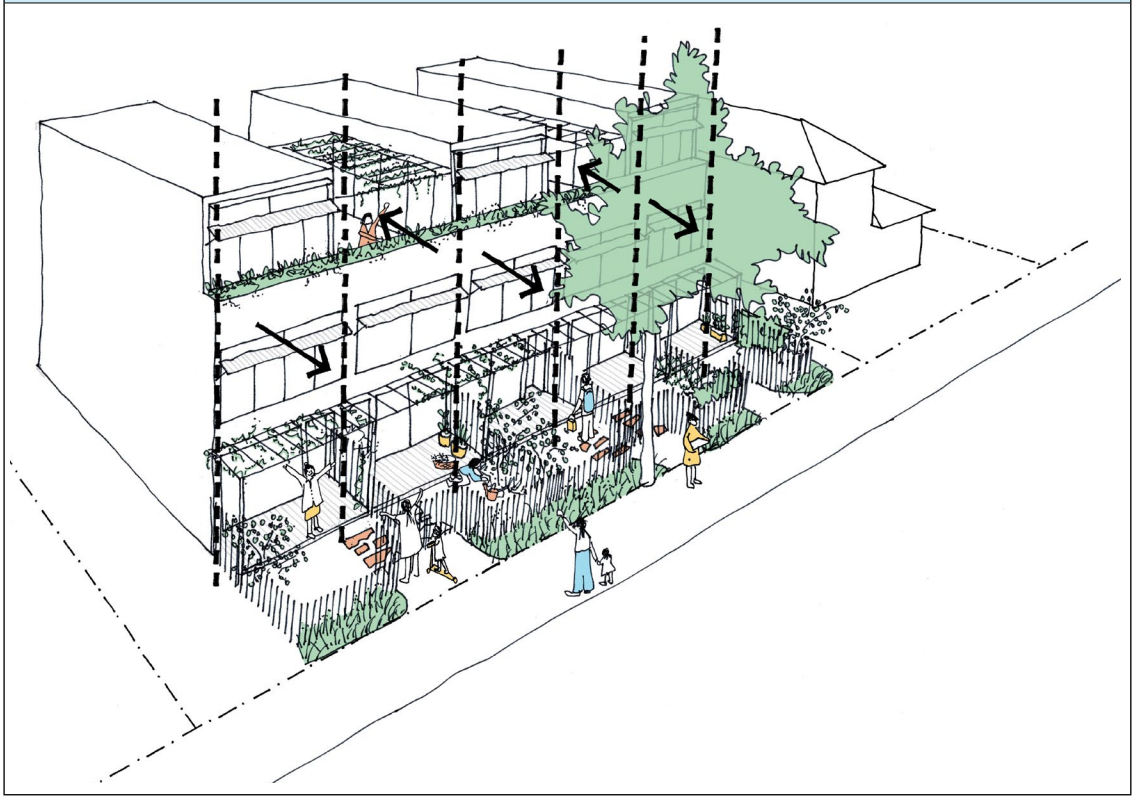
2. The development should directly address the street and avoid blank walls.
3. The building frontage should include landscaping and canopy tree planting, which contribute to the landscape character of the area, increase amenity and provide shade to support a more walkable neighbourhood.
4. The development should not seek to mimic the height and character of existing dwellings, particularly where the streetscape could change over time.
5. Buildings should encourage passive surveillance and maintain an interactive relationship with the street such as by using windows, balconies, building or apartment entries and communal landscaped recreation areas overlooking the street, as Figure 1.6 illustrates.

Figure 1.6: Passive surveillance and overlooking of private open space example



6. Provide required site services within the frontage, and integrate them within the building, fence and/or landscape design.
7. Consider articulating the building frontage to read as a townhouse/terrace typology, so it better responds to contexts with a finer-grain character, as Figure 1.7 illustrates.

Figure 1.7: Example articulated building frontage



Front fence

8. A front fence should:
    - complement the design of the building
    - enable passive surveillance
    - allow for a contribution of front setback landscaping to the public realm
    - provide a degree of privacy for areas of secluded private open space.
9. Privacy for secluded private open space within the front setback should not be achieved using high, solid front fences: these prevent passive surveillance.
10. Front fences used to protect secluded private open space at the ground-floor level should be sufficiently set back to enable boundary planting or seating. If planting is not possible in this space due to the location of site services, an appropriate landscape response should be provided.
11. In a north-facing site where secluded private open space is in the front setback, the setback should be generous enough to allow for outdoor recreation in the secluded open space.

Walls on boundaries

12. Ensure that the location, length and height of a wall on a boundary respects the preferred or emerging neighbourhood character and limits the impact on the amenity of existing dwellings.
13. The opportunity to minimise the length of walls on boundaries by aligning a new wall on a boundary with an existing wall on a lot of an adjoining property.
14. Consider the extent to which the slope and retaining walls or fences reduce the effective height of the wall.

4.2 Building envelope

Rationale

Existing neighbours will naturally be interested in how any new development fits in with their street, which in an established residential area typically comprises mostly one- or two-storey buildings.

A Future Homes adapted design will ensure the development's siting and design does not overwhelm its surrounds including through sensitive, sympathetic interface treatments such as landscaping and a high-quality façade.

Principles

A. The building envelope and setbacks are tailored to respond to the site's characteristics and to manage the visual and amenity impacts on neighbouring properties.

B. Landscaped areas and canopy trees are used to support good outlooks, amenity and screening.

C. Front setbacks are guided by the predominant street setback typical along the length of the street and not by the two properties that directly adjoin.

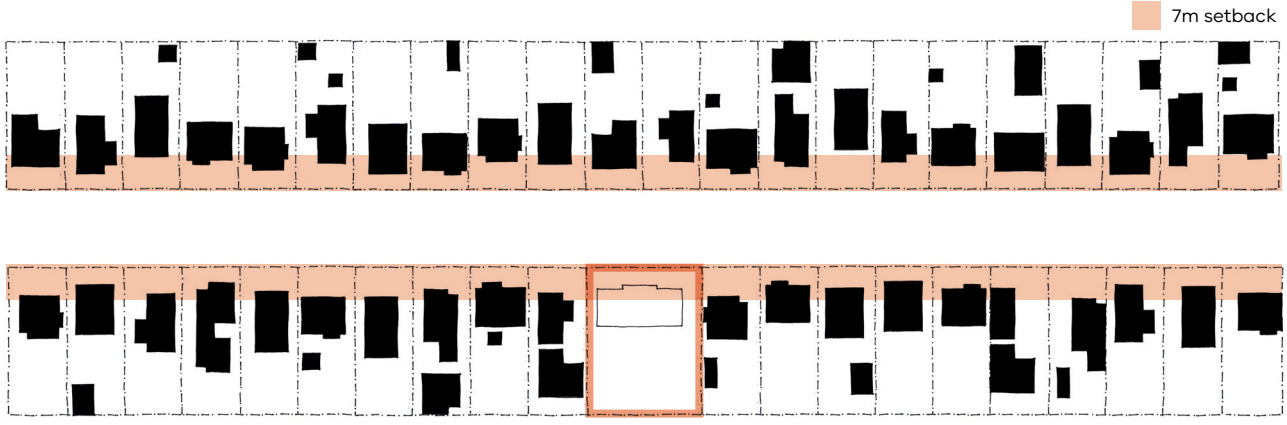
D. The development makes efficient use of the site.

Performance targets

1. The amount of site area covered by buildings should not exceed 65 percent.
2. At a minimum, the walls of the primary frontage of buildings (including those on a corner block) should be set back from the street(s) the average distance of building setbacks along the length of the street up to 150 metres on either side of the site or 7 metres, whichever is the lesser. This includes any corner block that provides multiple frontages.
3. Where the site is on a corner block and provides a secondary frontage, the building should be set back from this secondary frontage by either the distance typical of building setbacks along the length of the street up to 150 metres either side the site or 3 metres, whichever is the lesser.
4. The side walls of buildings on a corner site that address the primary frontage should be set back by either the distance typical of building setbacks along the length of the street up to 150 metres either side the site or 2 metres, whichever is the lesser.

Alignment with VPP: Standard B6 Street setback (55.03-1) Standard B8 Site coverage (55.03-3) and Standard D14 Building setback (58.04-1)

Figure 1.8: Example front setbacks guided by the predominant street setback



5. Upper-level balconies and awnings may be used to provide weather protection for apartments below, but they should not project more than 2 metres into the front setback. Projecting balconies should not come at the expense of canopy tree planting within the front garden.
6. Side and rear setbacks should be guided by the development's ability to limit its impact on the amenity of the habitable room windows and secluded private open space of existing dwellings.
7. Buildings should be set back from the side and rear boundaries and other buildings within the site to:
    - ensure there is adequate daylight into the habitable room windows of apartments
    - avoid direct views into the habitable room windows and private open space of apartments and existing dwellings
    - avoid the development relying on screening to reduce views.

Design considerations

Front setbacks

1. Front setbacks should include high-quality landscaping and canopy tree planting, increase street amenity and provide shade to residents.
2. For a site in a local street, consider the front setback of properties on the opposite side of the street, but not at the expense of the planting of canopy trees within the front setback.
3. Consider providing a staggered front setback to respond to streets, where front setbacks are varied.
4. Consider the setback of the existing dwelling on the site.

Other considerations

5. Side and rear setbacks need not comply with a predetermined formula or value, but rather should allow for adequate daylight to existing windows including north-facing windows, and they should limit overshadowing of adjoining dwellings. For more guidance, see section **4.4 Light and overshadowing.**
6. Avoid locating a basement close to the front boundary, to ensure there is space for deep-soil planting in the front setback. Avoid locations where in-ground services are concentrated and sensitive to ground settlement as a result of construction.

4.3 Internal and external overlooking

Rationale

Existing neighbours are often concerned about a new development overlooking their habitable room windows and private open space. In the past, these concerns have too often been managed by unattractive screening, to the detriment of both the appearance of buildings and the amenity of residents.

A Future Homes adapted design will manage the overlooking of neighbours primarily through the layout of apartments and private open space. Equally, overlooking into communal open space, circulation spaces and the public realm helps increase passive surveillance.

Principles

A. The design limits overlooking into the private open space and habitable room windows of existing neighbours and apartments within the development.

B. Overlooking is managed primarily through the layout of apartments and private open space, rather than with highlight windows and screening techniques, which can compromise internal amenity.

C. Excessive screening to limit internal and external views is avoided.

D. Design techniques to minimise overlooking are embedded within the overall façade composition and do not appear to be added on.

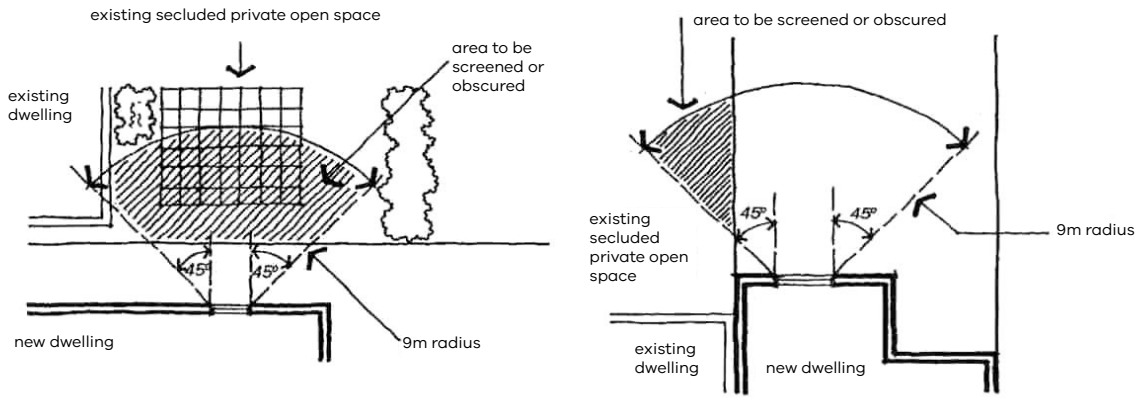
E. Overlooking is encouraged into communal open space, circulation spaces and the public realm, to increase passive surveillance.

Performance targets

1. A habitable room window, balcony, terrace, deck or patio should be located and designed to avoid direct views into the secluded private open space of an existing dwelling within a horizontal distance of 9 metres (measured at ground level) of the window, balcony, terrace, deck or patio. Views should be measured within a 45° degree angle from the plane of the window or perimeter of the balcony, terrace, deck or patio and from a height of 1.7 metres above floor level. Figure 1.9 illustrates this performance target.

Alignment with VPP: Standard B22 Overlooking (55.04-6) and Standard B23 Internal views (55.04-7)

Figure 1.9: Avoiding overlooking open space



2. A habitable room window, balcony, terrace, deck or patio with a direct view into a habitable room window of an existing dwelling within a horizontal distance of 9 metres (measured at ground level) of the window, balcony, terrace, deck or patio should be **either**:
   - offset a minimum of 1.5 metres from the edge of one window to the edge of the other, **or**
   - have a sill height of at least 1.7 metres above floor level, **or**
   - have fixed, obscure glazing in any part of the window below 1.7 metres above floor level, **or**
   - have permanently fixed external screens to at least 1.7 metres above floor level and be no more than 25 percent transparent.
3. Obscure glazing in any part of the window below 1.7 metres above floor level may be openable, provided there are no direct views as specified in this performance target.
4. Screens used to obscure a view should be:
   - perforated panels or trellis with a maximum of 25 percent openings or solid, translucent panels
   - permanent, fixed and durable
   - designed and coloured to blend in with the development.

   This performance target does not apply to a new habitable room window, balcony, terrace, deck or patio that faces a property boundary where there is a visual barrier at least 1.8 metres high and the floor level of the habitable room, balcony, terrace, deck or patio is less than 0.8 metres above ground level at the boundary.
5. Windows and balconies should be designed to limit overlooking of more than 50 percent of the secluded private open space of a lower-level apartment or residential building directly below and within the same development.

Design considerations

1. Internal views are not necessarily a negative design response: where appropriate, they can foster a sense of community interaction.
2. Consider limiting overlooking with:
   - orientations that direct views away from sensitive areas such as by offsetting the living room and balcony from bedrooms
   - window designs such as angled, hooded, butterfly and clerestory windows
   - setbacks at upper levels with recessed windows and balconies with fixed planting
   - internal layout planning
   - orienting balconies and habitable room windows to face non-habitable rooms, communal open space and the public realm.

3. When limiting overlooking, avoid screening techniques such as:
    - excessive highlight windows
    - full-height screening of windows and balconies that doesn't allow residents to have clear outward views and creates a sense of enclosure
    - monolithic screens
    - fixed windows and enclosures that limit fresh air for future residents.

Figure 1.10: Plan diagram showing window location and reveal determined by existing habitable room windows

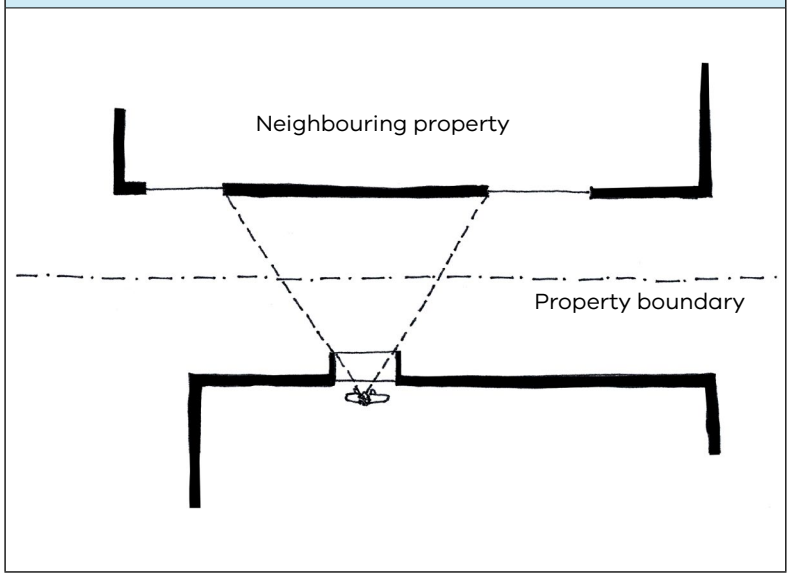
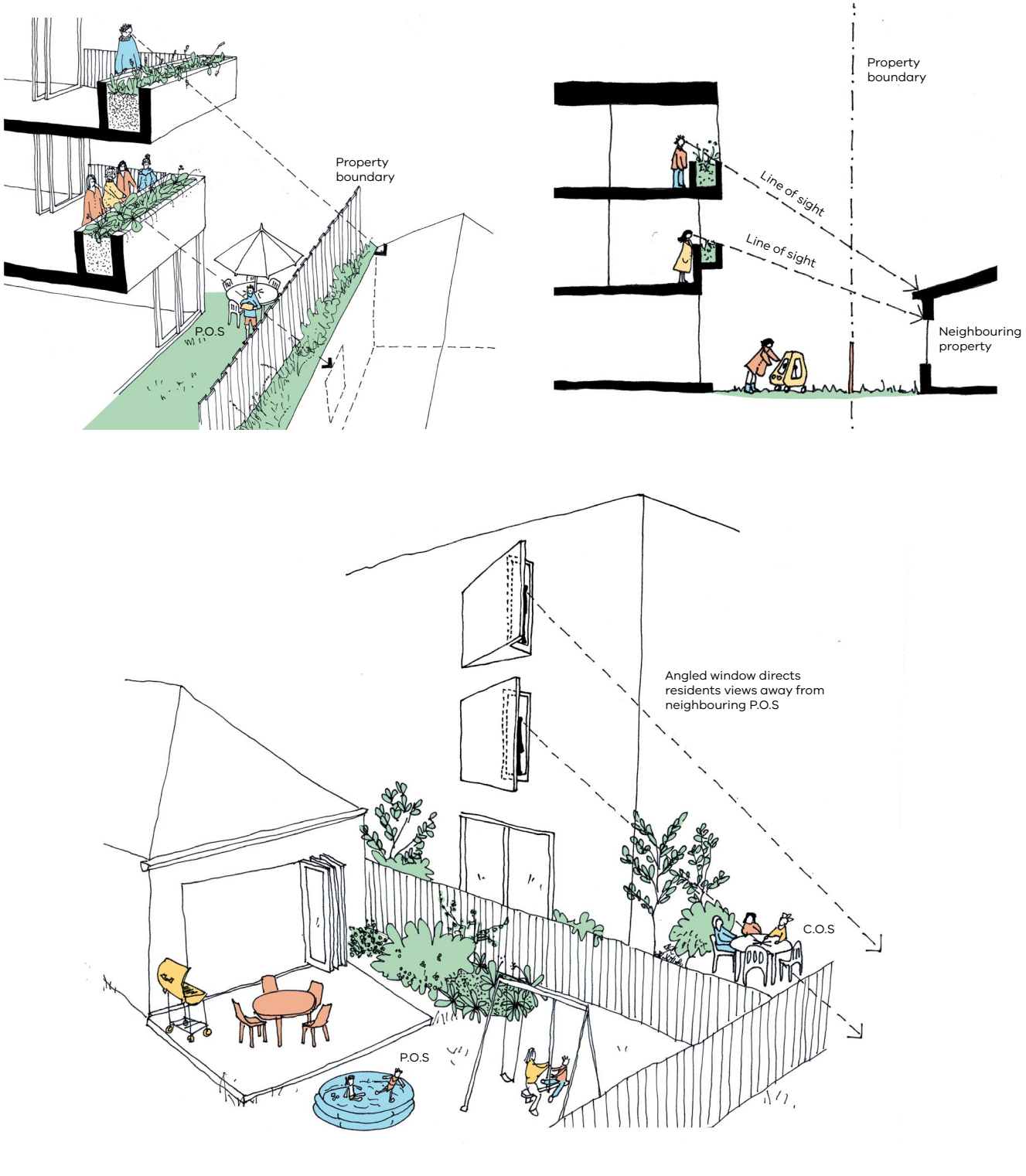


Figure 1.11: Approaches to screening to limit overlooking into neighbouring properties



4.4 Light and overshadowing

Rationale

Existing neighbours are often concerned about a new development overshadowing their habitable room windows and secluded private open space, reducing light and solar access.

A Future Homes adapted design will respond to these concerns by not significantly overshadowing the secluded private open space and habitable room windows of existing neighbours.

Principles

A. The development does not significantly overshadow existing secluded private open space.

B. The development allows adequate daylight and solar access to existing habitable room windows.

Performance targets

1. Where sunlight to the secluded private open space of an existing dwelling is reduced, at least 75 percent or 40 square metres with a minimum dimension of 3 metres, whichever is the lesser area, of the secluded private open space should receive a minimum of five hours of sunlight between 9 am and 3 pm on 22 September.
2. If the sunlight to the secluded private open space of an existing dwelling is currently not sufficient to meet the requirement in performance target 1 above, the amount of sunlight should not be further reduced.
3. A building opposite an existing habitable room window should provide for a light court to the existing window that has a minimum area of 3 square metres with a minimum dimension of 1 metre clear to the sky. The calculation of the area may include land on the abutting lot.
4. Walls or carports more than 3 metres high opposite an existing habitable room window should be set back from the window at least 50 percent of the height of the new wall if the wall is within a 55° arc from the centre of the existing window. The arc may be swung to within 35° of the plane of the wall containing the existing window.

   Where the existing window is above ground-floor level, the wall height is measured from the floor level of the room containing the window.
5. If a north-facing habitable room window of an existing dwelling is within 3 metres of a boundary on an abutting lot, the building should be set back from the boundary for a distance of 3 metres from the edge of each side of the window:
   - 1 metre **plus**
   - 0.6 metres for every metre of height over 3.6 metres up to 6.9 metres **plus**
   - 1 metre for every metre of height over 6.9 m.

Alignment with VPP: Standard B19 Daylight to existing windows (55.04-3), Standard B20 North-facing windows (55.04-4) and Standard B21 Overshadowing open space (55.04-5)

A north-facing window is a window with an axis perpendicular to its surface oriented north 20° west to north 30° east

Design considerations

1. Allow daylight into habitable room windows without the need for building cut outs and angle calculations.
2. Design built form massing to maximise sunlight to neighbouring secluded private open space.
3. Where detriment to the amenity of neighbouring properties can be limited with the siting of buildings, avoid applying a stepped massing solely to comply with the numbers in the performance targets.

Figure 1.12: Example staggered site layout to maximise sunlight to neighbouring properties

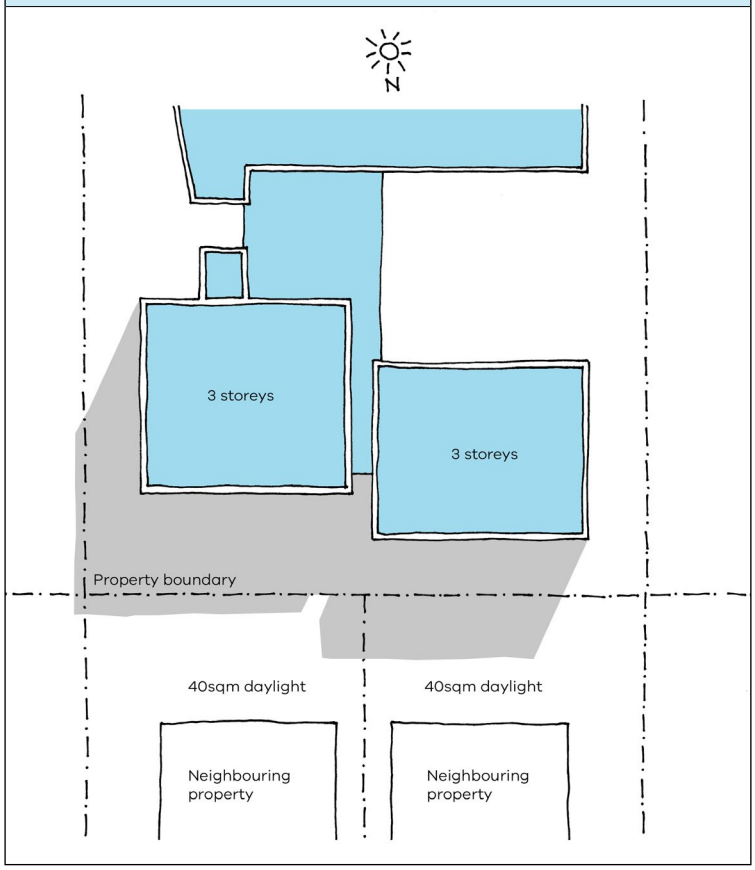
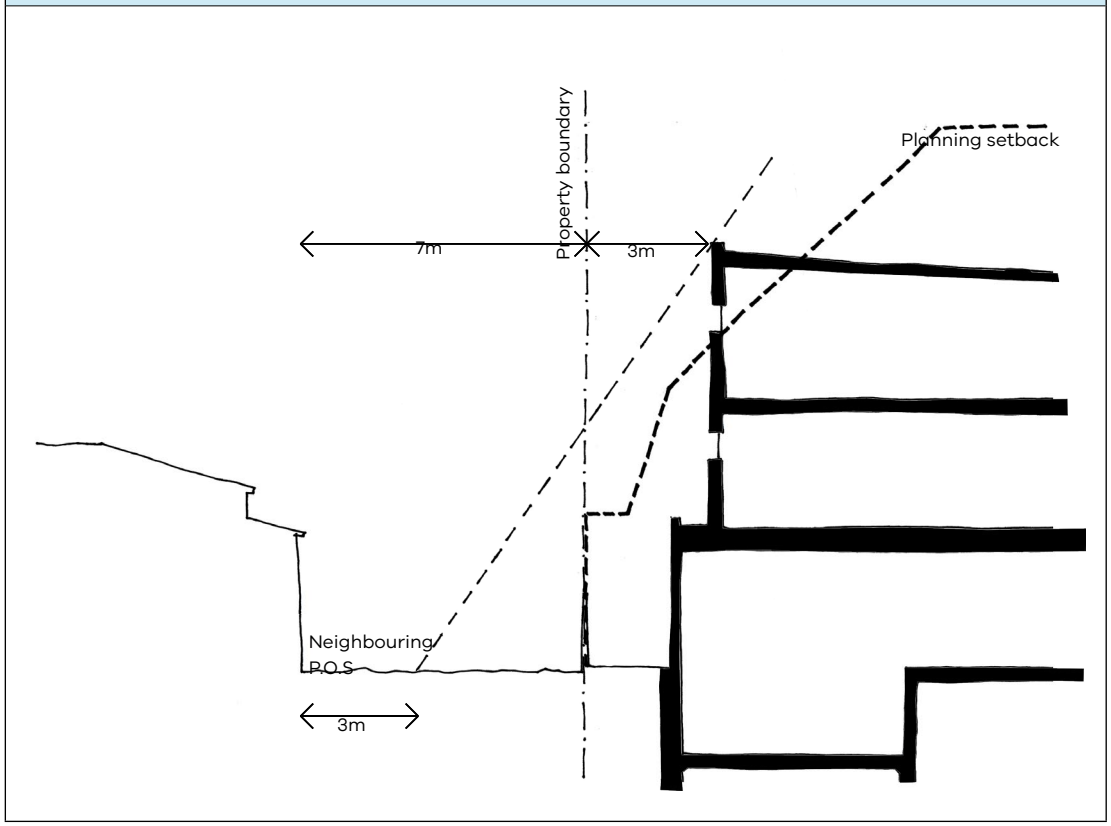


Figure 1.13: Approach to achieve satisfactory daylight to neighbouring private open space when the proposed building is outside the standard planning setback



4.5 Site access

Rationale

Characteristically in the suburbs, each site has a single vehicle crossover, and pedestrians have direct access between the street and their front door.

A Future Homes adapted design will respond to this characteristic by maintaining the landscape character of the street and ensuring a strong relationship between the building and the street, so access is safe and the visual and amenity impacts of access are minimised.

Principles

A. Provide safe, clear and separate access for pedestrians and vehicles.

B. Car movements, entries and exits should be located on the side or rear of the site, away from the main street frontage where possible. Driveway movements should comply with AS 2890.6:2009 (Parking facilities Off-street parking for people with disabilities).

C. Where shared access is proposed, ensure pedestrian space is clear and safe to use and pedestrians are given precedence over vehicles.

D. Minimise the visual and amenity impacts of vehicle access, crossovers and parking.

E. Support opportunities for greater neighbourhood walkability, if the site is adjacent to a park, laneway or reserve.

Performance targets

1. The development should have no more than one vehicle crossing.
2. Car parking entries should be minimised in size, integrated with the façade and where practicable located at the side or rear of the building.
3. Pedestrian and cyclist access should be clearly delineated from vehicle access.
4. The location of crossovers should maximise pedestrian safety and the retention of on-street car parking spaces and street trees.
5. The development must provide access for service, emergency and delivery vehicles.

Alignment with VPP: Standard B14 Access (55.03-9), Standard B40 Apartment Access (55.07-6) and Standard B52 Site Services (55.07-18)

Design considerations

1. A pedestrian pathway should be provided between car parking areas and the building's entrance. The pathway should be of adequate width, with generous space at high traffic and congestion areas, to ensure pedestrians' safety. Consider overflow areas or pop-out spaces for residents to pause and interact.
2. Encourage passive surveillance of pedestrian pathways.
3. Where shared pedestrian and vehicle access is planned, consider design approaches and paving treatments that visually and operationally support pedestrians' rights of way as the priority movement. This may call for:
    - kerb-free paving surfaces (with driveway surfaces sloped to drain towards the centre, with pits in the centre of the driveway)
    - the use of minimal road signage and fixtures
    - the use of tactile materials to delineate the different uses
    - visual street narrowing, trees, landscaping and changes in materials and colours to reduce the speed of traffic.

4. Use landscaping along borders to soften accessways and provide buffers.
5. Locate accessways along side boundaries to reduce the impact of cars on adjacent dwellings. Where possible, accessways along boundaries should incorporate landscaping.
6. Crossovers should be located to avoid the need to remove street trees.
7. Contribute to permeable, walkable neighbourhoods by allowing for:
    - pedestrian access to adjacent streets, laneways, parks, landmarks and points of interest
    - possible future links into neighbouring developments that could allow for cross-block access
    - basement ramps that require at least a 150 mm freeboard above the surrounding entry to avoid the ramp collecting rainwater run-off, but ensure the freeboard doesn't create a hump at the front footpath.

5 Enduring

A Future Homes development has apartments that are of a high-quality built standard, accepted by the community, adaptable to change, resilient, safe and family-friendly.

5.1 Adaptability and flexibility

Rationale

How and where people live changes with time. Households shrink and expand; the balance between home, schooling and work-life shifts; and the need for space — and different spaces — changes over an apartment's lifetime.

A Future Homes adapted design will ensure apartments are easy to adapt to changing needs and circumstances, particularly to one or more people working from home.

Principles

A. Apartments can be adapted to suit different household compositions over time.

B. Apartments have flexible spaces such as spaces for play, work, study or storage that households can adapt to best suit their needs.

Performance target

1. Apartments should have the ability to have one or more spaces for work or study from home.

Design considerations

1. Consider apartment structures and the location of services that would allow smaller apartments to be merged to create larger apartments.
2. Generous, well-lit spaces are the most adaptable spaces to accommodate multiple uses such as relaxing, working or studying.
3. Flexible furniture such as a retractable bed or sliding walls can provide additional flexibility, so the same space can be used differently at different times of the day and night.
4. Avoid load-bearing walls within apartments where possible, to enable future adaptation with the exception being for wet areas.

Further guidance on adaptability can be found within **Part 2 Adapting an exemplar apartment design.**

5.2 Greening

Rationale

Landscaped spaces should surround the developments with healthy planted species to improve health and wellbeing and contribute to environmental performance.

Principles

A. The development is green and leafy. It contributes to the garden character of Melbourne's suburbs and increases the net tree canopy.

B. The development improves its suburban microclimate and environment, and it supports amenity and cooling.

C. Water sensitive urban design (WSUD) principles are integral to the landscape and civil drainage design, making landscapes more resilient, improving the quality of stormwater and reusing water.

D. The development retains and protects existing canopy trees, and it provides for the planting of new trees and canopy cover if established and mature trees cannot be retained.

Mandatory requirement

1. The development must:
   - provide the canopy cover and deep soil areas shown in Table 1.14; existing trees can be used to meet the canopy cover requirements in the table
   - provide canopy cover through canopy trees that are:
     - located in areas of deep soil shown in Table 1.15; if deep soil cannot be provided, trees should be provided in planters as shown in the table
     - consistent with the canopy diameters and heights at maturity shown in Table 1.16
     - located in communal outdoor open space, common areas or street frontages
   - be supported by an irrigation system that uses alternative water sources such as rainwater, stormwater or recycled water
   - take into account the soil type and drainage patterns of the site.

When calculating mandatory deep soil areas, structures with permeable finishes and surfaces (below and above ground) including decking, boardwalks and fences, that have no continuous footings may encroach into the deep soil calculation.

Alignment with VPP: Standard B38 Landscaping (55.07-4)

Table 1.14: Canopy cover and deep-soil requirements

Site area	Canopy cover	Deep soil
1,000 sqm or less	• 5% of the site area • Include at least one Type A tree	• 5% of the site area or 12 sqm, whichever is greater
1,001–1,500 sqm	• 50 sqm plus 20% of the site area above 1,000 sqm • Include at least one Type B tree	• 7.5% of the site area
1,501–2,500 sqm	• 150 sqm plus 20% of the site area above 1,500 sqm • Include at least two Type B trees or one Type C tree	• 10% of the site area
2,500 sqm or more	• 350 sqm plus 20% of the site area above 2,500 sqm • Include at least two Type B trees or one Type C tree	• 15% of the site area

Table 1.15: Soil requirements for trees

Tree type	Tree in deep soil	Tree in planter	
	Area of deep soil	**Volume of planter soil**	**Depth of planter soil**
A	12 sqm (min. plan dimension 2.5 m)	12 m3 (min. plan dimension of 2.5 m)	800 mm
B	49 sqm (min. plan dimension 4.5 m)	28 m3 (min. plan dimension of 4.5 m)	1 m
C	121 sqm (min. plan dimension 6.5 m)	64 m3 (min. plan dimension of 6.5 m)	1.5 m

Table 1.16: Tree types

Tree type	Minimum canopy diameter at maturity	Minimum height at maturity
A	4 m	6 m
B	8 m	8 m
C	12 m	12 m

Performance targets

1. At least 20 percent of the site should be covered in permeable surfaces. To calculate permeability, only garden beds are included and permeable paving is not. A garden bed planted on a roof top, terrace or basement must have a soil depth of at least 600 mm (excluding drainage material) to count towards permeability.
2. The development should retain existing trees and canopy cover.
3. The development should provide for the replacement of any significant trees that were removed in the 12 months before the application was made.
4. The development should:
    - utilise established or mature trees at the time of planting
    - comprise smaller trees, shrubs and ground cover including flowering native species
    - include landscaping such as climbing plants or smaller plants in planters along the street frontage and in outdoor areas including communal outdoor open space
    - shade outdoor areas exposed to summer sun with landscaping or shade structures and use paving and surface materials that lower surface temperatures and reduce heat absorption
    - protect any predominant landscape features of the area
    - provide a safe, attractive and functional environment for residents
    - specify landscape themes, the location and species of vegetation, irrigation systems, paving and lighting.

Alignment with VPP: Standard B9 Permeability and stormwater management (55.03-4) and B38 Landscaping (55.07-4)

Design considerations

1. When calculating mandatory deep soil areas, structures with permeable finishes and surfaces (below and above ground) including decking, boardwalks and fences, that have no continuous footings may encroach into the deep soil calculation.
2. The landscape scheme should be integrated with the development by:
    - providing high-quality front gardens and green spaces with canopy trees to create a strong landscaped street presence
    - utilising spacing between buildings to provide visual and physical relief for residents and existing neighbours
    - providing for a rear corridor of landscaping including tree planting.
3. Landscaping materials should be durable, resilient, safe and fire-resistant. They should be easy to maintain and be consistent with the Future Homes materials schedule included in the exemplar design package.
4. Public, communal and private landscape spaces should be interconnected, to promote a sense of community. These spaces should incorporate productive gardens, good access to light and comfortable benches and seating, to encourage use and social interaction.
5. Deep soil planting should be preferred to the excessive use of planter boxes.
6. The development should provide green surfaces and support biodiversity with a diverse landscape structure including green walls, a shrub storey, groundcover and planting that thrives under the site conditions.

For additional guidance on landscaping, refer to Appendix 3: Landscape

7. Landscaping should be resilient, climate change adaptive, drought-tolerant, functional and reduce urban heat by:
    - avoiding excessive use of hard surfaces at ground level, to the detriment of landscape and permeability
    - planting canopy trees in deep soil and communal areas, to support their longevity and avoid the excessive use of planter boxes
    - providing automatic irrigation systems to all communal landscapes except vegetable gardens, to ensure plants establish properly and are drought-tolerant
    - retaining stormwater, to provide water for irrigation and so minimise the use of potable water
    - using grass areas that are appropriately sized and designed for children to play, people to relax and socialise, and for similar purposes, rather than just for visual amenity
    - managing sun-exposed areas by using landscaping, shade structures, light-coloured roofs and paving materials that lower surface temperatures.
8. Provide infrastructure to support gardening such as space for a tool shed, a potting bench, compost facilities and external taps.
9. Provide an outdoor tap and drainage for each apartment, to allow for irrigation for gardening and for maintaining planting.
10. Landscaping materials should be durable, resilient, designed for safety, fire-resistant and easy to maintain; and they should be consistent with the Future Homes materials schedule included in the exemplar design package.

Climbers and cascading plants

11. A climber or cascading planter fixed to an external wall, pergola, balcony or verandah should be of a species that retains its leaves and remains green year-round. Where used, a performance solution with respect to combustibility and fire safety will be required.
12. Climbers should be grown from a deep-soil area where possible. If grown in a planter box, the box should be at least 500 mm wide and 700 mm depth excluding drainage materials.
13. Easy access should be provided to climbers and planters, for maintenance.
14. Balconies with planters should be designed so people can't use them to climb over the balustrade, as the National Construction Code requires.
15. Planters on balconies should avoid a heavy load on the edge of the cantilever that could deflect the floor and result in poor drainage.

5.3 Integrated landscape

Rationale

The site layout and architectural planning should integrate landscape to create high-quality, usable spaces that complement the architectural design and create good growing conditions for plants.

Principles

A. The siting and landscape approaches are integrated in the overall design strategy.

B. Views into communal open space and the public realm are encouraged, to increase passive surveillance.

C. The landscape design is coordinated with site services to optimise conditions for tree canopy and planting. WSUD, services infrastructure and trenching are designed to avoid compromising deep soil areas.

Performance target

There are no performance targets for this planning elements.

Design considerations

1. Landscaping should be provided in outdoor communal areas and private gardens.

2. Public, communal and private landscape spaces should be interconnected, to promote a sense of community. These spaces should incorporate productive gardens, good access to light and comfortable benches and seating, to encourage use and social interaction.

5.4 Materials and maintenance

Rationale

The look and feel of a development is influenced by choices of materials, textures and colours. These choices also affect the development's climate impacts, the comfort and safety of its residents and its long-term appearance and maintenance requirements.

A Future Homes adapted design will choose materials, textures and colours that mitigate climate impacts, promote comfort and safety, are durable and look good in the long term as well as minimise initial and ongoing maintenance costs. From a neighbourhood character perspective, choices will contribute to the residential function of the building and highlight or mitigate the impacts of some building elements.

Principles

A. Materials and products are safe for occupants, construction workers and the environment.

B. External materials and finishes support adaptation to the local context and retain their attractiveness and resilience.

C. Building materials are high-performing, enduring, durable and easy to maintain.

Performance targets

Alignment with VPP: Standard B53 External walls and materials (55.07-19)

1. External walls should be finished with materials that:
   - do not easily deteriorate or stain
   - weather well with time
   - are resilient to the wear and tear from their intended use.
2. The design of external walls should facilitate safe, convenient access for maintenance.

Design considerations

1. Materials should be durable, to minimise the need to maintain and replace them.
2. Materials should be capable of being recycled and repurposed at the end of their lifecycle.
3. Servicing or maintenance that needs specialist contractors or equipment should be minimised.

Embodied impact

4. The development should reduce the embodied energy, carbon and water of the materials it uses through:
   - the use of low impact materials such as sustainably sourced timber, recycled bricks and products that have been proved to have lower embodied impact **and/or**
   - careful, efficient design — particularly of the structure — to use less material overall than is standard practice.
5. The environmental impact of building materials should be reduced by ensuring:
   - common uses of polyvinyl chloride or PVC (as set out in Green Star PVC Credit) either do not contain PVC or comply with the Green Building Council of Australia's Best Practice Guidelines for PVC[1]
   - all timber used on site (including hoarding and the like) will be from sources certified by either the Program for the Endorsement of Forest Certification (PEFC) or the Forest Stewardship Council (FSC), or it is re-used

- all steel used on site is sourced from a Responsible Steel Maker (as set out in Green Star[2]); the manufacturer of the steel must comply with AS/NZS 5131:2016 Structural steelwork - Fabrication and erection, and test certificates may need to be produced if requested
- the use of concrete such as for footings, piles, pits and the transfer slab is minimised. Fly ash and recycled aggregate are examples of suitable replacement material.

Toxicity

6. All materials and finishes should be of very low toxicity, such that:
   - all engineered wood products used on site meet the total formaldehyde limits set for Green Star
   - all internally applied adhesives, sealants and carpets meet Green Star limits on volatile organic compound (VOC) content
   - all internally applied paints are zero-VOC or contain a total VOC content of less than 5 g/L.

5.5 Site services

Rationale

A Future Homes adapted design will make planning for services an integrated part of the development, to avoid creating visually unappealing interfaces. Facilities including waste are planned to maximise opportunities for sustainability.

Principles

A. Common property, where provided, should be functional and capable of efficient management and maintenance.

B. The location and spatial requirements of site and utility services minimise their visual impact.

C. Site services are coordinated with the landscape design, to optimise opportunities for greening.

D. The development is connected to reticulated services including reticulated sewerage, drainage and electricity, and it does not use fossil fuels including gas.

E. The development does not unreasonably overload the capacity of utility services, infrastructure and roads.

F. Waste facilities are integrated, convenient and facilitate sustainable waste management.

G. There are communal collection bins in a centralised waste storage area to accommodate receptacles for four waste/recycling streams.

H. There are compost facilities on site, to encourage and enable residents to compost their kitchen and garden organics.

I. Bin transfer paths are designed for convenient waste collection.

[1] https://new.gbca.org.au/pvc/

[2] https://www.steel.org.au/focus-areas/environmental-sustainability/environmentally-aware-steelwork-fabrication-and-pr/how-is-a-green-star-point-obtained-via-the-esc/

Performance targets

1. There is provision for site services within the frontage, and services are integrated with the design of the building, fence and/or landscape design.
2. In an area where utility services or infrastructure have little or no spare capacity, the development should provide for the upgrading of — or the mitigation of its impacts on — services or infrastructure.
3. The size of a waste storage area should be in proportion to the number of apartments it serves. Table 1.17 provides a guide, but more space might be required, depending on the design and layout of the bin storage area.

Alignment with VPP: Standard B4 Infrastructure (55.02-4), B33 Common property (55.06-3), Standard B45 Waste and recycling (55.07-11) and Standard B52 Site services (55.07-18)

Table 1.17: Waste storage area requirements

Number of apartments	Waste storage area required (including circulation)
8–9	11 sqm
10–11	13 sqm
12–17	16 sqm
18	17 sqm

Design considerations

General

1. Services including storage, waste and parking areas should be consolidated to improve utility, reduce costs and use robust materials and finishes.

Services

2. Site service requirements vary, and their spatial requirements and conditions should be considered. This includes fire pumps and associated tanks.
3. Site services should not dominate the building's façade and should be designed as an integrated component of the building or landscape.
4. Heat-rejection plant should be in an external area (to avoid units overheating), easy to access for maintenance and not visually intrusive.

Waste

5. Consider the implications of on-site private waste collection (where used) in the car park layout and access.
6. Bin and hard waste storage areas should be easily accessible and conveniently located for people with limited mobility.
7. A waste storage area should have hard surfaces (of concrete or similar) that is finished to a smooth, even surface.
8. Kitchen cabinetry should have receptacles of sufficient size for rubbish, mixed recycling, kitchen organics and glass recycling, to encourage and enable residents to separate waste and recyclables at their point of generation.
9. There should be facilities for the on-site treatment of organics.
10. A hard waste storage area should be undercover and raised or bunded, so rain and water from bin-washing don't interfere with hard waste and e-waste items.

11. Waste storage areas and bins should have Sustainability Victoria (or equivalent) signage telling residents how to dispose of each waste stream.
12. Ventilation openings should be protected from flies and vermin, and waste storage areas should be well ventilated, to minimise smells.
13. The exit point of air flowing from a waste storage area should not be close to apartments.
14. A waste storage area or bin room should:
    - be located within 10 metres of the collection point
    - be graded to an approved drainage outlet and provided with a tap for washing bins
    - be ventilated in accordance with the requirements of the Building Code of Australia and AS 1668.2 – Mechanical Ventilation of Buildings
    - have a minimum door-opening width of 1.2 metres, to allow for the entry and exit of 660 L and 1100 L bins
    - have artificial lighting inside and outside the area or room
    - be large enough to accommodate the required communal collection bins (including sufficient space for future glass recycling collection bins), a hard waste storage area, bin-washing facilities and sufficient circulation space to ensure bins are accessible and there is minimal handling of bins.
15. If an on-site bin room is more than 10 metres from the collection point, there should also be a temporary waste holding area within 10 metres of the collection point.

Temporary waste holding area design

16. A temporary waste holding area should have a hard surface (including permeable paving and another compacted, durable surface) that supports the weight of 1100 L bins and allows bins to be easily transferred in and out of the holding area.
17. For private waste collection, a temporary waste holding area should be large enough to hold one waste stream. For council collection, it should be large enough to hold one week's waste.
18. A temporary waste holding area should be integrated into the landscape, to minimise its impact on the street and residents.
19. A temporary waste holding area should be screened so bins are not visible from the public realm.

Composting facilities

20. There should be a communal composting unit such as a tumbler system near communal garden areas, and it should be efficiently managed.

Bin-washing facilities

21. A waste storage area should have a graded floor that is connected to a drain fitted with a litter trap, in accordance with the relevant authority's requirements.
22. A waste storage area should have a wall-mounted hot and cold mixing tap and a hose for washing bins.

Access

23. A bin transfer path — a path between a waste storage area and a collection point — should:
    - be at least 1.5 metres wide
    - have a maximum gradient of less than 1:14
    - be free of lips, steps and other obstacles.

24. If the bin transfer path has a gradient greater than 1:14, a bin tug should be provided in the waste storage area to help transfer bins to and from the waste collection point.
25. If the waste storage area is located on the basement level and on-site waste collection is not feasible, a bin tug should be provided in the waste storage area to help transfer bins to and from the waste collection point.
26. To enable on-site waste collection with a private waste-collection vehicle, there should be a turnaround area determined through a swept path analysis and headroom clearance at the collection point of at least 2.5 metres.
27. Waste-collection points should have a headroom clearance of 2.5 metres, so 1100 L bins can be collected.

Hard waste storage areas

28. A hard waste storage area should:
    - include dedicated areas for e-waste and household chemicals
    - should be suitably screened, so hard waste items can't be seen from the public realm
    - should be undercover and raised or bunded, so rain and water from bin-washing don't interfere with hard waste and e-waste items.

6 Sustainable

A Future Homes development demonstrates how apartment living can exceed current sustainability requirements and be zero-carbon ready.

6.1 Environmentally sustainable design

Rationale

Victoria is moving strongly to mitigate climate change and adapt to its impacts including through the Climate Change Act 2017[3] and Victoria's Climate Change Strategy[4].

A Future Homes adapted design will produce a development that is energy-efficient, uses less fossil fuel, makes good use of sunlight, is thermally efficient and is resilient to climate change impacts.

The sustainability of the exemplar designs is assessed through the mandarory and non-mandatory requirements in the **Environmentally Sustainable Design (ESD)** checklist in **Appendix 6**. The requirements achieve a minimum Built Environment Sustainability Scoreboard (BESS) overall score of 70 percent (Excellence) or an equivalent score using an equivalent ESD assessment tool such as Green Star (minimum certified, 4 Star). A consultant must prepare a report to demonstrate that a proposal achieves the equivalent of a 70 percent (Excellence) BESS score, the report must be signed and demonstrate how each criterion is met based on the design and specifications as submitted for planning approval.

Principles

A. The development achieves excellent sustainability outcomes.

B. The development's buildings and apartments are energy-efficient.

C. The development protects, where feasible, the photovoltaic (PV) systems of existing dwellings.

D. The development's orientation and layout reduce the use of fossil-fuel energy and make good use of daylight and solar energy.

E. Apartments have adequate thermal efficiency.

F. The development is highly resilient to climate change impacts, particularly extreme heat events.

G. The development optimises on-site renewable energy generation and is ready for net-zero- operation by excluding all fossil fuels on site.

Mandatory requirements

1. The development must be oriented to make appropriate use of solar energy.

[3] https://www.legislation.vic.gov.au/in-force/acts/climate-change-act-2017/005

[4]. https://www.climatechange.vic.gov.au//__data/assets/pdf_file/0025/522169/Victorian-Climate-Change-Strategy-Accessible.pdf

2. The development must at a minimum:
    - achieve a 7.5 star NatHERS average rating — area-weighted across all apartments — with no individual apartment less than 6.5 stars
    - achieve a minimum BESS overall score of 70 percent (Excellence) or an equivalent score using an equivalent ESD assessment tool such as Green Star (minimum certified, 4 Star). Where a consultant prepares a report to demonstrate that a proposal achieves the equivalent of a 70 percent (Excellence) BESS score, the report must be signed and demonstrate how each criterion is met based on the design and specifications as submitted for planning approval.
    - achieve a 100 percent Stormwater Treatment Objective - Relative Measure (STORM) rating for the site.

Performance targets

1. The development should:
    - meet the annual cooling energy limits shown in Table 1.18
    - be sited and designed so the energy efficiency of existing dwellings on adjoining lots is not unreasonably reduced
    - sited and designed so the performance of rooftop solar energy systems on existing dwellings on adjoining lots in a General Residential Zone, Neighbourhood Residential Zone and Township Zone is not unreasonably reduced. The existing rooftop solar energy system must exist at the date the application is lodged.
2. Living areas and private open space should face north, if practical. If being good neighbours (by reducing visual bulk and providing visual relief) is prioritised, south-facing private open space can be acceptable if the apartment will have good solar access.
3. The development should be designed so solar access to north-facing windows is optimised through appropriate window size, shading and location.

Alignment with VPP: Standard B35 Energy efficiency (55.07-1)

Table 1.18: Cooling load

NatHERS climate zone	NatHERS maximum cooling load (MJ/M2 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)

Design considerations

There are no design considerations for this planning element.

Appendix 6: Environmentally sustainable design sets out requirements and provides background information about how the exemplar designs meet the performance targets. Appendix 6 and the accompanying technical report(s) outline specific requirements, outcomes of modelling and guidance about when the provided data is applicable.

6.2 Energy efficiency: passive systems

Rationale

Good design makes homes comfortable throughout the year passively, which reduces the need for active systems: active systems can be costly and can contribute to greenhouse gases.

A Future Homes adapted design will use best practice passive design.

Principles

A. The building's envelope provides comfortable internal conditions and minimises the use of active systems.

B. The development uses best practice passive design.

Performance target

1. The building should:
    - use high-performance window frames — thermally broken, timber or uPVC — as standard, even if it is not required to meet the NatHERS target
    - be as airtight as possible.

Design considerations

There are no design considerations for this planning element.

6.3 Energy efficiency: active systems

Rationale

To mitigate climate change and its impacts, active systems in all new developments will be highly efficient and minimise carbon emissions.

A Future Homes adapted design will generate its energy rather than only use fossil fuels, and its active systems will be highly efficient.

Principles

A. The development does not have plant or equipment that can only operate on fossil fuels.

B. The development should generate renewable energy on site and distribute it throughout the building(s).

C. The development's active systems are highly efficient.

D. The development's active systems are integrated into the design, and there is adequate space for them.

Performance target

1. Locate and set out equipment to reduce the length of refrigerant pipe runs and loading, and support the use of refrigerants with low Global Warming Potential.
2. Split system Energy Star ratings should be within one Star of the best available for the given capacity in heating mode.

Design considerations

There are no design considerations for this planning element.

6.4 Natural ventilation

Rationale

Natural ventilation increases oxygen levels and flushes out unwanted humidity, carbon dioxide and other pollutants. It also provides cleaner and healthier air for the wellbeing and health of residents.

A Future Homes adapted design will include an effective ventilation strategy for apartments.

Alignment with VPP: Standard B49 Natural ventilation (55.07-15)

Principles

A. All apartments have effective natural ventilation.

B. Residents can effectively manage the natural ventilation of their apartments.

C. If an apartment does not have effective natural ventilation or there is a strong argument (in terms of feasibility or better outcomes) to support doing so, apartments may have mechanical ventilation with heat/energy recovery.

Mandatory requirements

1. The design and layout of apartments must maximise openable windows, doors or other ventilation opportunities in external walls.
2. 100 percent of apartments must provide effective natural ventilation as per the definition in Appendix 6 – ESD. Key requirements for effective natural ventilation include, but are not limited to:
    - for cross-ventilation:
        - a maximum breeze path of 18 metres between ventilation openings, with a minimum distance of 5 metres
        - ventilation openings located either in opposite or adjacent (perpendicular) external walls or an external wall and an operable skylight
        - no more than one doorway or opening of less than 2 square metres between the ventilation openings
    - for single-sided ventilation, a maximum permissible room depth of 5 metres.

For additional guidance on mechanically asisted natural ventilation, refer to Appendix 6: Environmentally Sustainable Design

Performance targets

There are no performance targets for this planning element.

Design considerations

There are no design considerations for this planning element.

6.5 Heat island effect

Rationale

The heat island effect is the localised heating of open space, suburbs and cities due to heat absorption and radiation by thermally massive concrete or other heavy materials.

A Future Homes adapted design will mitigate the heat island effect by its choices of external materials and with planting and shading.

Principles

A. The development includes measures to minimise the impact of the heat island effect, and it provides places of refuge during extreme heat events.

B. The building, shading and roof are generally a light colour.

Performance targets

There are no performance targets for this planning element.

Design considerations

There are no design considerations for this planning element.

6.6 Water management

Rationale

In recent years, Victoria has moved from the traditional drainage-engineering approach to stormwater management to WSUD approaches that help create and maintain urban landscapes that use water efficiently; are green, cool, pleasant places for people; and have healthy waterways, wetlands and coasts.

A Future Homes adapted design will adopt best practice for stormwater management, making good use of precious water resources and minimising the impact of run-off and its associated harms. It will also minimise the use of potable water with storage, distribution facilities and efficient fixtures.

Principles

A. Minimise the on-site use of potable water through fixtures, fittings, appliances, landscaping and by providing on-site storage for rainwater for use in toilets and irrigation.

B. Minimise the site's impact on downstream stormwater infrastructure and contribute to replenishing the water table such as by providing permeable surfaces, rainwater tanks or raingardens.

C. Encourage the use of alternative water sources such as rainwater, stormwater and recycled water.

D. Facilitate the collection, use and infiltration of stormwater within the development.

E. Reduce the impact of stormwater run-off on the drainage system, and filter sediment and waste from stormwater before it is discharged from the site.

Alignment with VPP: Standard B39 Integrated water and stormwater management (55.07-5)

Performance targets

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

2. Buildings should be connected to a non-potable dual-pipe reticulated water supply, where the relevant water authority provides one.

3. The stormwater management system should be designed to:
    - meet the best practice performance objectives for stormwater quality set out in the *1999 Urban Stormwater Best Practice Environmental Management Guidelines*[5]
    - maximise the infiltration of stormwater, water and drainage of residual flows into permeable surfaces, tree pits and treatment areas.

Design considerations

1. The rainwater tank should be sized and located in line with council requirements.
2. Tanks should be located in an area that is unobtrusive but which minimises the pumping needed to get the water to where it is used.
3. External ramps and stairs should have trench grating.
4. Retaining walls should be built with passive drainage methods that can be cleaned regularly. Weep holes at the bases of retaining walls should be adequately drained away from the wall.
5. Encourage discussing the proposal with the relevant water utility provider for advice on any new initiatives for onsite water savings and reuse.

[5]https://www.publish.csiro.au/ebook/download/pdf/2190

7 Adaptable

A Future Homes development is adaptable and replicable on typical suburban lots in Victoria, meeting or exceeding current planning, policy and environmental objectives.

7.1 Buildability

Rationale

Good design and considered construction methods can make building apartments more efficient and cost-effective by reducing labour costs and material waste and by maximising space and build quality.

Future Homes make high-quality, well-designed apartments available to more people. Future Homes exemplar designs have been designed to a competitive construction rate commensurate with similar products on the market.

A Future Homes adapted design will strike a balance between conventional approaches to construction and new ways of building such as prefabrication, modularisation and off-site construction.

There is further information about construction cost rates in Appendix 7.

Principles

A. The development is adaptable for changes in use over time.

B. The development's design addresses whole-of-life-cycle costs such as for energy, maintenance, user comfort and environmental outcomes.

Performance target

There are no performance targets for this planning element.

Design considerations

1. Use efficient construction approaches and explore opportunities for prefabrication.
2. Align façade finishes and joints, consistent with industry-recognised modules and accounting for construction joints.
3. When detailing wall construction, avoid a build-up of multiple layers or finishes.
4. Reduce the extent of structural transfer, structural-level changes and complex service runs. Doing so can reduce the need for bulkheads and simplify the design of the framing.
5. Use efficient grids and typical modules to simplify framing design. Standardisation, repetition and prefabrication of framing can reduce material waste and on-site labour and streamline fabrication and transportation.
6. Align wet areas to simplify and reduce plumbing reticulation and infrastructure.
7. The sizes and layout of windows, doors, bathrooms, kitchens, laundries, robes and other components should be grouped into types that can be repeated across apartments and in different combinations.

7.2 Operations

Rationale

The ongoing costs of operating and maintaining a completed building over time are considerations for apartment owners.

A Future Homes adapted design will contribute to the affordability of the development's apartments over time by using systems and materials that need less ongoing care and maintenance to keep them in good order.

Principles

A. Systems and materials require minimal ongoing maintenance to keep them in good order.

B. There is an integrated approach to architecture, landscape, services and structure incorporating active and passive systems for energy reduction.

Performance targets

There are no performance targets for this planning element.

Design considerations

1. Consider whole-of-life costs including energy consumption, user comfort, longevity and safe replacement when choosing fittings and fixtures.
2. Locate services where they are accessible from common areas.