Designing better medium density housing in Victoria

March 2025

VICTORIA State Government | Department of Transport and Planning

ACKNOWLEDGEMENTS

Authorised

Authorised and published by the Department of Transport and Planning, Melbourne March 2025.

Accessibility

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Document information

Date of approval March 2025

ISBN 978-0-7311-9348-6 (pdf/online/MS word)

We proudly acknowledge Victoria's First Nations people and their ongoing strength in practising the world's oldest living culture. We acknowledge the Traditional Owners of the lands and waters on which we live and work and pay our respects to their Elders past and present.

Description of artwork

Aaron (Gunaikurnai) 'Movements Between the Five Clans' 2019, acrylic on canvas.

'The tracks are going between the five clans of the Gunaikurnai and the hands are the symbols of my spirit travelling around the campsites.'

This artwork was created through programs provided by the Torch. The Torch provides art, cultural and arts industry support to Indigenous offenders and ex-offenders in Victoria. The Torch aims to reduce the rate of re-offending by encouraging the exploration of identity and culture through art programs to define new pathways upon release.

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HOW TO USE THIS GUIDE

This guide provides direction for designing high-quality medium density housing, for two or more dwellings, up to four storeys in height. The guide is organised into three parts:

Part 1: Building Typologies

Explore common medium density housing typologies and understand when to use them.

Part 2: Principles and Guidance

Understand design principles that span from large-scale site layout and building massing, to finer details like apartment orientation and design details. The section suggests effective approaches that have proven to result in good design outcomes. Each design principle poses a common design question, offers guidance on how to approach it, shows diagrammatically how a solution might work, and provides examples of successful built projects that address each principle.

Part 3: Practical Application

This section illustrates how a hypothetical project could meet the design principles previously discussed, simultaneously, through practical examples.

This design guide is intended to complement existing regulations, and is not a statutory document itself.

PART 1: BUILDING TYPOLOGIES

This section identifies common typologies in Victorian medium density housing, highlighting their key features and relative advantages.

Typologies are distinguished by how dwellings are accessed by pedestrians and vehicles, whether they are on strata or land titles, their arrangement on the site, and the location of their private open space.

The typologies are ordered from the lowest to highest density, demonstrating a trend where lower density developments allow for more individual control and customisation, such as the ability to renovate and personalise, while higher density developments offer more shared facilities, like communal open spaces and services.

Each typology can be designed in various ways, so this section should be read in conjunction with the design guidance in Part 2.

What type of development best suits this site?

Building Typology

Overview

Lower density typologies are easier to renovate and personalise, while higher density typologies can deliver shared amenity and foster community.

Definitions

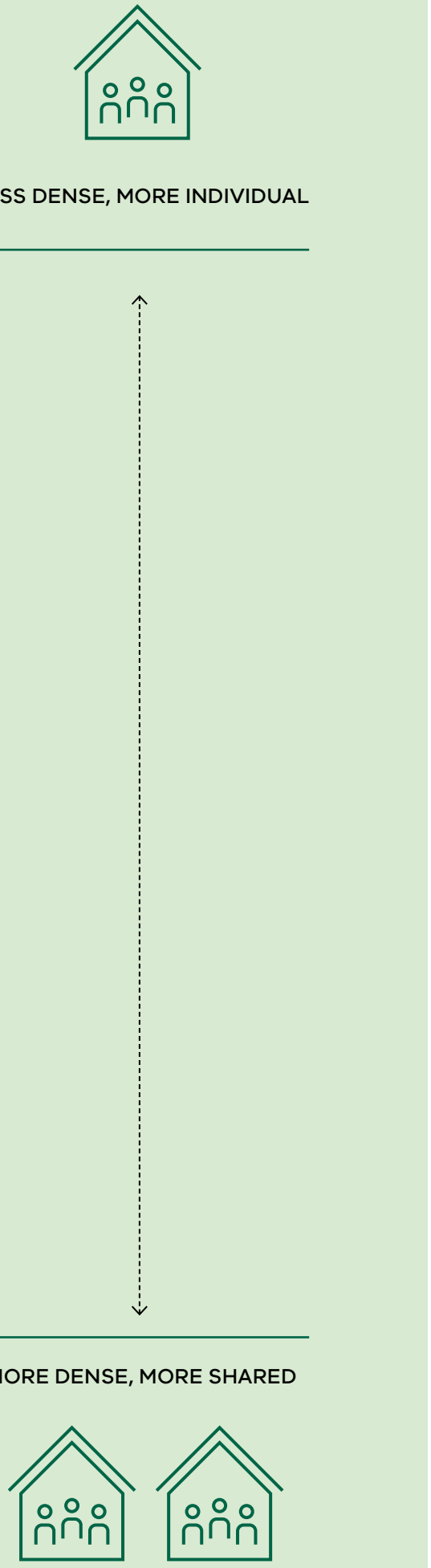
Land title is a type of land ownership that applies to single houses - nothing is shared.

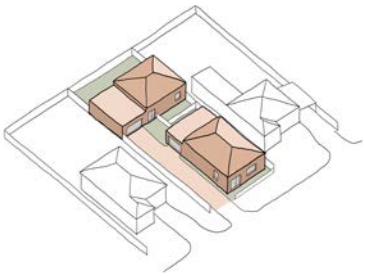
Strata title is a type of land ownership where there are shared components of the site, such as a driveway, and others may own a volume of space above or below your land.

Single lots are sites the size of one "house block" being redeveloped.

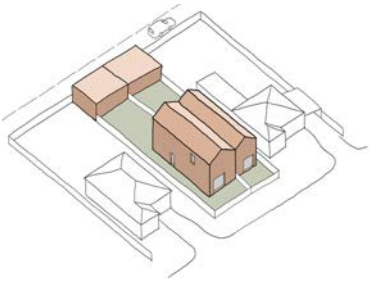
Consolidated lots are multiple "house blocks" being combined into a larger site.

Large sites are land where no buildings are existing on the land to be developed, usually found on the city fringe or urban renewal sites such as former industrial land.





Detached dual-occupancy



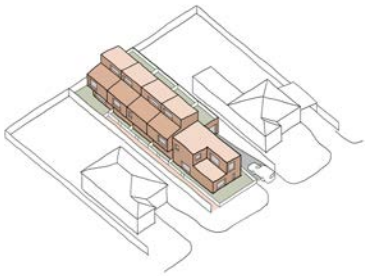
Attached dual-occupancy

Terrace townhouse

Block townhouse

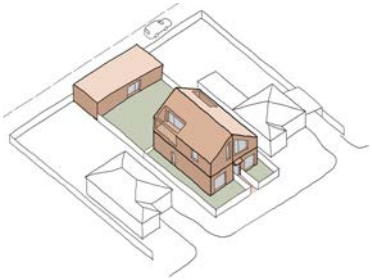
Courtyard

Precinct



Basement townhouse

Loft apartments



Manor house

Single lot apartment

Consolidated lot apartment

Dual Occupancy

Detached Dual Occupancy

Two dwellings on a single lot with ground level open space, separated by landscaping. This typology is similar to a single free-standing home and is the lowest density multiple housing.

Where to use

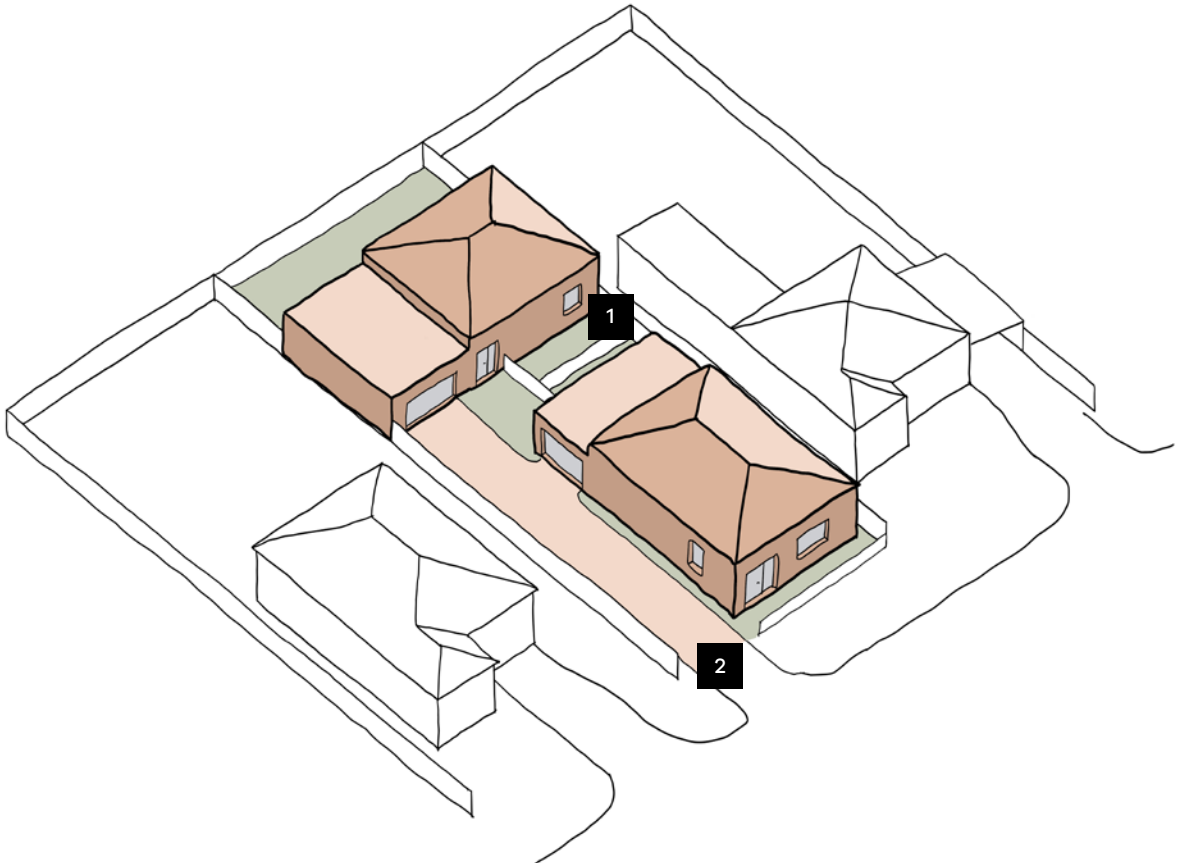
Larger lots with an existing house that is being retained. Corner sites can allow for a second driveway; or lane way access can allow parking from the rear.

Pros

- The lower density provides opportunities for more site responsive design and future modification, similarly to a free-standing house.
- Demolition of an existing house can be avoided on some sites.

Cons

- Detached dual-occupancy dwellings are relatively low density, achieving a low number of new dwellings per land area.
- Compared to attached dual-occupancies, the open spaces are dispersed and smaller.



1 Landscaping separates the dwellings. The interface between the two dwellings should be designed to give them privacy.

2 Shared driveway.

Dual Occupancy

Attached Dual Occupancy (Duplex)

Two dwellings on a single lot with ground level open space, sharing a party wall. This typology is similar to a townhouse.

Where to use

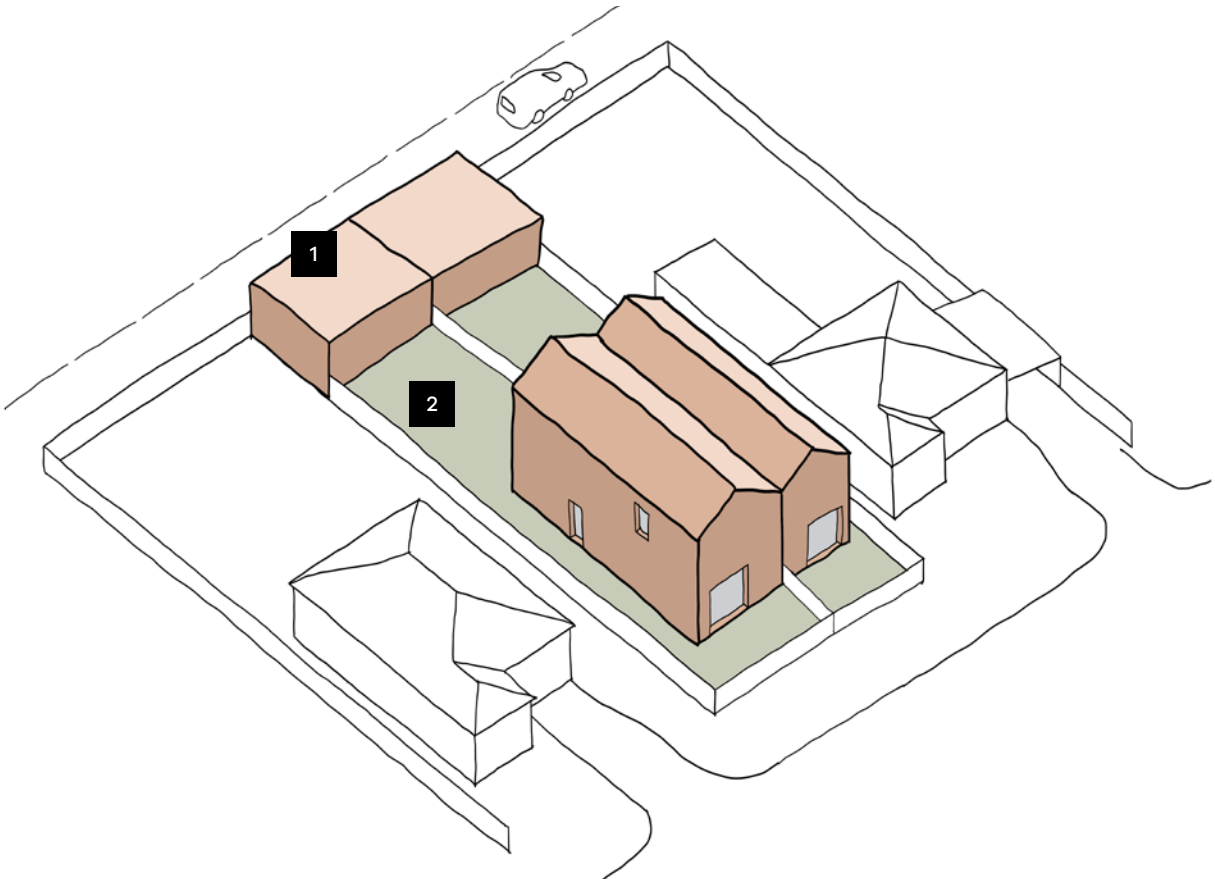
Suitable to sites with laneway access. Wider suburban lots can use a shared central driveway, or driveway and garage to each side.

Pros

- Landscaped areas are consolidated and result in larger private open space for the available land area.
- Occupants are able to modify the dwellings significantly as their needs change in future, as strata title is minimised.

Cons

- The shared wall limits opportunities to renovate in future, and there are fewer opportunities to respond to landscape and orientation than if the dwellings were detached.
- Despite similarities to townhouses, this is still a low-yield low density outcome.



1 Vehicle access from a rear laneway is common in inner suburban sites.

2 Garden area is consolidated into a larger private open space.

Townhouses

Terrace, Row House, Villa

Multiple attached dwellings with ground or upper level private open space, accessed from a common driveway, Townhouses are typically on deposited title, with some common areas, most typically driveways.

Where to use

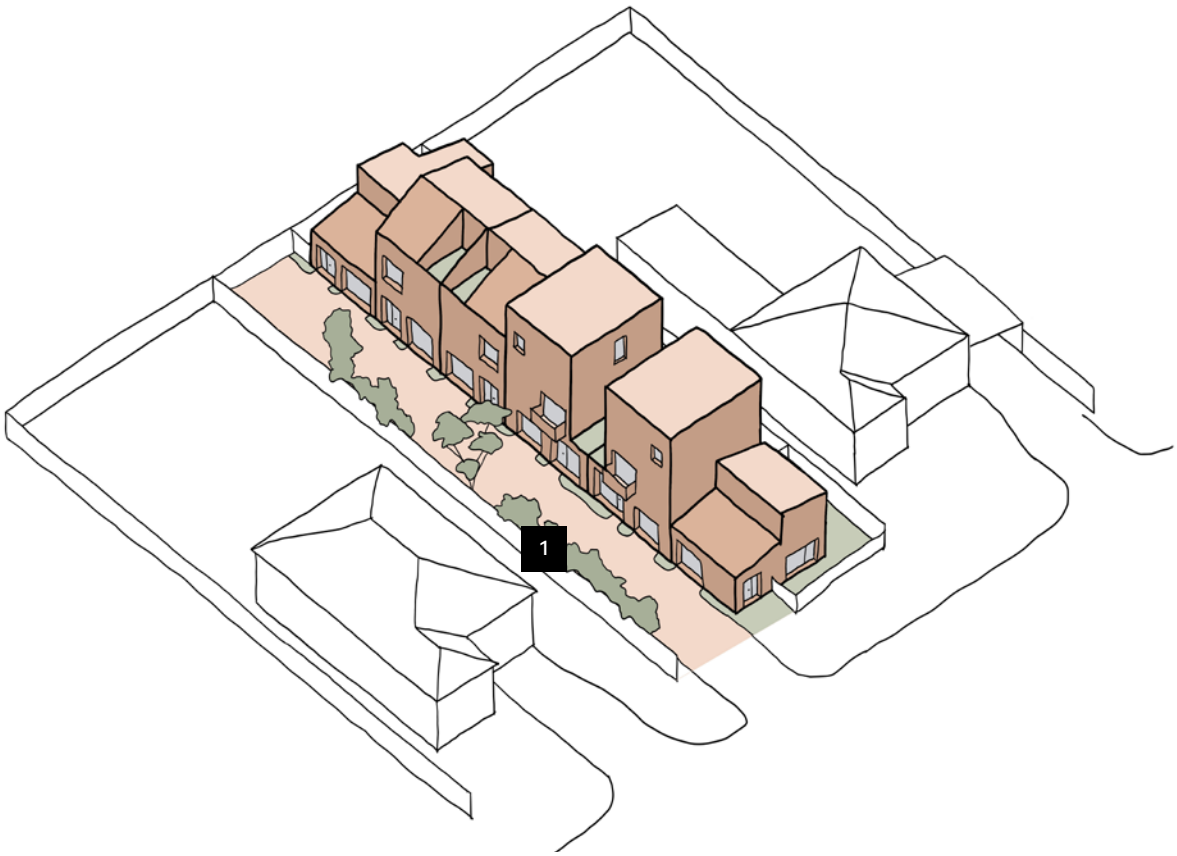
Suitable for single house lots with or without rear laneway access.

Pros

- This is a land-efficient model that allows for higher density.
- Each dwelling contains its own garage, minimising strata title and allowing owners to modify their homes in future.

Cons

- The driveway uses a large proportion of the land area, and can result in unpleasant, car-dominated public interface, so care must be taken to design driveways as shared zones with garden area. Typologies relying on upper level balconies have the same amenity as apartments, but at a lower density.



1 The central driveway is designed as a shared garden space, as it is where most of the front doors are. *Refer to Site Circulation design guidance.*

Townhouse

Block

Parking is consolidated in one area. As shown in the figure, this is ideally directly from a laneway, but can also be accessed via a driveway.

Where to use

Suitable for single house lots with or without rear laneway access. Can be used on narrower lots where there is not enough room for a driveway to run the length of the site.

Pros

- The minimisation of the driveway allows for more garden area, deep soil planting and larger ground level private open space.
- The front address of each dwelling is not dominated by the garage door, making for a more active and safe entry.

Cons

- Separating the garages from the dwellings increases the amount of strata title, which can reduce future flexibility.
- Shared parking lots are less likely to be used for anything other than storing cars, compared to a multi-purpose garage.

1 Private open space can be at the front or back of dwellings.

2 Two dwellings are able to face the street.

Townhouse

Courtyard, Village

A grouping of townhouses with internal circulation - this can be as a shared street, a courtyard or a garden.

Where to use

On consolidated lots, there is more freedom to arrange driveways and dwellings into a variety of formats. Parking can be consolidated to allow for a pedestrian-focused ground level.

Pros

- Larger lots with central access allows for more dwellings to face the street, which is better for amenity and the public interface.
- There is more ability to control orientation, allowing for better solar control and prevention of overlooking.

Cons

- This subtype requires lot consolidation, so it requires more investment upfront.
- The concentration of more vehicles into a single point of entry can strain the pedestrian-friendliness of the driveway, making a "shared zone" outcome harder to achieve.

1 The central driveway is designed as a shared garden space, as it is where most of the front doors are.

2 Dwellings facing the street can have individual entry points.

Townhouse

Precinct, Masterplan

Larger townhouse developments create their own streets and communal open space.

Where to use

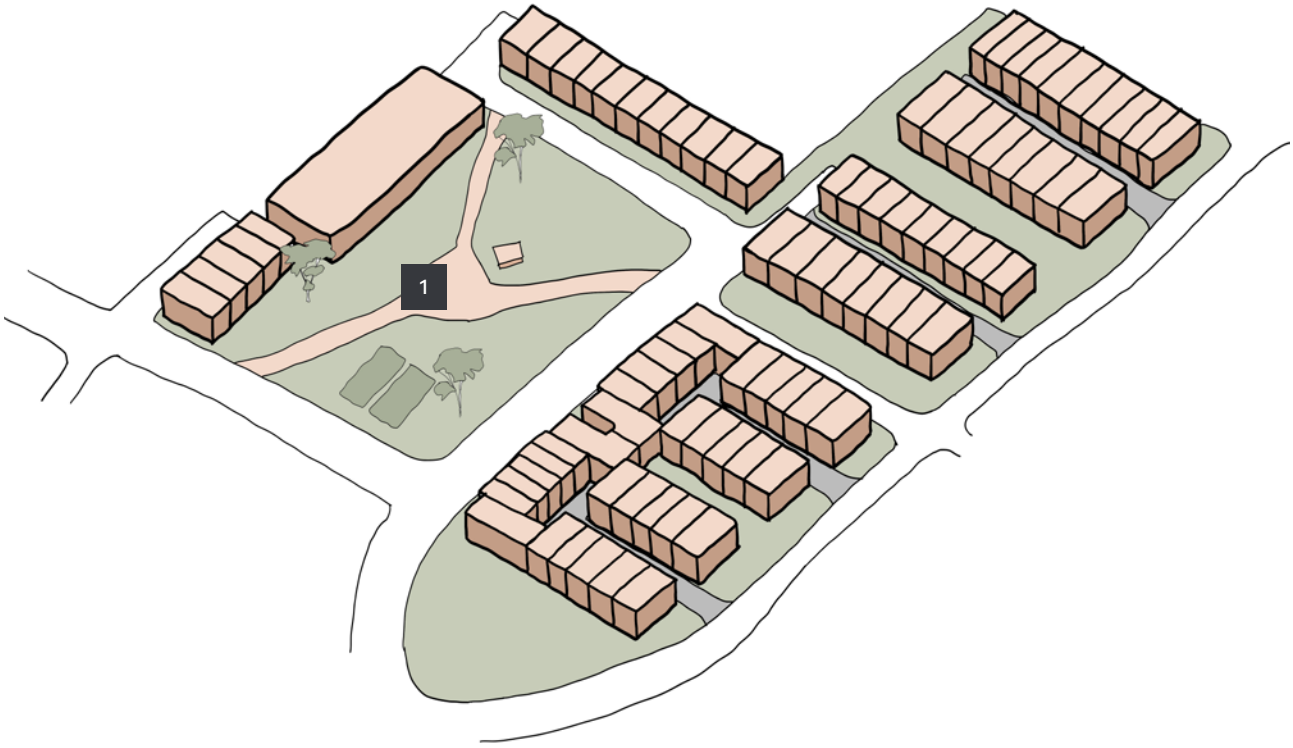
If a large piece of land such as a factory or golf course is being redeveloped, or a greenfield site on the city edge.

Pros

- The outlook and solar orientation of each dwelling is able to be considered when determining street alignments.
- It is generally possible in larger developments to separate vehicular and pedestrian entry entirely through the use of lanes.

Cons

- Given the land area requirements, the barrier to entry is high and a masterplanned approach is situational.
- Due to their scale, precincts can feel alienated from the existing city. Care needs to be taken to integrate and connect into surrounding areas and provide dwelling diversity.



1 At a masterplanning scale, communal open space can contribute to the public as well.

Townhouse Hybrid

Basement, Townhouse-apartment

Townhouse developments can use basement carparking, which takes the typology into an apartment hybrid that appears on the surface to be a regular townhouse.

Where to use

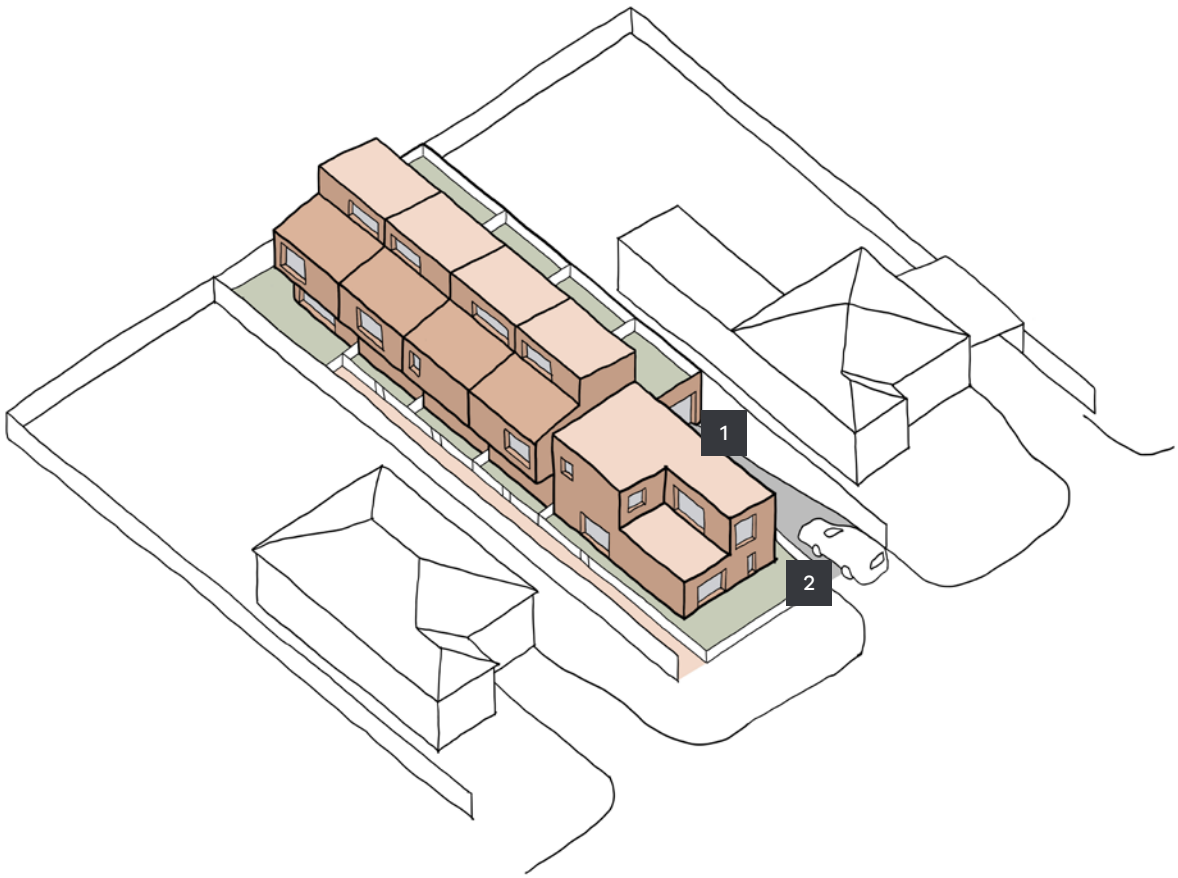
Sites in highly desirable areas can justify the expense of basement construction, and allow for more garden and habitable space at ground level.

Pros

- Vehicular and pedestrian entry are completely separated, improving the safety at entries.
- Less area for cars means more area for gardens, especially ground level private open spaces. This sub type allows for excellent amenity.

Cons

- The construction of a basement will increase construction cost per dwelling, reducing affordability.
- A basement under the townhouses makes the entire site strata, so they are legally apartments, making them more difficult to renovate in future.



1 The front unit is different because of the vehicle ramp, so it can be designed to better address the street.

2 Basement parking can be shared or private garages with direct access from the dwelling above.

Townhouse Hybrid

Loft, up-and-over

Townhouses can be placed on top of each other to make a hybrid townhouse apartment. Ground level units have ground level garden space, and upper level units have rooftop terraces.

Where to use

Higher density settings might allow for this typology, which can be used within larger developments that have a mix of townhouses and apartments.

Pros

- This is the densest townhouse configuration, allowing for the most dwellings per land area.
- Accessed as apartments, each dwelling has the amenity and scale of a townhouse, in a two-storey layout. Ground level lofts can have ground level garden space.

Cons

- Compared to apartment buildings, this type requires more stairs and lifts per number of dwellings.
- Compared to townhouses, this type has less outdoor area and is difficult to renovate due to strata title.

1 Upper level private open space needs to consider overlooking of neighbours.

2 Ground level private open space allows the lower level lofts to feel very similar to a regular townhouse.

Apartments

Manor House, One-Up-One-Down

A manor house looks like a large detached dwelling, but contains a number of apartments. Dwelling entrances are on ground level, and private open space is a combination of ground level and upper level.

Where to use

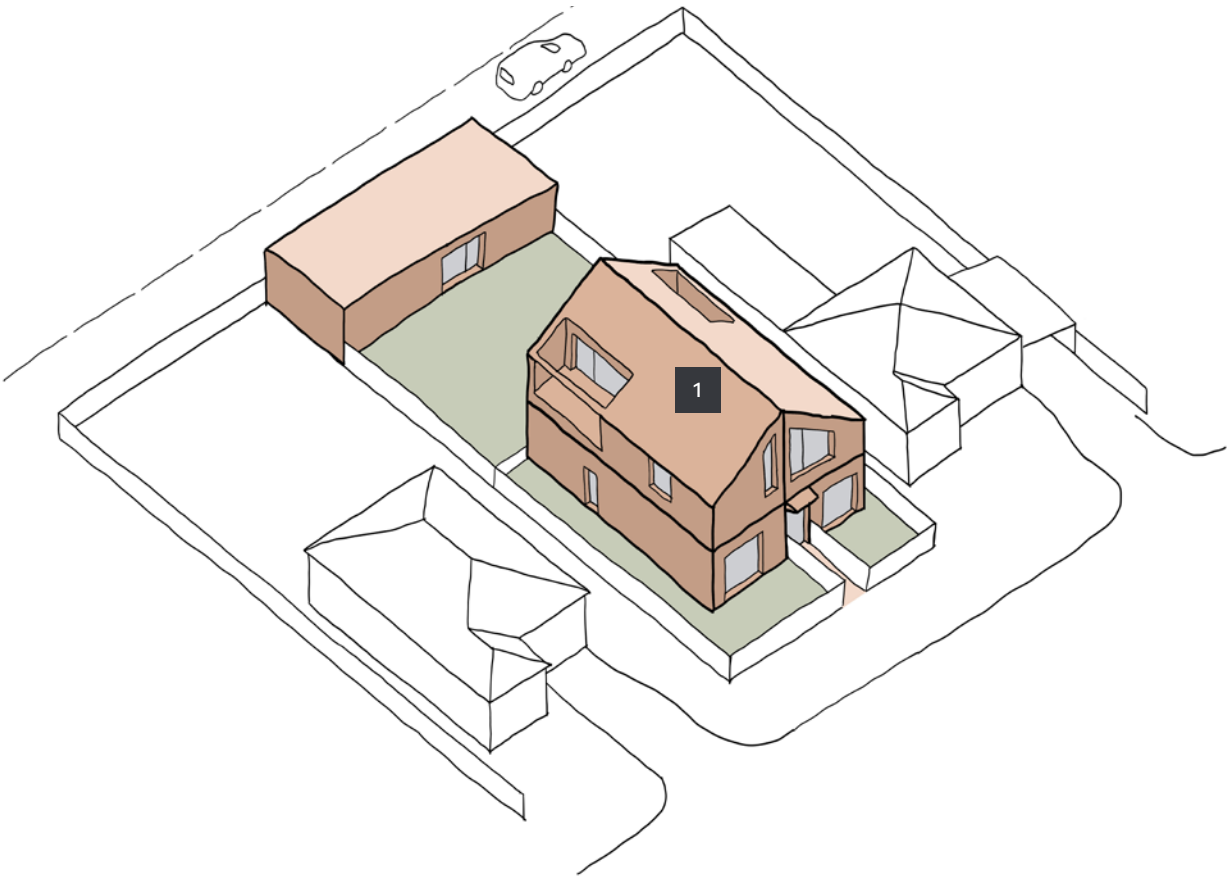
If the site does not lend itself to more intensive apartment development, a manor house can retain more of the garden area and "fit in" with nearby houses.

Pros

- Gives the appearance of domestic scale and provides for casual social interaction with a small number of neighbours.
- Consolidated vehicular access and a single built form leaves more space for generously sized dwellings and open space.

Cons

- Access arrangements generally require a corner or dual frontage lot for this subtype to work, making it situationally useful.
- The whole site is strata titled, which limits the ability of owners to renovate in future.



1 The upper and lower levels are two different dwellings.

Apartments

Single lot, Flats, Units, Walk-ups

Several dwellings within the same building, on strata title. Apartments are generally single level and may share a common entrance and areas such as a foyer or rooftop space.

Where to use

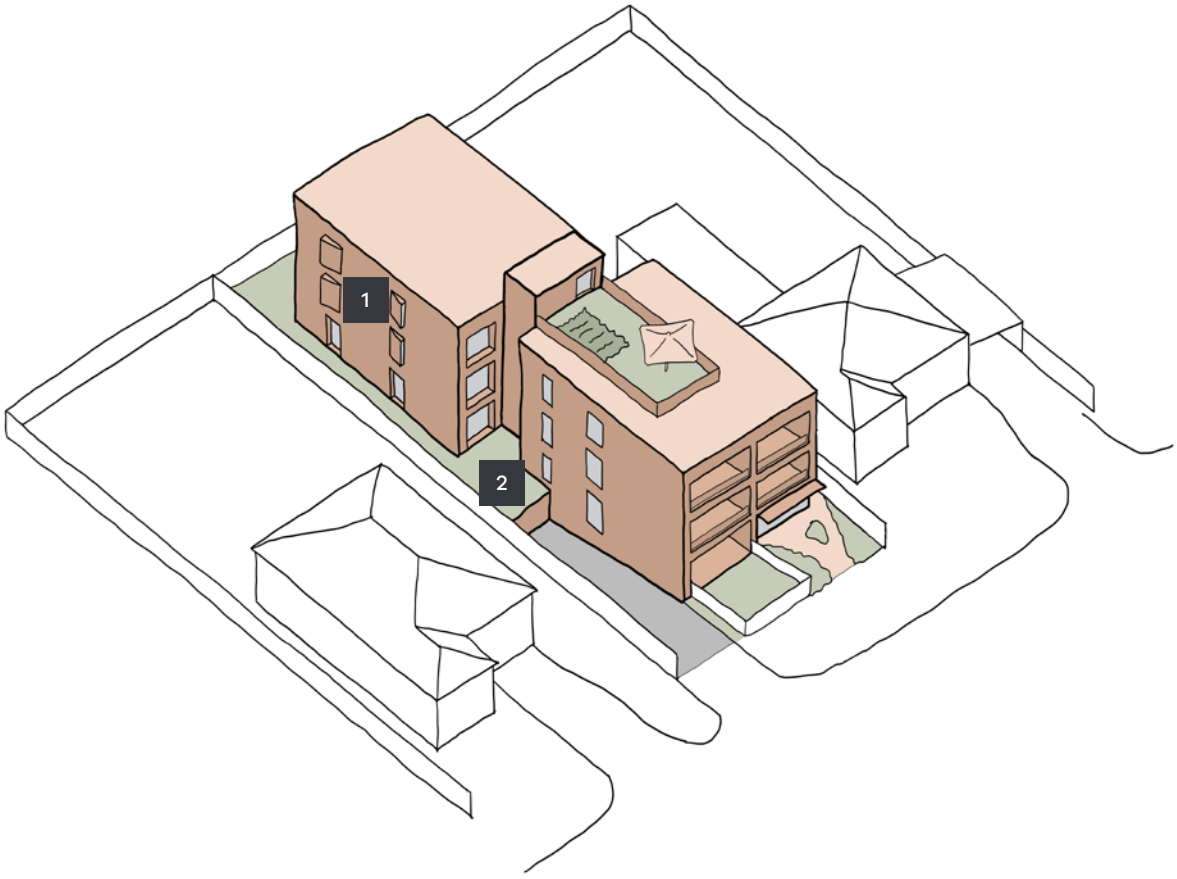
Suburban lots on long blocks can be redeveloped as apartments, provided they have enough frontage for a basement.

Pros

- Apartment developments generally achieve greater density than townhouses, allowing for units to be more affordable.
- The communal spaces required for apartment developments can be excellent opportunities for casual social spaces that build community.

Cons

- Narrow lots can be difficult to plan, especially if vehicles enter from the front. A common mistake is to lay out apartment buildings like townhouse developments, facing the side boundary, but at higher density this causes unacceptable overlooking. Refer to “Site Design” guidance.



1 Apartments face the front and back of their own lot so that sensitive neighbours can protect their privacy.

2 Light courts provide an outlook for bedrooms and circulation, but are not suitable for a living room.

Apartments

Development, Campus, Precinct

Larger apartment developments on consolidated lots have substantial communal open space, multiple buildings and semi-public spaces. They share services and usually use basement carparking.

Where to use

If a number of neighbouring lots are available, the land can be developed together as a larger community of apartments.

Pros

– Rather than being constrained by neighbouring buildings, overlooking, solar access, communal open space and site circulation can all be designed from scratch to make the best possible dwellings. A consolidated lot allows for services and vehicular entries to be consolidated, which leaves more room for active frontages.

Cons

– Given the land area requirements, the barrier to entry is high and a master planned approach is situational.

– Due to their scale, apartment developments can feel disconnected from their neighbourhood.

– Care needs to be taken to integrate into surrounding areas and provide dwelling diversity.

1 Protected communal open space gives inward facing apartments a good outlook.

2 Consolidated services and vehicle entry allow for better public interface.

PART 2: PRINCIPLES AND GUIDANCE

This section of the guide provides strategies to respond to common issues in Victorian medium density housing design. It is intended to be a helpful guide to encourage good design outcomes.

This guide is not intended to prescribe a particular outcome, and diverse approaches to design are welcomed and encouraged. The guidance should be used as a framework within which a variety of good design outcomes can emerge.

Design guidance ranges from the large to the small scale, providing a framework for site, public interface, landscape, open space, dwelling amenity and design detail.

Principles are illustrated by diagrams and examples for each point, with Part 3 illustrating how the guidance can work together in combination.

Does the development positively contribute to the public realm, and enhance the neighbourhood?

◀ Ruskin Street Townhouses, Elwood, VIC / Fieldwork / Photographer: Tom Ross

▲ **Figure 1.** The design of this townhouse development addresses the site's boundary conditions between a residential area and a canal. The scale, setback and materiality of the residential facing frontage responds to its domestic context, while the northern interface addresses the canal-edge. A landscape buffer between the development and shared path provide privacy to dwellings.

Ruskin Street Townhouses, Elwood, VIC / Fieldwork / Photographer: Tom Ross

Site Design

Site design involves the arrangement and layout of buildings and spaces on a site, considering its orientation and relationship to existing natural and built forms. The positioning of the development must consider the overall organisation of buildings, circulation, access, and landscaped areas relative to its overall mass.

Site design can enhance dwelling amenity by facilitating solar access, visual privacy, outlook, ventilation and space for landscaping. Additionally, thoughtful site design promotes community by encouraging social interaction and neighbourliness, which can be influenced by the number of dwellings and configuration of entries and corridors.

What are we seeking to achieve

Orientation and siting

- Provides appealing outlook that contributes to resident amenity.
- Considers interfaces, equitable future development and mutual benefit.

Building massing

- Is respectful to the area and scaled accordingly to height.

Dwelling diversity

- Developments that cater for the diverse needs of the community.

Site circulation

- Prioritises the pedestrian and improves walkability across sites.
- Considers equitable access and enhances the amenity of the public realm.

Overlooking

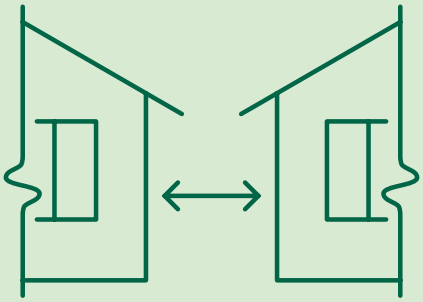
- Creates privacy without compromising internal amenity and daylight.

How can the site best be used to enhance community liveability?

Orientation and Siting

Arrange buildings and spaces across the site in response to adjoining interfaces, including future equitable development.

- Evaluate the siting and orientation of neighbouring properties. Account for the proximity of amenity such as parks and open spaces. Identify and mitigate potential concerns such as nearby industrial sites or busy roads.
- Future-proof the development. Design to anticipate the likely siting and forms of development on adjoining allotments through analysis of the planning controls and prevailing pattern of development in the surrounding area. Assess what impact any future development may have on the site, as well as determining how the proposed development may affect future development.
- The siting should limit overshadowing of neighbouring properties. Ensure that the siting minimises overshadowing particularly from boundary walls on frequently used areas, such as main living spaces and private open spaces.
- When adjacent to a park, ensure the buildings and open spaces are arranged to take advantage of opportunities for activation and engagement.



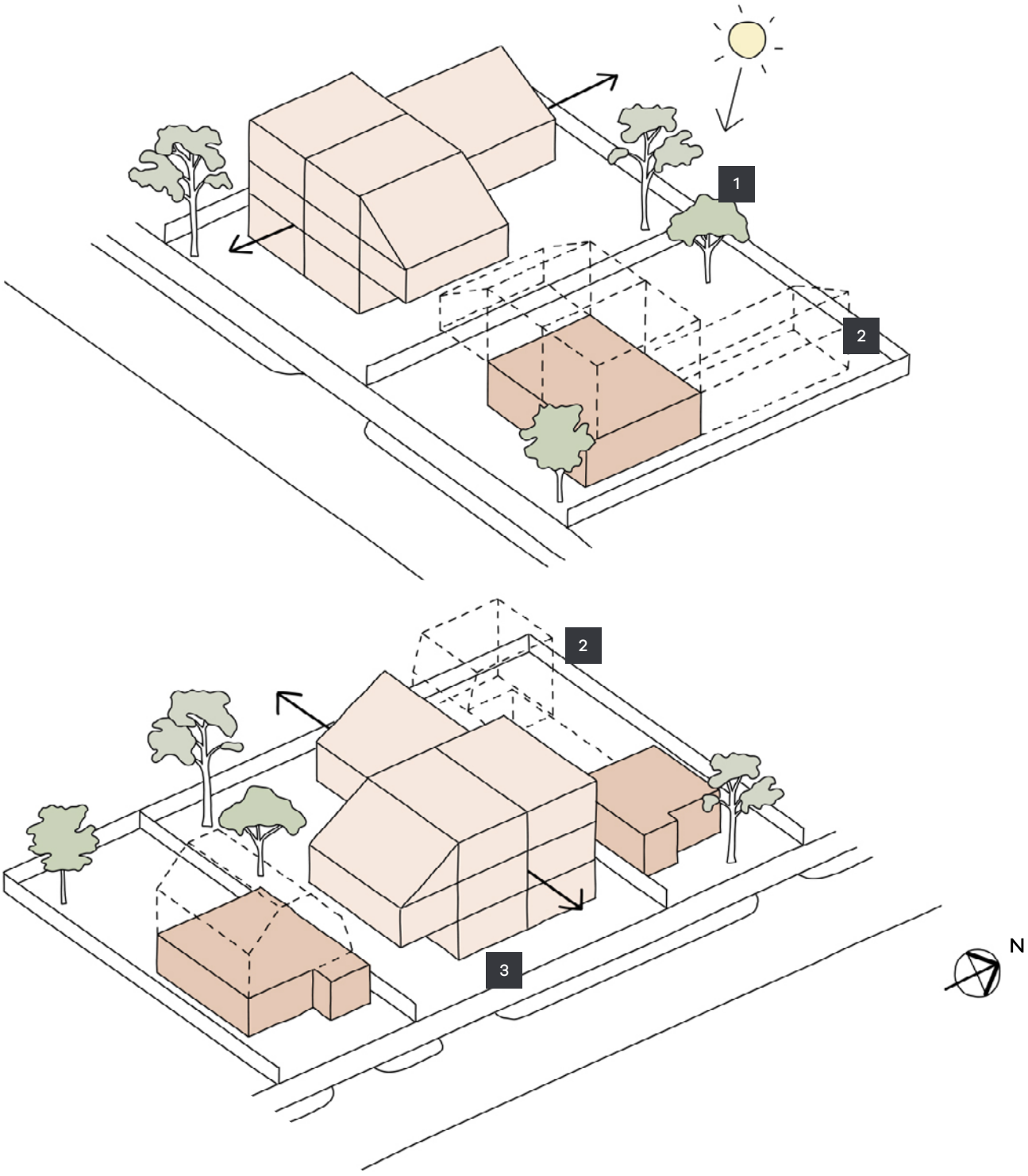
How might my proposal affect my neighbours?

Figure 2. Proposed developments respond to anticipated future siting of adjoining developments. Siting mitigates potential future overshadowing and overlooking. Proposed buildings and location of open space allow for equitable development opportunities on neighbouring sites.

1 Future development considers the location of open space and solar access.

2 Potential future development.

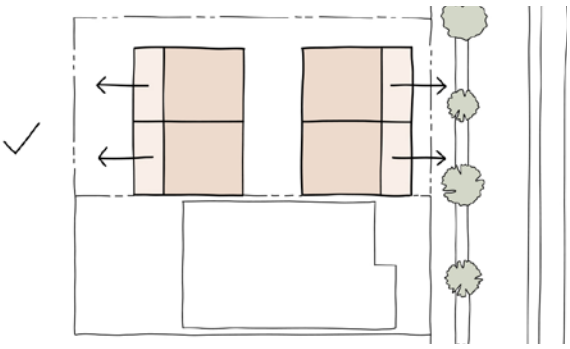
3 Proposed development.



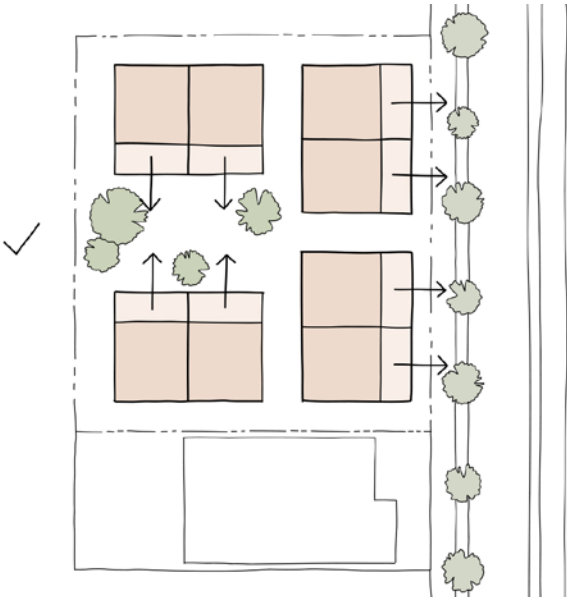
Prioritise dwelling orientation, amenity and views when arranging buildings on site. Consider how the orientation of the development contributes and responds to its place.

- Orientate dwellings towards streets, so that living rooms and balconies have direct views into the public. Where street aspect is not possible, orientate dwellings towards a garden space on the site, such as a backyard.
- Face dwellings to north, east or west to prioritise access to sunlight in key living areas such as living rooms and open spaces for optimal solar access. South-facing dwellings should be dual aspect, to ensure solar access.
- Use orientation to control views, so reduce the need for privacy screening. Avoid orientations towards side setbacks.

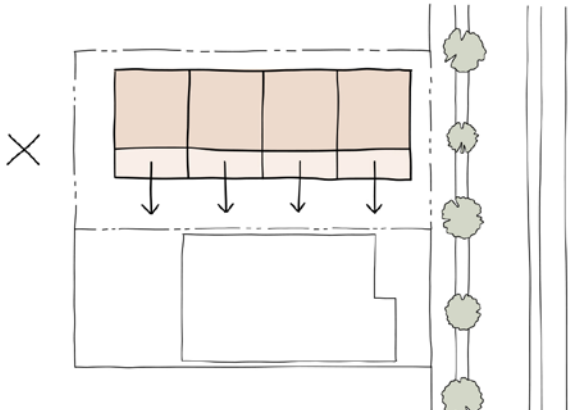
Figure 3. Orientation and siting based on primary outlooks.



A primary outlook is from a living room or private open space.



Good amenity can be achieved by orientating primary living spaces to the front and rear, or towards a centrally located garden.

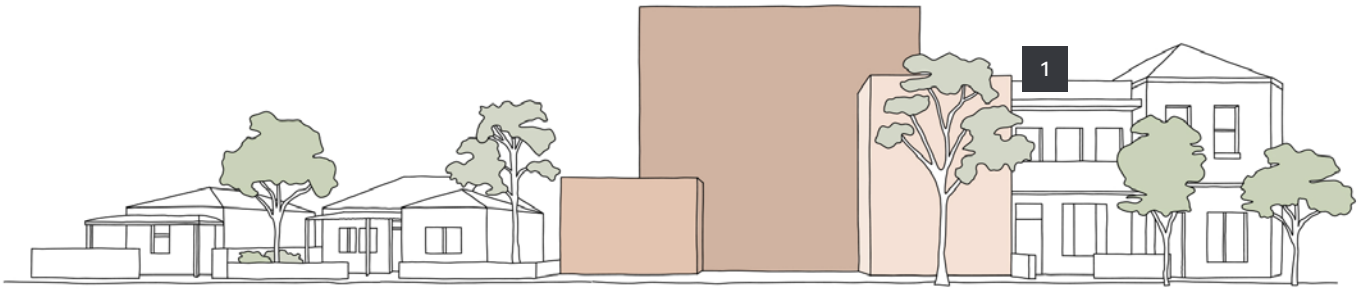


Orientating first floor primary living areas towards neighbouring sites can result in the requirement for privacy screening which should be avoided.

Figure 4. This townhouse development is carefully sited to maximise outlook directly to the street, with a legible building entry, upper level balcony and garden facing the street.

Hawthorne Siblings, Hawthorne, Brisbane, QLD / Refresh Design / Photographer: Scott Burrows

Figure 5. Varying building setbacks within larger developments can effectively break up large forms, ensuring the project complements the street scape by avoiding a uniform or repetitive facade.



1 Forms are scaled in height, mass and setback to maintain consistency with neighbouring buildings.

Building Massing

Ensure the building form is carefully designed on all sides to respond to any views from the public realm as well as impacts upon neighbouring properties.

- Buildings should be designed as three-dimensional objects that respond to multiple viewpoints. Stacked or 'wedding cake' formations should be avoided as they create visual bulk and large expanses of uniform facades.
- Ensure sufficient building separation for solar access, natural ventilation, and visual privacy within the site and for neighbouring properties. Use proportional distances relative to building height, open spaces and adjacent land uses. Utilise access locations or landscape buffers for effective separation.
- In buildings where an upper level setback is required, ensure upper levels adopt lightweight treatments to appear less dominant from the street or neighbouring properties.

Figure 6. This project responds carefully to an existing single storey corner shop, with a generous upper level setback provided at the first floor before rising to the 3rd and 4th storey building elements.

Clifton & Central, Mount Lawley WA / MJA Studio / Photographer: Jack Lovel


Willing

Design homes to have a strong relationship with the street, considering the scale and grain of the surrounding buildings as well as opportunities for landscaping.

- Where sites have a wide frontage, variation in setbacks or localised indents can help modulate the building, provide enhanced landscape opportunities and reduce the bulk of the building.
- Sites with a dual frontage or abutting a side or rear laneway can use this opportunity to increase pedestrian movement and to improve the amenity and safety of the laneway by placing entry doors that open onto the laneway.
- Where a street frontage is located to the north, west or east, consider positioning usable outdoor space to front the street to create activation.

Figure 7. This project responds to the corner and laneway interface, keeping with the street setback by maintaining the front yard as a shared space. The amenity of the laneway is improved, with front doors opening directly onto the laneway, creating a pedestrian connection through.

Davison Collaborative Townhouses, Brunswick VIC / Archier & Hip V. Hype / Photographer: Sharyn Cairns

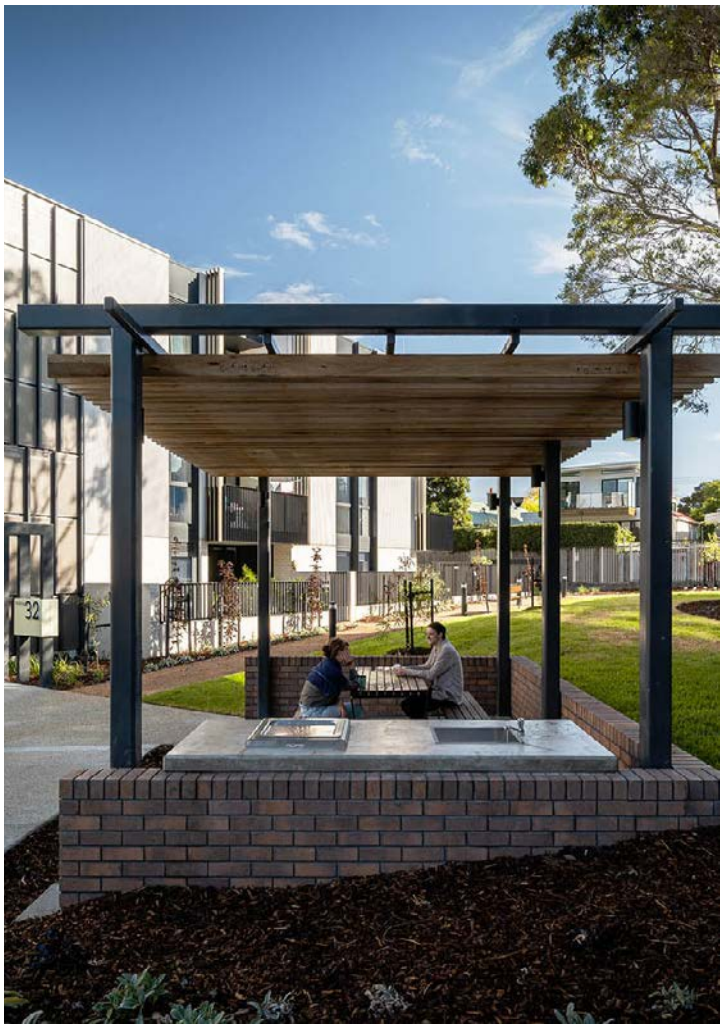
Dwelling Diversity

Increase housing diversity, by catering for a diverse population with various needs.

- Medium density housing offers a unique opportunity to provide a mix of housing types, including townhouses and low-rise apartments. Expand the diversity of housing options within developments to ensure that the diverse population has access to homes that suit their needs and preferences.
- On a neighbourhood scale, tenure blind developments can contribute to diverse and resilient communities. Tenure blind means there are no obvious external indications of tenure type in the design and layout of the development. If the development has a mixed tenure, design it to be tenure-blind, ensuring there is equal provision of private and public amenities, and consistent architectural expression to the public realm.

Tenure Blind

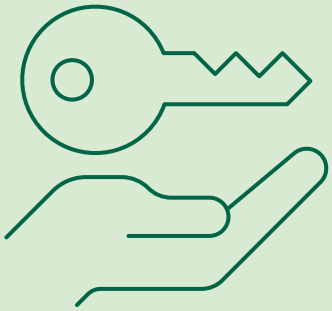
This refers to residents not being identifiable by the design of their dwelling or its location within a development. When equitable amenity is provided, it ensures that residents are not compromised because of their financial or social situation.



▲ Dunlop Avenue, Ascot Vale / Hayball / Photographer: Henry Lam

▶ **Figure 8.** This site is configured with six, separate 3-level buildings, offering a mix of private and social housing. Each building is embedded in a mature landscape, with equitable access to communal and private open spaces.

Dunlop Avenue, Ascot Vale / Hayball / Photographer: Henry Lam



Does the development provide housing options for diverse households, such as couples without children, downsizes, and families?

Site Circulation

Prioritise pedestrian movement and safety in the design of the new development, both at a neighbourhood scale as well as internal to the development.

- Where practicable, provide new pedestrian links through larger developments to enhance neighbourhood connectivity and walkability. Ensuring convenient pedestrian movement will encourage the uptake of walking and can reduce vehicle use.
- Ensure any new pedestrian links through the development are designed with a clear line of sight from beginning to end. Incorporate high quality paved surfaces, lighting for evening safety, and the opportunity for rest such as seating.

Does the development promote walkability?

Extensive landscaping between townhouse, apartment or hybrid developments promote walkability across larger sites. In this townhouse development, tree planting provides privacy to inward facing dwellings, and seats are located throughout for rest, waiting or meeting.

◀ Dachshund House, Tamworth, NSW / Maxwell & Page Architects / Photographer: Toby Scott

Figure 9. New pedestrian connections across large sites can improve walkability through the neighbourhood. Assess the location of existing connections or green spaces, and identify opportunities to extend or connect pathways.

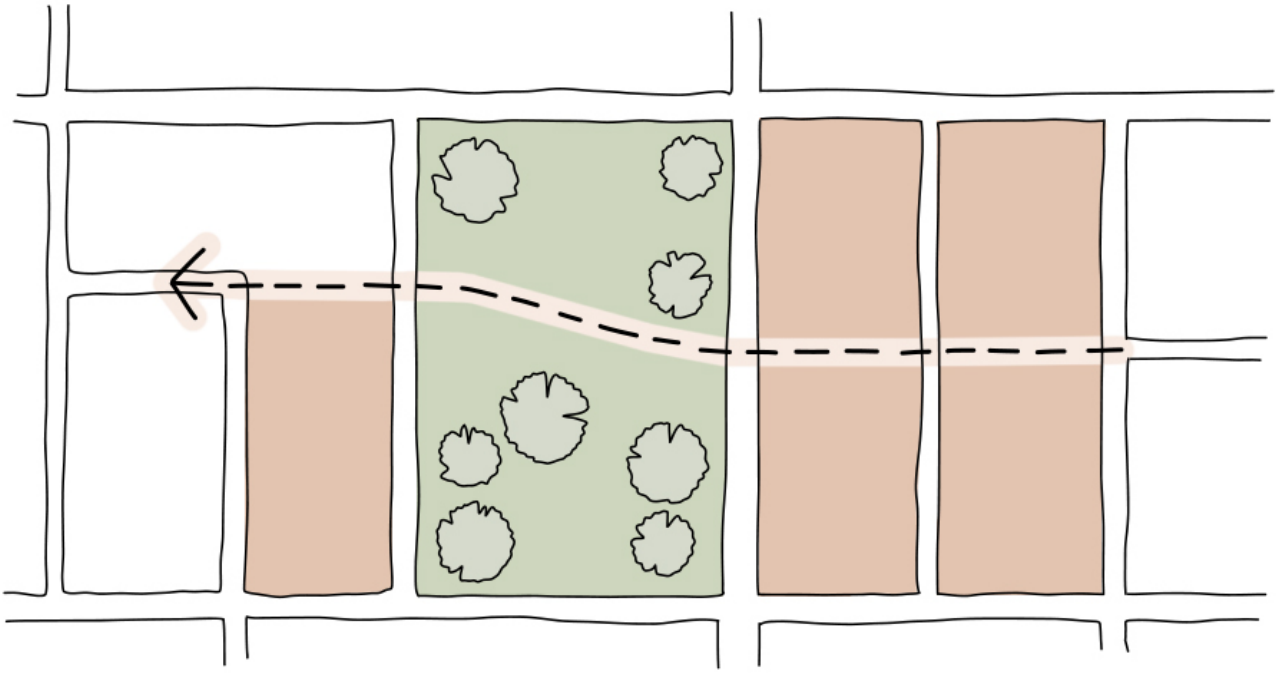
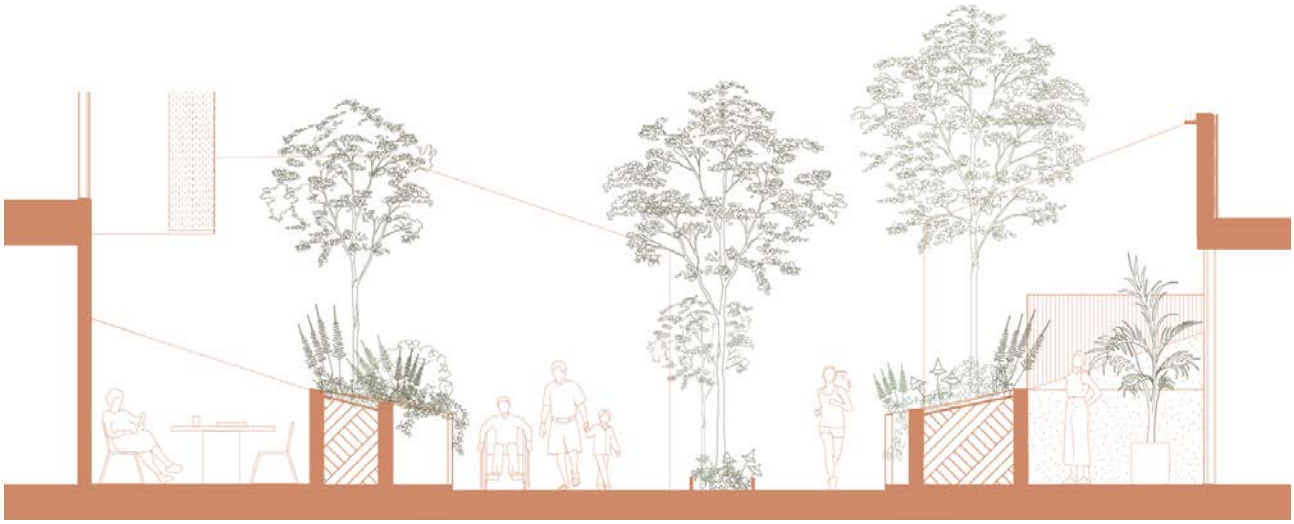


Figure 10. Wide walkways with multiple paths of circulation, can increase the perception of safety, and allow people to keep their personal space.



Promote high quality pedestrian environments within new developments by incorporating shared and dedicated pedestrian paths and reducing the prominence of private vehicles.

- Ensure the design of vehicle entrances and circulation do not dominate the development, with access off secondary streets or rear lanes where possible.
- Where parking is located in the basement, separate pedestrian pathways from driveways to enhance safety and accessibility for all users.
- Implement different materials and landscaping to delineate shared zones, encouraging slow vehicle speeds and prioritising pedestrian use.

◀ **Figure 11.** A wide, lightly paved communal street creates a friendlier pedestrian experience. Recessed garages with cladding that is consistent with the facade reduces the visual dominance of garages from the street. A material and colour change is used to indicate vehicle and pedestrian zones.

Ruskin Street, Elwood / Fieldwork / Photographer: Tess Kelly

Internal roads should be designed as shared zones, with landscaping, canopy cover, and material changes to define pedestrian and vehicle zones.

1 Wide landscaping and canopy trees help to soften the impact of driveways.

Figure 12. Design of vehicle entrances to reduce the dominance of driveways and cars in various typologies.

1 Where there are multiple frontages, place carparking entrances on secondary streets or laneways where possible.

2 Locating carparking entrances to the side of residential buildings helps to reduce their visual impact to the street.

Encourage walking and cycling by creating high quality pathways and secure bicycle parking facilities with good amenity.

- Incorporate sufficient space and secure bicycle parking in weather protected shared areas, or in private garages. Resident and visitor bicycle parking should be convenient, with legible access to facilities from the street frontage.
- Provide equitable access and comfortable walking conditions by designing circulation and entry points to support users with varying levels of mobility.
- Where building circulation has vertical access, provide generous, clear and legible pathways.

◀ **Figure 13.** Stairwells with warm materials and access to daylight can encourage occupants to use the stairs.

High Street Apartments, Thornbury / Gardiner Architects / Photographer: Rory Gardiner

Figure 14. This development provides secure ground floor bicycle parking with high quality amenity and finishes. Conveniently accessed close to the entry, a large window allows for ample daylight and passive surveillance to and from the street.

Hemmings Street, Dandenong – Housing Choices / Kennedy Nolan / Photographer: Derek Swalwell

Figure 15. Shallow ramping with landscaping achieves equitable access for users with varying levels of mobility.

Anne Street Garden Villas Social Housing, Southport / AOG Architects / Photographer: Christopher Frederick Jones

Figure 16. A shared street with landscaping is used to provide pedestrians with points of refuge when there are vehicle movements.

Hamilton Hill Affordable Homes, WA / MDC Architects

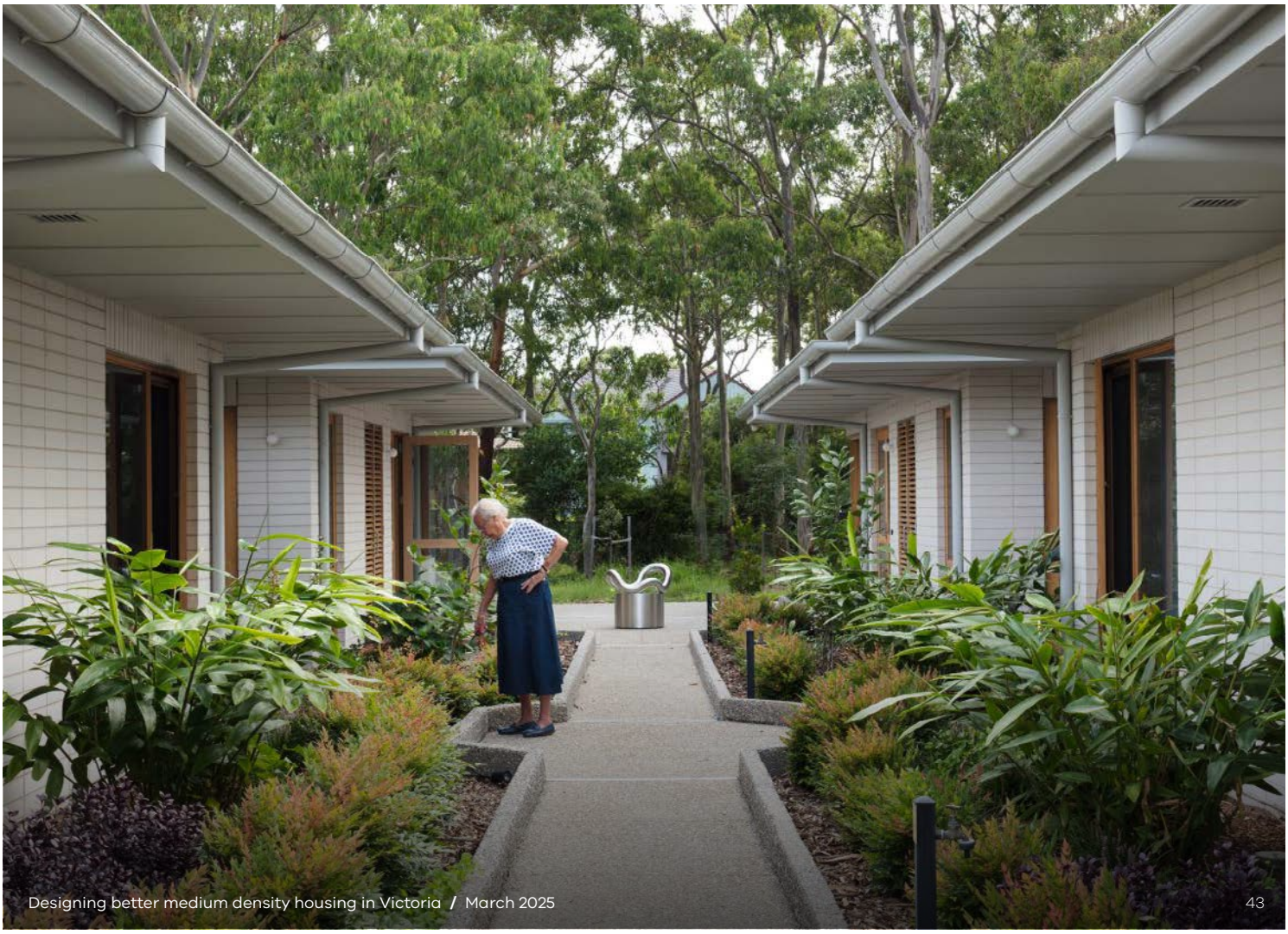
Figure 17. A driveway leading to carparking is located to the side of the development to reduce the dominance of cars along the frontage.

Logan Youth Foyer, QLD / Bark Architects
/ Photographer: Christopher Frederick Jones

Street trees and native planting enhance the streetscape.

Figure 18. A central pathway provides equitable access through the centre of the development with planter beds serving as common garden space.

Living Quarters, NSW / Ha Architecture
/ Photographer: Clinton Weaver



Overlooking

Create privacy using the design of the internal layout, location of windows, and/or provision of planter boxes to minimise reliance on screening measures.

- Position balconies to minimise the need for visual privacy screening, as screening can restrict access to daylight, and outlook from private open space and adjoining habitable rooms. Balconies facing the street, an internal courtyard or backyard is preferable.
- Use window hoods, projecting shelves, vertical or horizontal fins, permanent planter boxes, wide bay windows and fixed angle louvres as strategies to minimise downward or side angle overlooking of adjoining properties. These strategies can ensure solar access and a clear outlook for occupants is maintained.
- Use the location of private open space to provide passive solar control for dwellings. The view to the outside from a living room should be through the private open space.

Figure 19. Use the placement of windows to direct views and minimise the need for visual privacy screening.

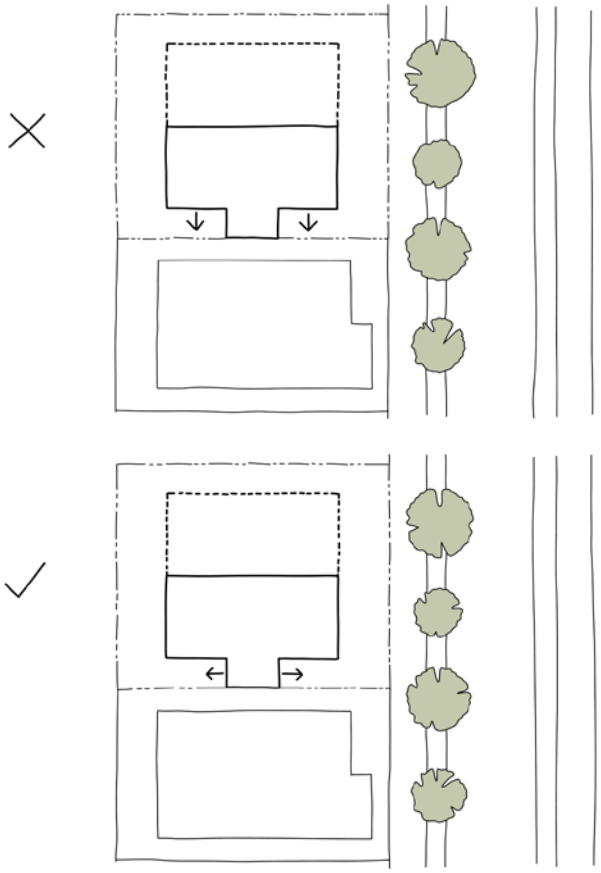


Figure 20. Design strategies used to direct views.

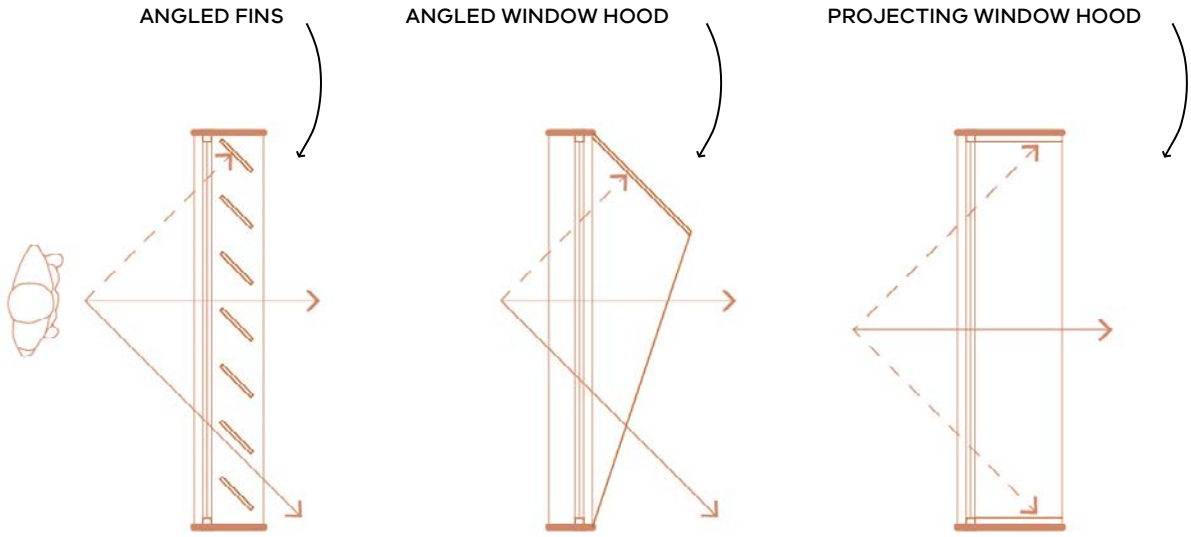


Figure 21. Design techniques used to limit direct downward views.

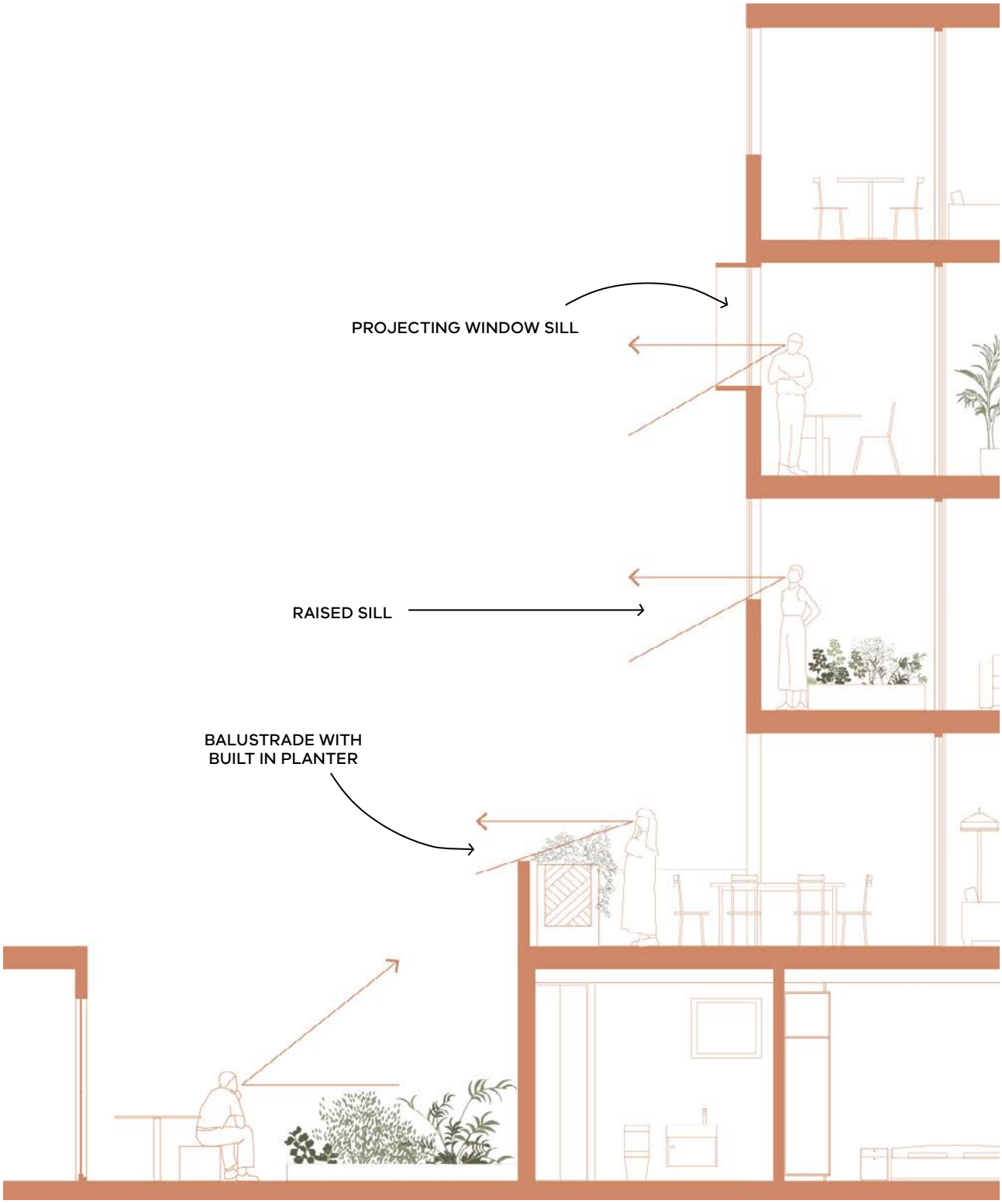


Figure 22. Angled perforated metal fins used to direct views outward.

Elsternwick House / Clare Cousins Architects / Photographer: Lisbeth Grosmann

▲ **Figure 23.** Well defined building entries with low fencing, landscaping and passive surveillance to the street help in creating a positive public interface.

Geelong Townhouses, Geelong / RT Architects / Photographer: Roseneath Creative

Public Interface

Public interface refers to how the dwelling interacts with its surroundings, including, but not limited to the street, footpath, laneway and pedestrian/vehicle connections. It is important to consider how the building interacts with existing development and landscape, its surroundings, and what opportunities there are to contribute in a positive way to the area.

What are we seeking to achieve

Building entries

- Are well articulated with good amenity.

Active frontages

- Contribute to the liveliness, interest, comfort, and safety of the area.
- Retain and enhance adjoining streets, laneways, parks and public spaces.
- Provide an opportunity for social interaction between neighbours.

Safety and passive surveillance

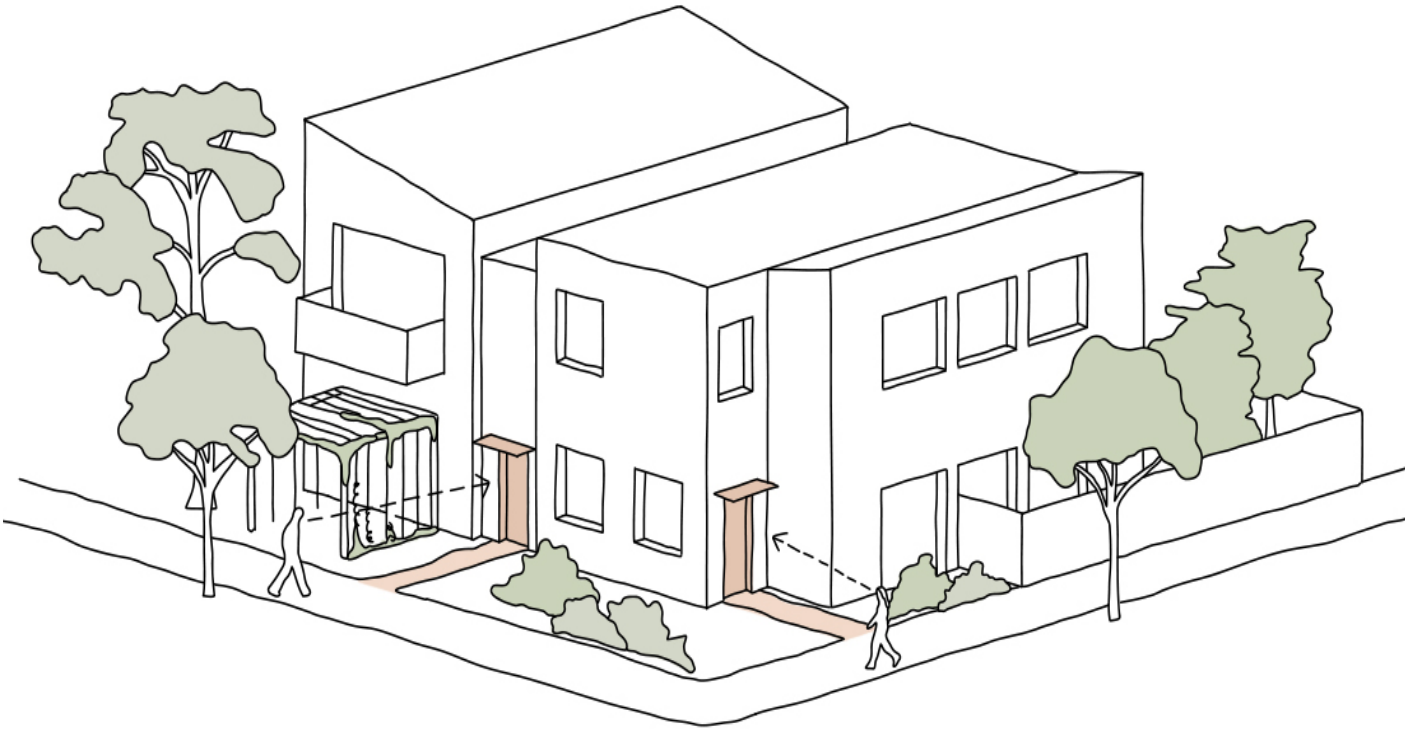
- Promotes safety and allows for passive surveillance of the public realm.
- Safety through design using lighting, colour, landscaping and clear lines of sight.

Building services

- Are considered as an integrated design element.

Does the building frontage engage positively with the street and encourage social interaction between residents and passers by?

Figure 24. Dwellings fronting the street should ensure there is a direct line of sight to the main door from the street.



Building Entry

Create well articulated dwelling entries that provide good amenity and promote social interaction.

- Design welcoming entrances that are easy to identify and in convenient locations that have direct access to the street. Ensure a direct sightline from the street or shared accessway to the building entry.
- Entry verandahs, porches and entries should be well-lit, weather protected and sized to provide weather protection while encouraging resident personalisation through plants, possessions and decorative objects.
- Common entries should be generously sized and positioned to address the public realm, with active uses such as mailboxes, parcel areas and intercoms in convenient and secure locations.
- Ensure entries are designed to provide all abilities access, with ramps or rails seamlessly integrated into the landscape and architectural design.
- Create building entries that are legible for visitors and delivery people, with clear street numbering and safe levels of lighting in the evening.

Figure 25. A generous front verandah is integrated into the design of the dwelling with weather protection and good quality amenity. A ramp and stair provide equitable entry with integrated landscaping on a compact, sloping site. Ground covers planted between hardy and durable materials create a soft buffer between public and private space.

Rule Street House, North Fremantle WA / Officer Woods Architects / Photographer: Robert Frith, Acorn

Figure 26. Design strategies that assist in creating an active frontage.

1 Ground covers, climbing plants and canopy trees provide shade and create a visually permeable interface to the street.

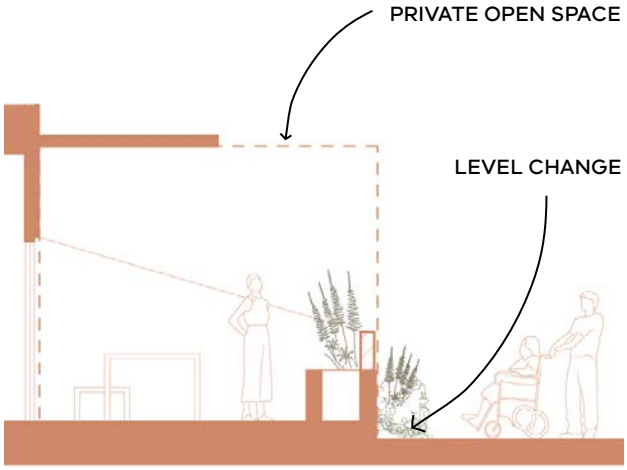
2 Building entry is clearly identifiable from the street.

3 Low seating built into the front fence.

Active Frontages

Design frontages that contribute to the liveliness, interest, comfort and safety of the public realm.

- Provide sufficient layers of privacy through set backs, low fencing and soft landscaping, that enable an active frontage. Visually permeable, low fences with landscaping can provide a soft interface that balances privacy and passive surveillance on the ground floor.
- Activate street corners through articulation and expression of the building(s) ensuring that corner sites address both streets. Avoid dominant interfaces, such as large blank walls and harsh fencing, as these create an unwelcoming and unpleasant presence.

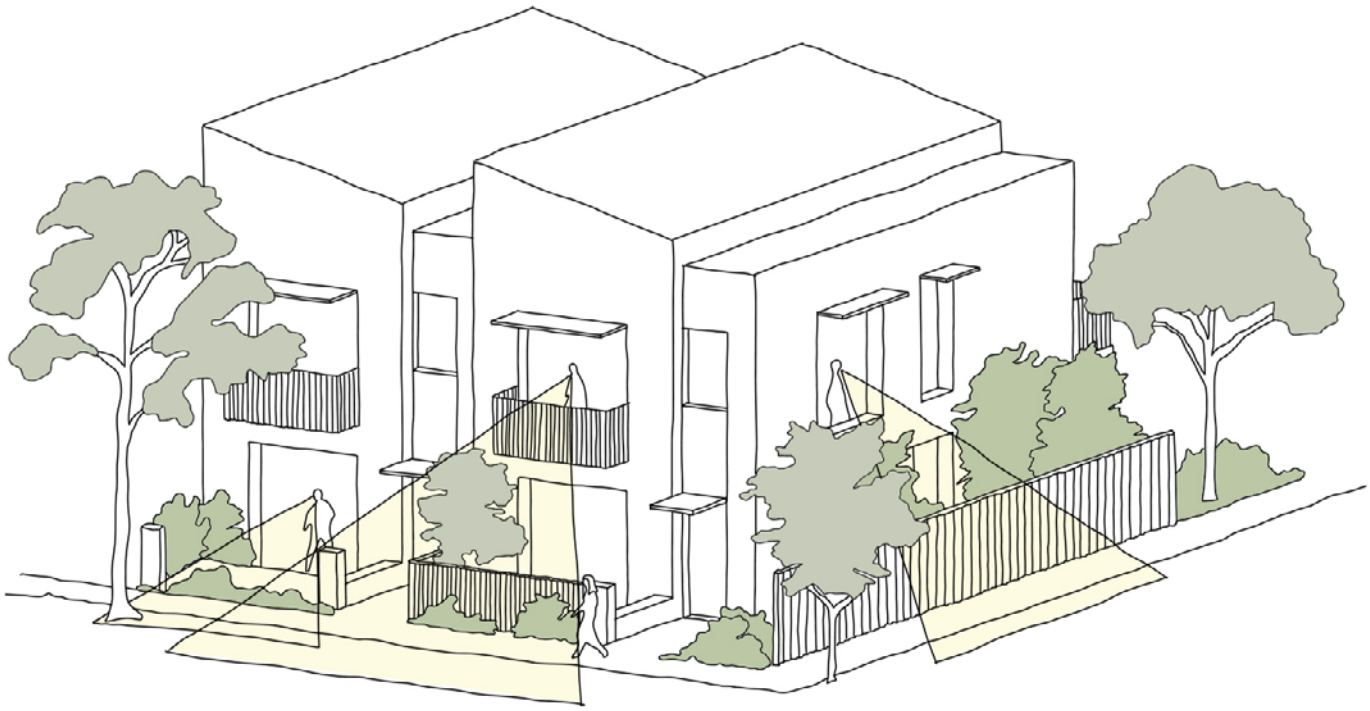


A landscape buffer and level change can provide a layer of privacy that enables residents to enjoy their private open space, whilst allowing interaction with neighbours.

Figure 27. A clearly defined mailbox with seating, and paving leading towards the townhouses present a welcoming interface to the street. Weather protected timber doors create a sense of warmth to the entry area. Integrated shading and considered choice of materials create visual interest across the facade, and soft landscaping and tree planting lend itself to a friendly and active frontage.

Thornbury Townhouses, Thornbury VIC / Fowler & Ward / Photographer: Tom Ross

Figure 28. Promote active and passive surveillance across corner and non-corner conditions.



Safety and Passive Surveillance

Promote safety through the design of buildings, communal and private landscape spaces.

- Position rooms with active uses, such as living rooms with balconies along the street (on ground and upper levels) to provide activation and passive surveillance to the public realm.
- Promote safety by using lighting, landscaping and clear lines of sight. Use of colour and change in materiality can enhance visibility, wayfinding and improve perceived safety.
- Use lighting to illuminate areas beyond the front facade including entrances, pedestrian routes, and public spaces used at night. Direct lighting downward to enhance safety and minimise impacts to dwellings and nearby developments.
- Design inclusive and safe spaces that are free of entrapment. Inclusive spaces accommodate a diversity of users and create spaces that are usable and accessible to people from different backgrounds, experiences and abilities.

Figure 29. Entrapment space is a nook or dead end where someone could be hidden, or cornered. A width to depth ratio of 2:1 can promote visibility.

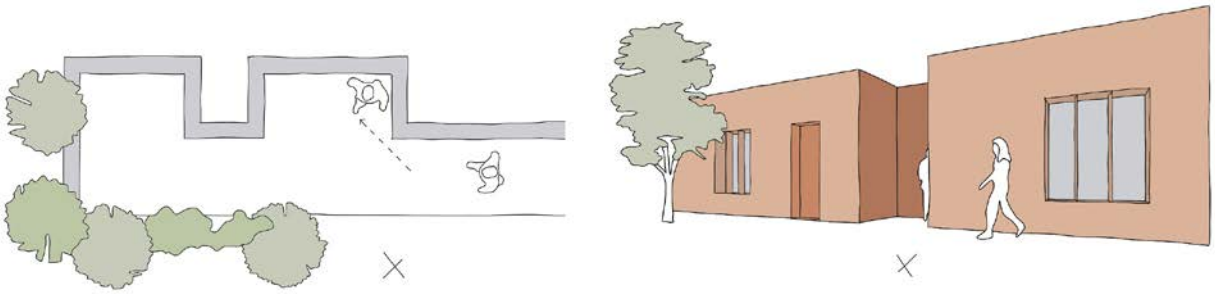


Figure 30. Private open space with an active frontage needs to have sufficient layers of privacy to ensure residents feel protected within their space.

Anne Street Garden Villas / AOG Architects
/ Photographer: Christopher Frederick Jones

Figure 31. Dwellings along a park or public open space should have an active frontage and interfaces to the park to provide passive surveillance.

Heller Street Park & Residences, Brunswick / Six Degrees
/ Photographer: Patrick Rodriguez

Figure 32. Using open air circulation areas and operable louvres to provide passive surveillance and natural ventilation to circulation spaces.

Hope Street Housing, White Gum Valley WA / Officer Woods & MDC Architects / Photographer: Robert Frith, Acorn

Figure 33. Balconies facing towards a centrally located shared open space allows for passive surveillance to these areas.

Habitat on Juers, Brisbane QLD / Refresh / Photographer: Scott Burrows

Figure 34. A large window facing the street allows for passive surveillance to mail boxes and shared entry.

Housing Choices on Hemming Street, Dandenong VIC / Kennedy Nolan / Photographer: Derek Swalwell

▲ **Figure 35.** Colour and lighting can be used it uplift service and parking areas, improving their use and perceived safety.

Bristol Resolution Property / GBY / Photographer: Peter Landers

Building Services

Provide building services as a positive and integrated design element.

- Rooftop plant services, solar panels, hot water systems, air conditioning (AC) units and antennae should be integrated into the overall building form with minimal visual impact. Subtle placement of AC condensers help in creating a considered and visually cleaner facade.
- Design service cabinets and meters as integrated and visually interesting elements. Ground level services like boosters and meters can be integrated into the landscape design of the project, and high quality finishes can be adopted for services cabinets.

◀ **Figure 36.** Exposed services are painted to match the facade, with a landscaped pocket behind.

Bruce Street, Kensington VIC / Carr / Photographer: Rory Gardiner

▲ **Figure 37.** Compact water tanks used for rainwater harvesting are tucked behind brick screens to minimise their visual impact across the facade.

Tarakan Street Housing, Heidelberg West VIC / NH Architecture Clifton & Bird de la Coeur / Photographer: Dianna Snape

Figure 38. Ground floor services are tucked behind a low brick wall, with the materiality of the cupboards chosen to match the palette of the townhouses.

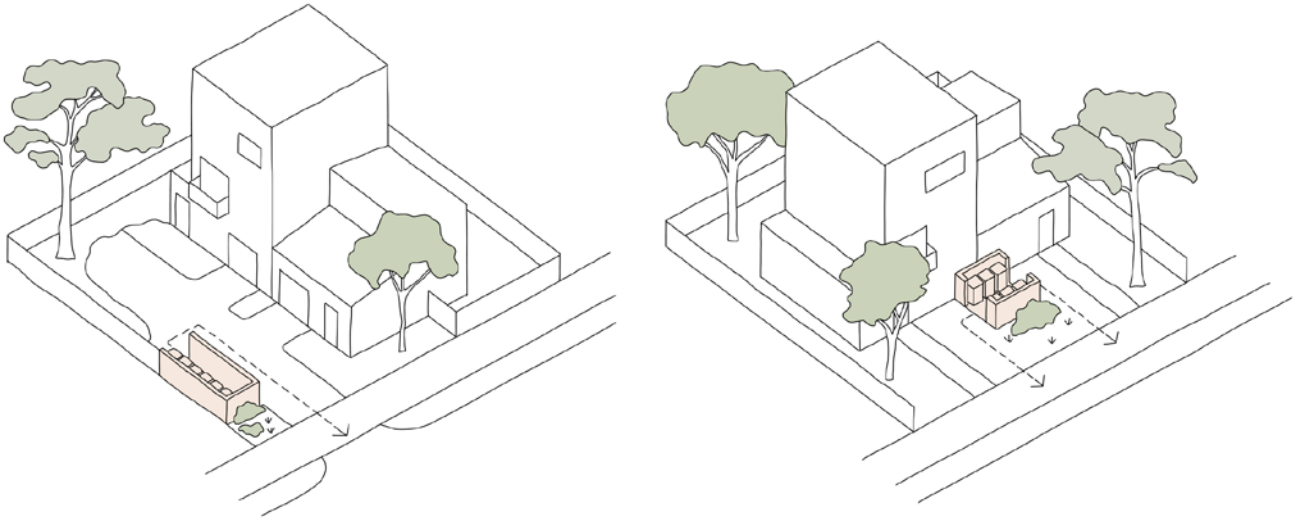
Gen Y Housing Project, White Gum Valley WA / Cast Studio / Photographer: Robert Frith

Building Services

Integrate the design of waste management, loading and service areas at the outset to encourage convenient, simple and intuitive use.

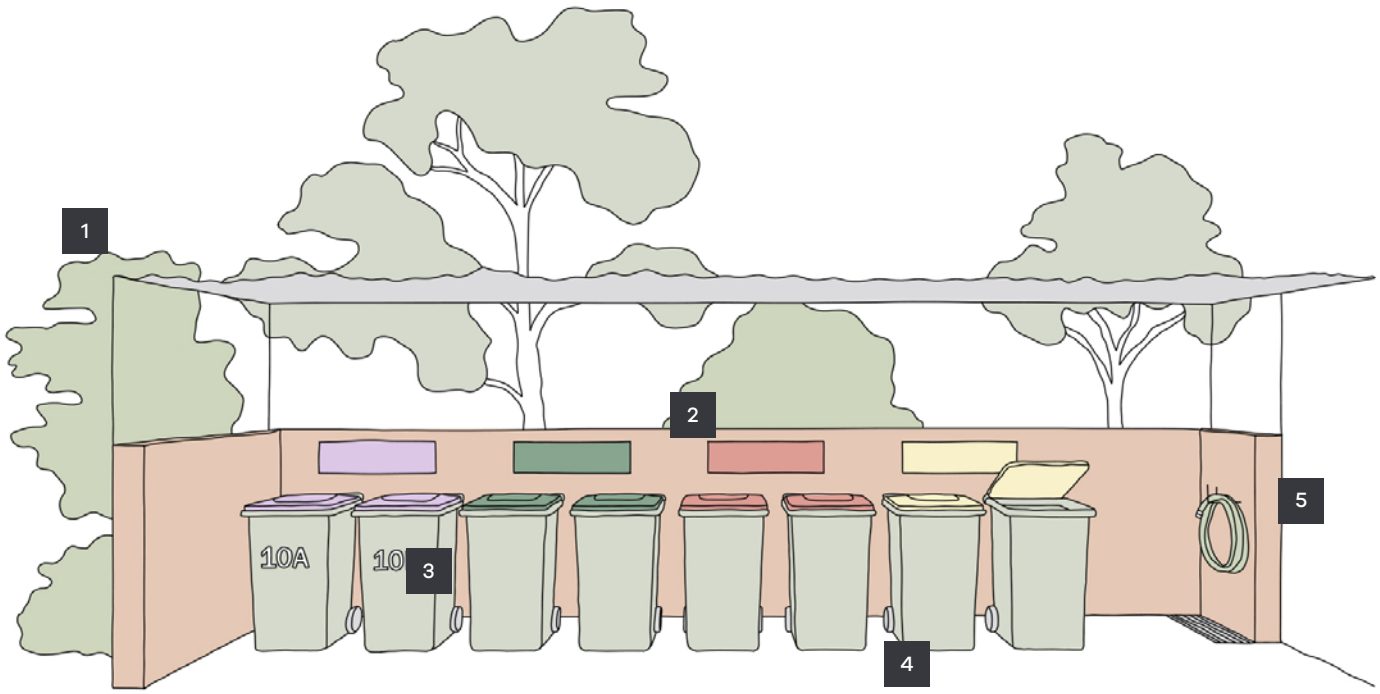
- Bins should be located in a high pedestrian traffic area, as higher visibility encourages good housekeeping, and conveniently located bins are more likely to be used as part of an occupants' routine. Bins that are located in a rarely frequented, or dingy part of the property tend to attract dumping and poor waste sorting practices.
- Within developments, the disposal of garbage, recyclables and organics should be equally convenient for residents to encourage waste sorting and good behaviours.
- Bin storage areas should be well screened, secure, and designed to blend in with the development. Areas should be well lit so they can be accessed safely when dark.

Figure 39. Consolidated waste area locations for multiple dwellings.



Are the waste management systems designed in a way that is convenient, and easy to use?

Figure 40. Communal bin area perspective diagram.



1. Landscaping integrated into the design is used in combination with screening to help conceal and soften the visual appearance of the bin area.
2. Clear and correctly labelled signage provides instruction and education about waste sorting, helping residents to understand what can and cannot be placed in each bin.
3. Clearly numbering bins with unit numbers encourage ownership and responsibility.
4. Recycling bins should always be located next to general garbage bins to ensure they are not mistaken for general waste.
5. A tap, hose and drain to the sewer ensures communal bin areas are easy to clean. Water from bins and waste areas should not flow into the stormwater drain. Undercover areas help to prevent rainwater infiltration into the sewer.

▲ **Figure 41.** Water tank, service enclosure and planter boxes are integrated into the design with landscaping used to create a buffer between the street and the development.

Stevens Street Housing, Fremantle WA / Officer Woods Architects / Photographer: Robert Frith, Acorn

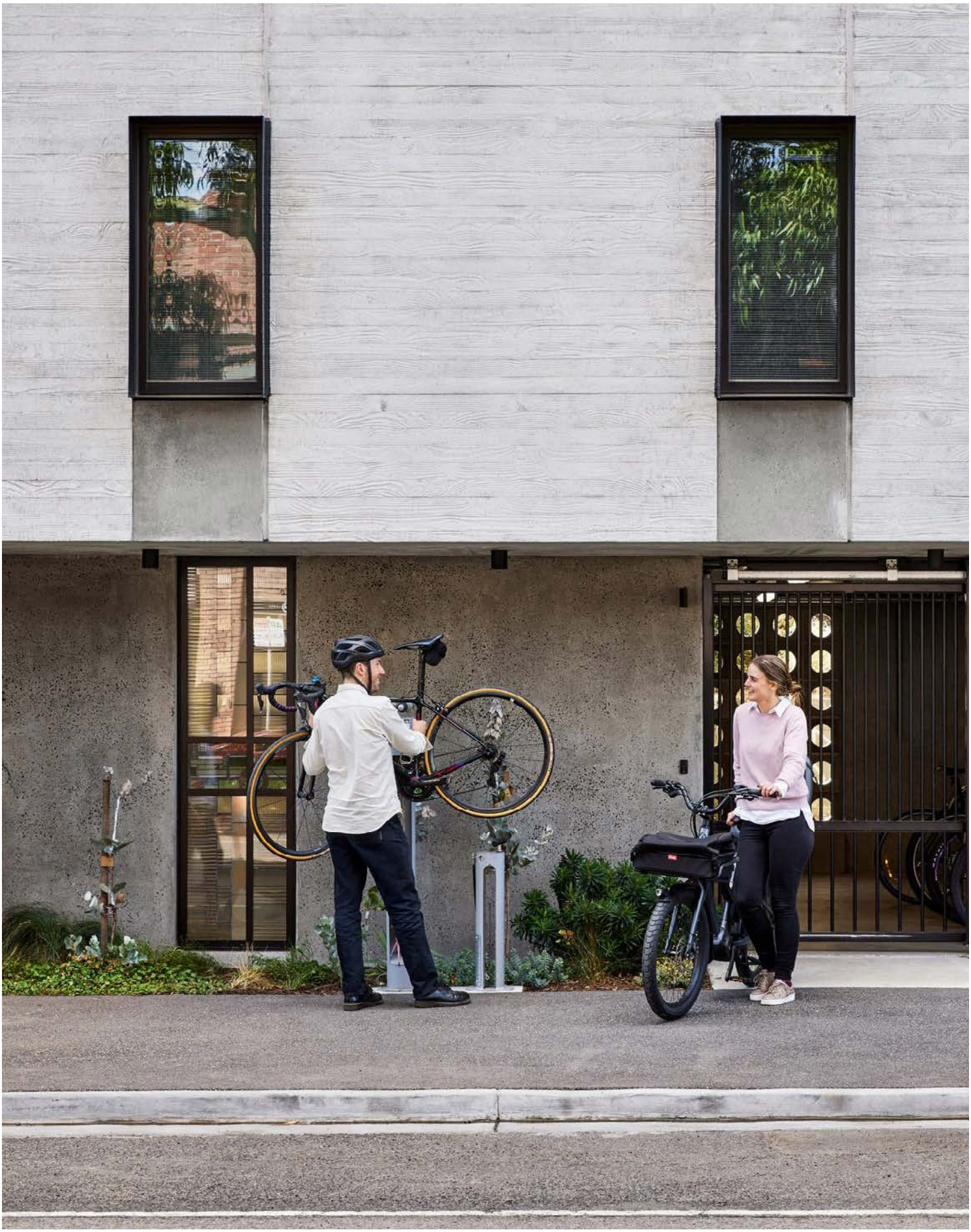


Figure 42. Bicycle parking and bike pumping station is located along the front facade providing convenient access to facilities whilst promoting an active facade and passive surveillance to bike storage facilities.

Ferrars & York, South Melbourne VIC / Hip V.Hype & Six Degrees / Photographer: Tess Kelly

▲ **Figure 43.** Incorporating vegetable planter boxes within developments can create opportunities for social interaction and community building across diverse groups of people, using food production as a connector.

Dachshund House, Tamworth, NSW / Maxwell & Page Architects / Photographer: Toby Scott

Landscape and Open Space

Landscape and open space should be prioritised in the design process, used to enhance amenity, improve air quality, and offer significant health benefits. Quality landscape design integrates nature into urban environments, promoting biodiversity, supporting local food production, and providing essential green networks.

These spaces can contribute to habitat protection and creation, water efficiency, and sustainable management of stormwater which ultimately enhances sustainability and urban cooling. Moreover, well-designed landscapes add aesthetic value, creating visually pleasing environments that soften built forms and improve the overall beauty of the urban landscape.

What are we seeking to achieve

Landscaping

- Enhances streetscape and complements built form.
- Contributes to biodiversity and habitat creation, maximising canopy coverage and retaining existing trees.
- Provides functional outcomes that support and enhance safety and sustainability.

Private open space

- Is well-designed, functional and orientated to connect residents to the outdoors.

Communal areas and open space

- Designed to be functional, attractive and accessible to all occupants of the development.
- Provides occupants of grouped dwellings with space for community connection, activity and recreation.

Does the landscape design enhance the natural features of the site and contribute to overall site amenity?

Landscaping

Design biodiverse landscapes that enhance urban ecology and contribute to the quality of the development.

- Maximise canopy cover by planting and retaining canopy trees and in-ground vegetation, particularly along the front and rear. Where possible, engage a landscape consultant to assist in the design and selection of plant species, and trees that will provide generous canopy cover when mature.
- Create visually attractive landscapes and gardens that contribute to the street scape and public realm. Identify sight lines, focal points and outlook as key considerations. Species selection should consider visual interest, contrast, colour, mass, and scale, keeping in mind how this may change over time, and with the seasons.
- Increase flora and fauna biodiversity by selecting native, endemic and climate-resilient species. Avoid planting invasive species.

Figure 44. Ensure there are sufficient deep soil zones to accommodate mature shade trees. Prioritise the retention of existing moderate and high value trees, and identify opportunities for new tree planting. A landscape consultant can assist in selecting indigenous plants that are suitable for the site.

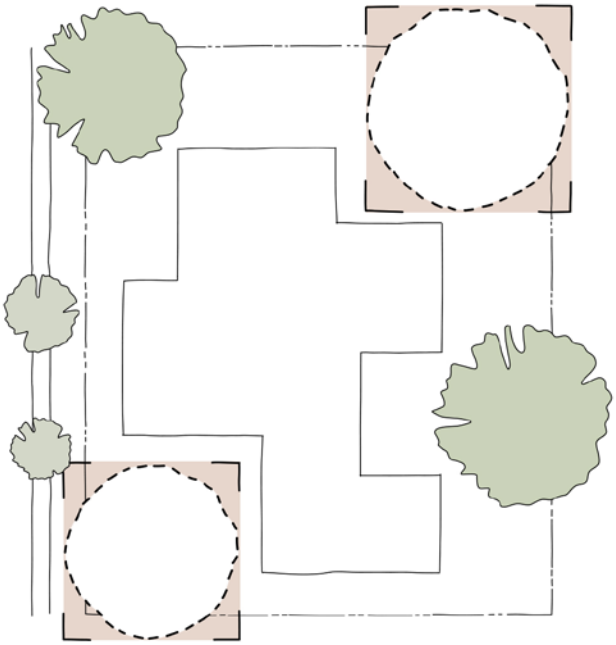


Figure 45. Native landscaping, tones and materials have been selected to suit the surrounding natural landscape.

Farrier Lane Carbon Neutral Home, WW / MDC Architects / Photographer: Dion Robeson & Lajos Varga

Provide generous planting as a functional aspect of the design.

– Generous planting can be used to conceal and soften harsh building elements and environments. Planting between the street and the dwelling can enhance the micro-climate, improve thermal performance of the building, and establish visual and acoustic privacy.

– Provide high quality permeable or semi-permeable ground surfaces to optimise stormwater management. This can include using ground covers along driveways.

◀ **Figure 46.** Permeable ground surface covers include lawn, mulch and garden. Use ground cover planting where possible.

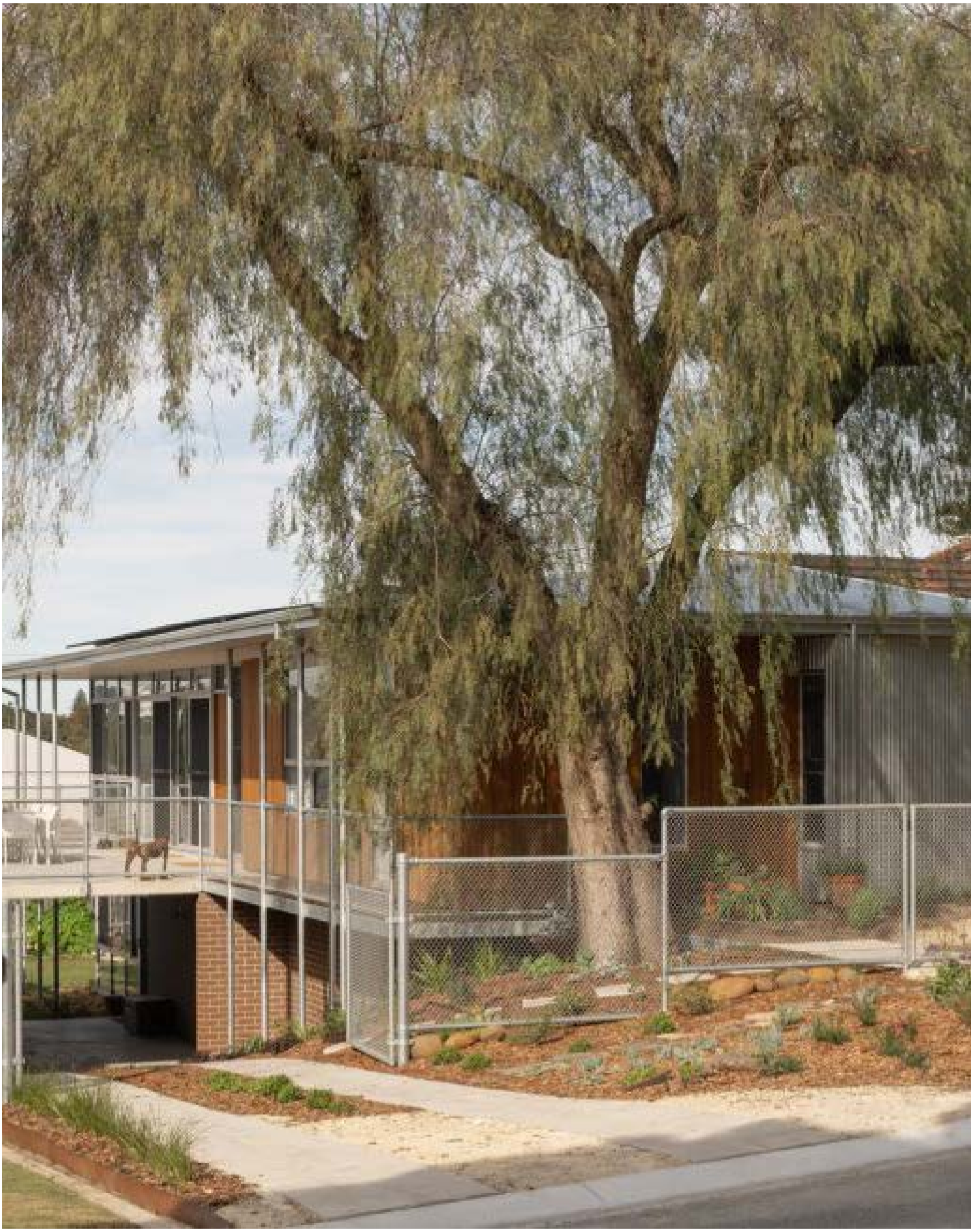
Brick House, Highgate WA / Studio Roam / Photographer: Jack Lovel

Figure 47. Landscape design of pathways, driveways and entries can increase the amenity of the development.

1 Outdoor furniture can be incorporated into the landscape design to encourage social interaction and neighbourliness.

2 Keep planting from obstructing important views, daylight or pathways.

Semi-permeable ground surface covers include grass, pavers, decking and permeable paving systems.



▲ **Figure 48.** Planting can be used to break up expanses of concrete along vehicle entries, adding to the permeability of the ground surface and softening the driveway.

Swanbourne Energy Efficient Home, WA. MDC Architects / Photographer: Dion Robeson

Figure 49. Retaining existing trees and planting new trees and bushes benefit the urban ecology whilst providing shade, and fauna habitat. The use of ground cover planting between pavers helps to support sustainable stormwater management through ground surface permeability.

Garden Wall House, Fairfield, VIC / Sonelo Architects / Photographer: Pier Carthew

Inkerman & Nelson, Balaclava VIC / MA+Co / Photographer: Tom Ross

1 Where canopy trees cannot be planted, use alternatives such as framed structures with climbing plants to provide shade and cooling.

2 Lighter coloured pavers reflect the sunlight, and maintain cooler temperatures on hot summer days.

3 Landscaping can be used to integrate and visually conceal services.

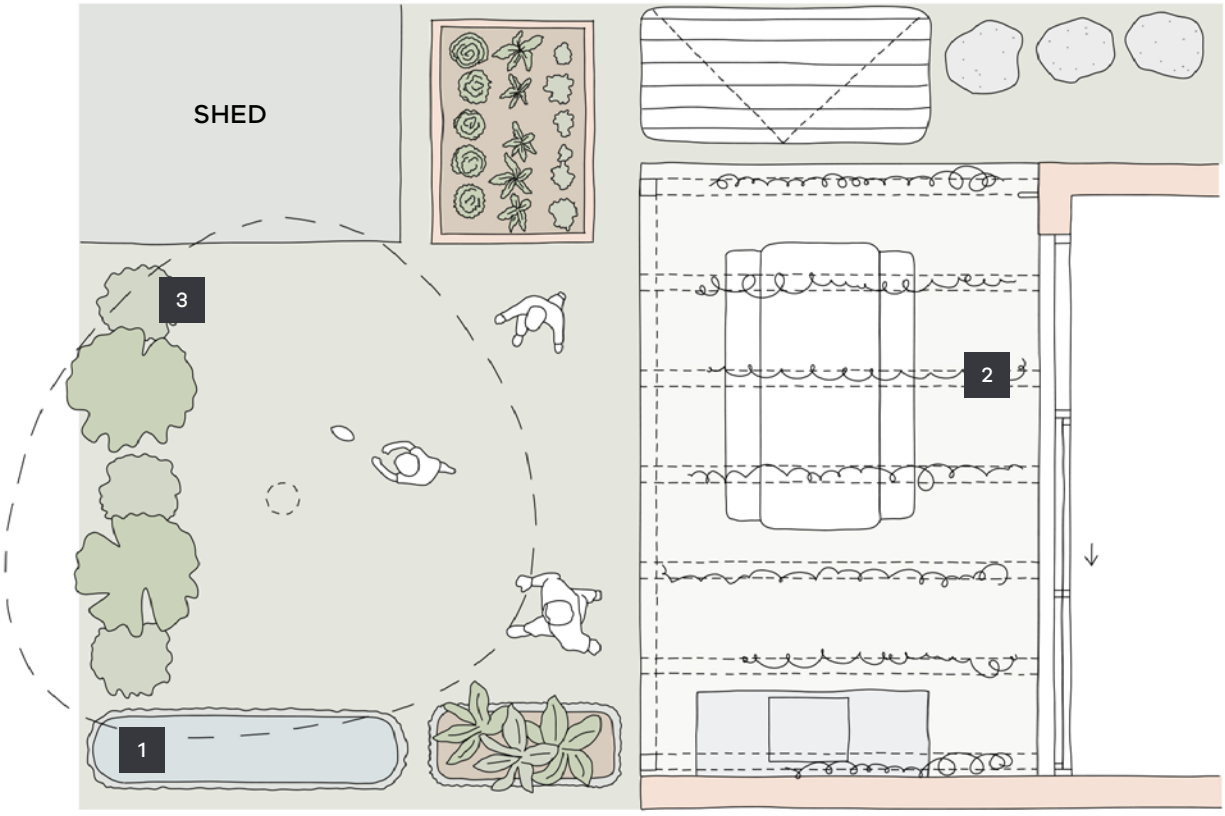
4 Shallow ramping and handrails provide equitable access across the development.

Private Open Space

Design generous and high quality private open space that provides a functional outdoor area to occupants throughout the year.

- The design of outdoor living areas should facilitate the likely range of uses by occupants, allowing sufficient space for furniture, circulation and a range of activities.
- The design of private open space should balance outlook with occupant and neighbour privacy. Orientate balconies in a way that reduces the need for visual privacy screening, as this can restrict outlook and access to daylight.

Figure 50. A functional ground floor private open space allows for productive garden beds, outdoor entertaining, a shed for storage and space for drying clothes.

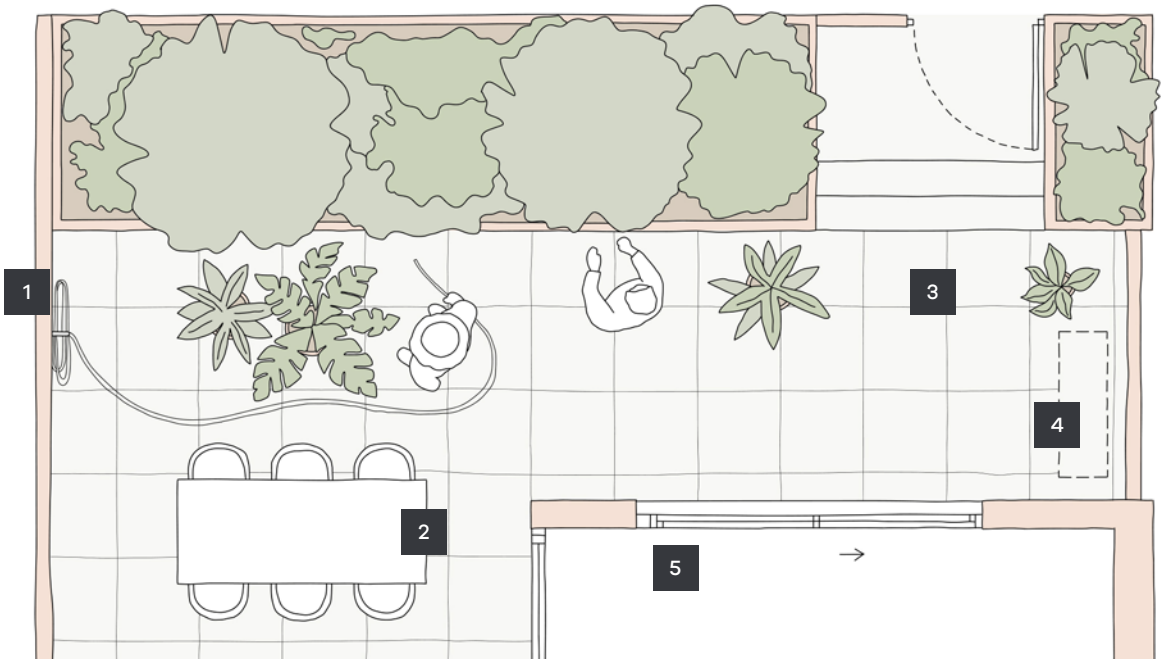


1 Utilities such as water tanks should be placed to minimise their impact on useable outdoor space.

2 A pergola over a deck provides a comfortable a shaded area for outdoor dining and entertainment.

3 Deciduous canopy trees can provide summer shade.

Figure 51. A ground floor dwelling that faces the street uses a built in planter to create privacy and a soft buffer to the street.



1. A tap and a powerpoint gives residents the opportunity to easily water outdoor plants, wash pets or work on outdoor projects.
2. Private outdoor space should be generously sized, creating the opportunity for outdoor dining.
3. The size of the outdoor space should allow for clothes drying and storage.
4. Where AC condensers must be located within a private open space, orient the exhaust away from functional areas to optimise comfort and usability of the space. Avoid locating air conditioning condenser units on small balconies.
5. Indoor outdoor connection to primary living space adds to occupant amenity.

Figure 52. A one bedroom dwelling should have enough space for two-person seating and clothes drying. Locate balconies on corners where possible to enhance outlook.

Corner balcony increases occupant outlook.

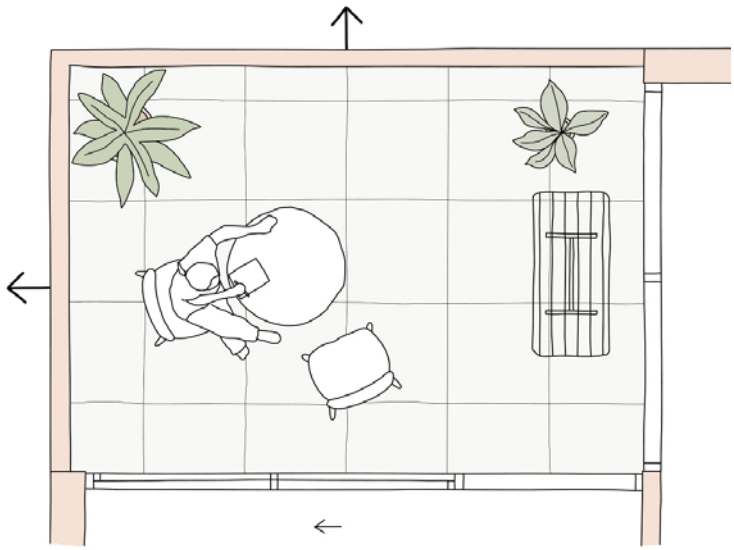


Figure 53. Generously sized balconies allow for outdoor gatherings, dining, and personal touches such as balcony plants.

Peta's House, Fremantle, WA / Mt Eyk / Photographer: Dion Robeson

▲ **Figure 54.** Provision of an outdoor tap creates a more functional outdoor space, allowing for convenient and practical activities such as plant maintenance or pet washing.

Aboriginal Housing Victoria, Reservoir, VIC / Breathe / Photographer: Andrew Wuttke

Figure 55. Private open space is positioned as an extension of the living area, with operable louvres to promote natural ventilation.

Farrier Lane Carbon Neutral Home, White Gum Valley, WA / MDC Architects / Photographer: Dion Robeson

Communal Areas and Open Space

Incorporate high quality shared and communal spaces that promote social interaction between residents.

- Position communal areas in central areas that are close to vertical circulation to ensure ease of access, activation and passive surveillance.
- Communal spaces should provide residents with access to a variety of spaces with practical uses, whilst encouraging moments between neighbours.

These spaces should be designed as attractive, safe and functional spaces that could include shared laundry lines, a pet washing area, tool workshop, shared barbecue facilities or productive gardens. Seating, public art, trees and play equipment can create opportunity for social interaction.

- Carefully consider the location of communal space to avoid impact on noise sensitive areas such as bedrooms.

Do the communal areas promote social interaction between residents?

◀ **Figure 56.** Communal sand pit and outdoor tap for washing.

Albermarle St, Kensington, VIC / Fieldwork / Photographer: Tom Ross

Figure 57. A central shared space, positioned around private open spaces and building entries encourage day to day use. The communal space has good sunlight, seating, lawn areas, and large planter boxes for communal vegetable gardens.

Clyde Street Mews, Thornbury, VIC / Six Degrees / Photographer: Alice Hutchison

Activate rooftops and in-between spaces as social common areas.

- In apartment buildings, lift lobbies and internal corridors should be designed to provide breakout spaces and moments for interaction between neighbours.
- Rooftop communal spaces can be utilised, particularly in apartment buildings. These can be vibrant, landscaped spaces with communal facilities for outdoor entertaining and informal gathering.
- In townhouse developments, position communal open spaces centrally within the development to encourage a sense of connection and ownership for all residents. Avoid small left over spaces that are away from the majority of residents.

Figure 58. Block style developments provide an opportunity to create a centrally located communal open area.

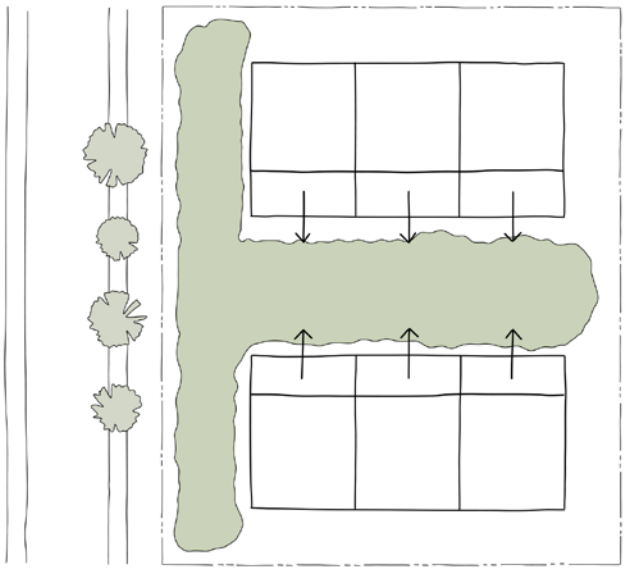


Figure 59. Corridors and circulation spaces in apartment buildings can incorporate seating or resting points.

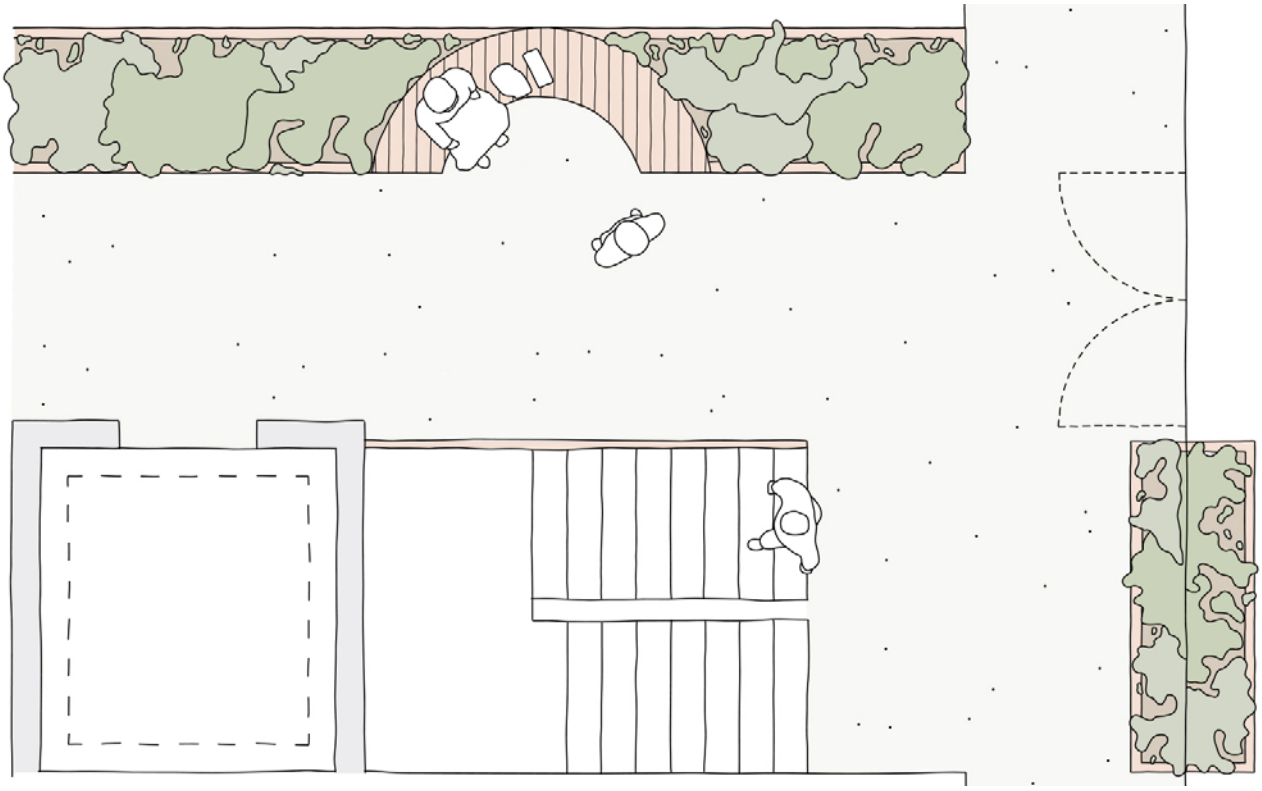


Figure 60. Rooftop areas can be utilised as functional communal open space for seating, entertaining and recreation.

Breese Street, Brunswick, VIC / DKO / Photographer: Tom Ross

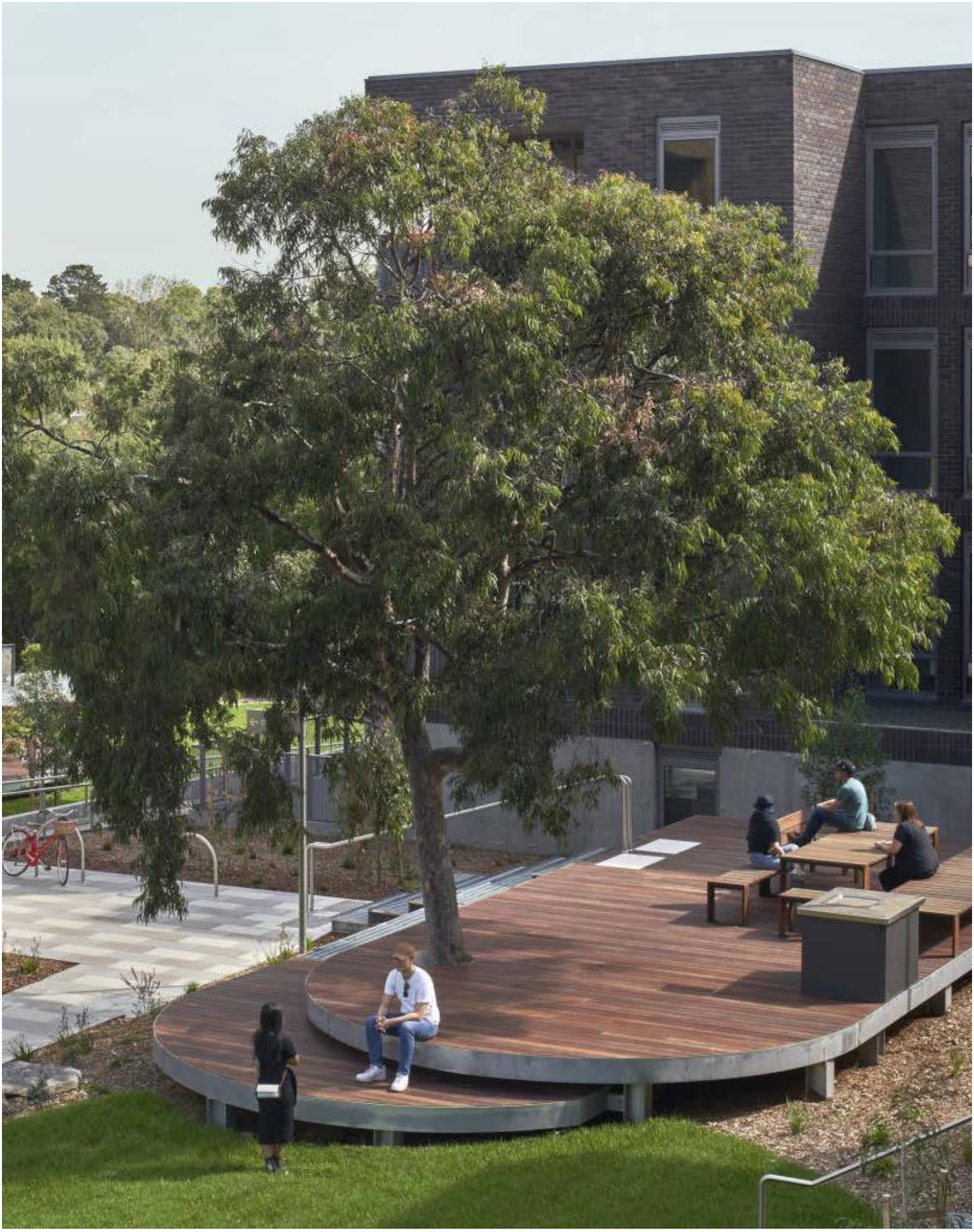


Figure 61. A generous barbecue and seating area is sheltered by large canopy trees, and connected by a series of pathways across the site.

Markham Avenue Social Housing, Ashburton, VIC / Architectus / Photographer: Peter Clarke

Figure 62. Central to this townhouse and unit development is a generous public and semi-public space with pavilions providing sheltered outdoor areas, planter boxes for gardening, and lawn areas for play.

Habitat on Juers, Brisbane, QLD / Refresh / Photographer: Scott Burrows

▲ **Figure 63.** This development provides numerous outdoor areas, such as a sheltered space for gathering, and an active zone with a basketball court.

Logan Youth Foyer, QLD / Bark Architects / Photographer: Christopher Frederick Jones

Figure 64. A shared garden and children's play area is incorporated into the landscape design of the development encouraging social interaction between residents.

Sunshine Passivhaus Affordable Housing, Sunshine, VIC / Clarke Hopkins Clarke

Dwelling Amenity

The design of a dwelling is crucial for ensuring high-quality amenity, usability, and functionality. Functional apartments should have layouts that meet residents' needs, with room sizes and configurations suited to their intended use.

Adaptable layouts accommodate future household changes, enhancing the longevity of the housing stock. To support the long-term needs of a community, a variety of housing types is essential, catering to people of different ages, backgrounds, and needs. By providing high quality and diverse housing options, we can ensure that all residents have access to appropriate and comfortable living spaces.

Creating safe, pleasant and healthy spaces within developments is vital for fostering a sense of security and well-being for all members of the community.

What are we seeking to achieve

Functional layout

- Is flexible, adaptable and comfortable
- Caters to diverse occupant needs
- Generous ceiling heights and well proportioned spaces are incorporated
- Considers future adaptability of carparking and garages.

Natural ventilation

- Provided through the incorporation of operable window or louvre systems
- Promoted by outdoor circulation and open walkways.

Is the dwelling a healthy, comfortable and functional place to live in?

Functional Layout

Design apartments for flexibility, adaptability and comfort.

- The floor area and internal dimensions of individual rooms in the dwelling should accommodate for flexible use and good resident amenity. This means allowing different arrangements of furniture based on diverse occupant needs, and the flexible and functional use of circulation paths.
- Generous ceiling heights can contribute to the perceived spaciousness of the room and should be considered when creating well-proportioned spaces. Correct proportions can also improve solar access, natural ventilation and internal amenity.
- Position primary living spaces, bedrooms, and noise sensitive spaces away from external noise sources. Landscaping along noisy interfaces can help to reduce noise inside the dwelling.
- Provide generous, dedicated internal storage spaces to preserve the usability of living spaces. Internal storage should be able to accommodate household goods and larger items such as mobility aids or sports equipment. External storage areas should be located with consideration given to security, passive surveillance and ease of access.

Figure 65. Alternative furniture layout options for bedrooms and living rooms describe flexible and adaptable use of space.

1 Generous dimensions to rooms allow space for secondary furniture and cater for adaptability and changes in family circumstances over time.

2 Ensure circulation areas are efficient and do not restrict how space can be used and furnished.

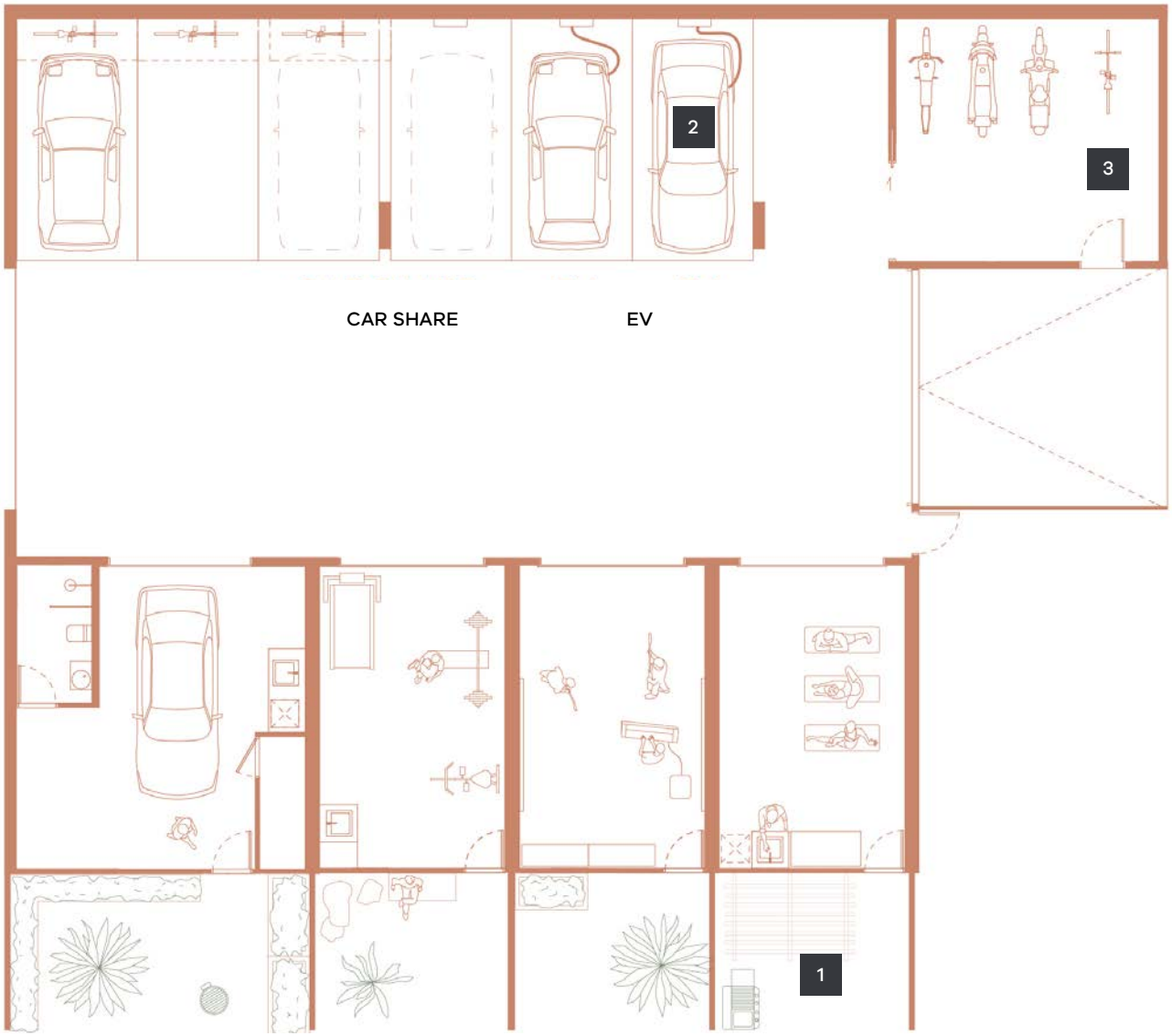
3 As an alternative to storage cages, dedicated storage cupboards or rooms can be provided throughout the development.

Functional Layout

Consider future adaptability of carparking and garages.

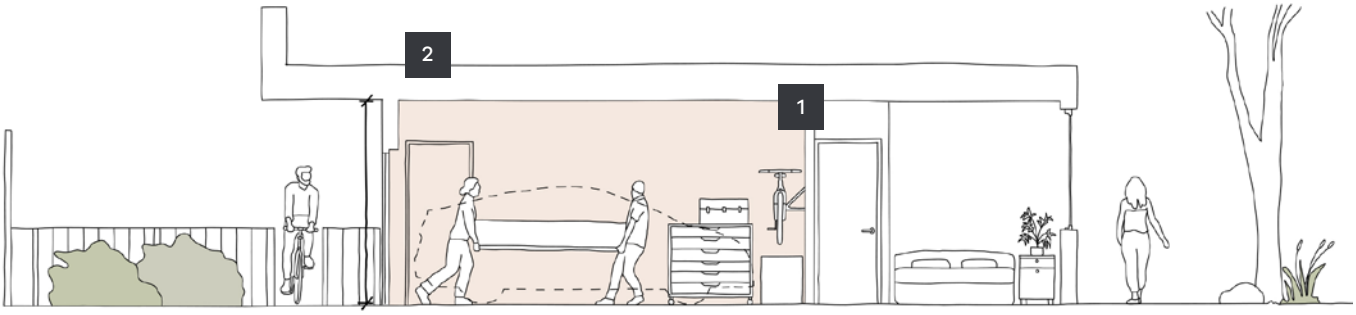
Future-proof parking design to allow flexible and future adaptation of carparking, garages and ramps sin the current design.

Figure 66. Garages should be designed for flexible use and adaptation.



1. Garages accessed via garden area or private open space allow for further flexibility and use.
2. Include provisions for car sharing and electric vehicle (EV) charging.
3. Provide secure parking for bikes, scooters and motorbikes.

Figure 67. Design private garages for flexibility and future adaptability.



1 Private garages should be large enough for the provision of bicycle parking.

2 Provides generous ceiling heights to carparking areas to allow these spaces to be adapted for other uses over time.

Figure 68. Private garages should be designed with provision for natural light and ventilation so that they can be adapted for alternative use if not required as a garage.

North Street, Brunswick, VIC / Hip V. Hype / Photographer: Tess Kelly

Natural Ventilation

Provide natural ventilation to internal areas and circulation spaces.

- Where practicable, provide operable windows and louvre systems that assist in achieving user controlled environments, enabling airflow and natural ventilation.
- To achieve naturally ventilated corridors, incorporate louvred or openable windows to a number of locations within the corridor.
- Consider designing open-air walkways and circulation spaces, as this can assist in achieving high levels of cross-flow ventilation to dwellings and improve indoor air quality.

◀ **Figure 69.** Internal louvres can allow occupants to effectively manage natural ventilation.

Norwood, Fitzroy North, VIC / Architecture Architecture / Photographer: Tom Ross

▲ **Figure 70.** Open air walkways and circulation spaces are designed to strengthen the residents' connection with nature using natural light and vegetation.

Barkly Street, Brunswick, VIC / Breathe / Photographer: Gavin Green

Figure 71. Planter boxes with climbing plants provide circulation spaces with natural ventilation, daylight and a connection to nature.

Light Box, Collingwood, VIC / Clare Cousins / Photographer: Tess Kelly

Figure 72. Large sliding windows and doors allow occupants to maximise natural ventilation which can create a healthier indoor environment.

Living Quarters, NSW / Ha Architecture / Photographer: Clinton Weaver

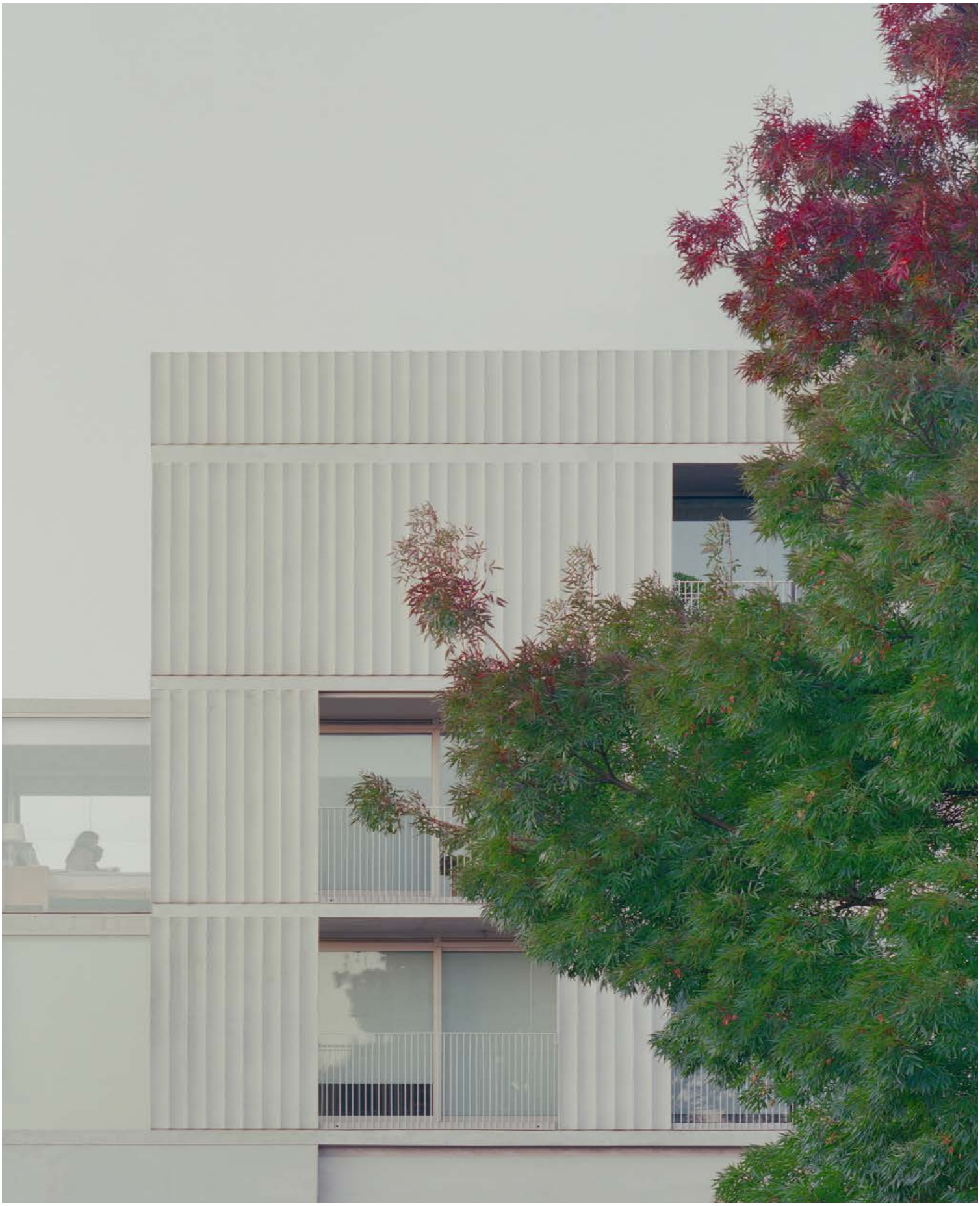


Figure 73. A simple form is complemented by fluted concrete to provide visual interest to the facade. Carefully composed punched windows and balconies create depth and shadow, designed to maximise daylight and outlook to the apartments. Consideration has been given to the proportion of the precast panels, and their alignment to functional building elements such as balconies and balustrades to present a well articulated facade.

Jasper Road, McKinnon, VIC / Ritz & Ghougassian / Photographer: Pier Carthew

Design Detail

Design detail is essential in enhancing both the aesthetic and functional aspects of a building. Careful consideration of form and facade articulation is crucial for presenting a building that makes a positive contribution to the neighbourhood now, and well into the future.

The design of building elements should prioritise internal amenity for occupants, taking into account the performance of chosen materials and high quality detailing of connections to enhance overall building performance and durability.

What are we seeking to achieve

Architectural form and facade articulation

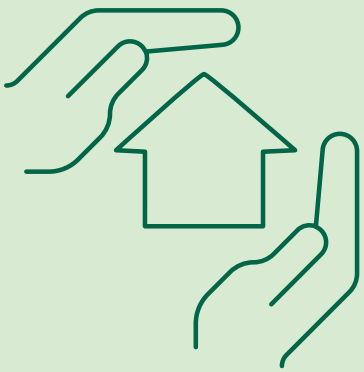
- Visually improves the quality and amenity of the public domain by carefully considering how the building will present to the street now and into the future.
- The proportion and alignment of building elements are considered in relation to the building form and shape.
- Functional building elements are integrated into the design of the building and used to form a coherent visual language.
- Depth and shadow are used to create visual interest across the facade.

Shading and screening

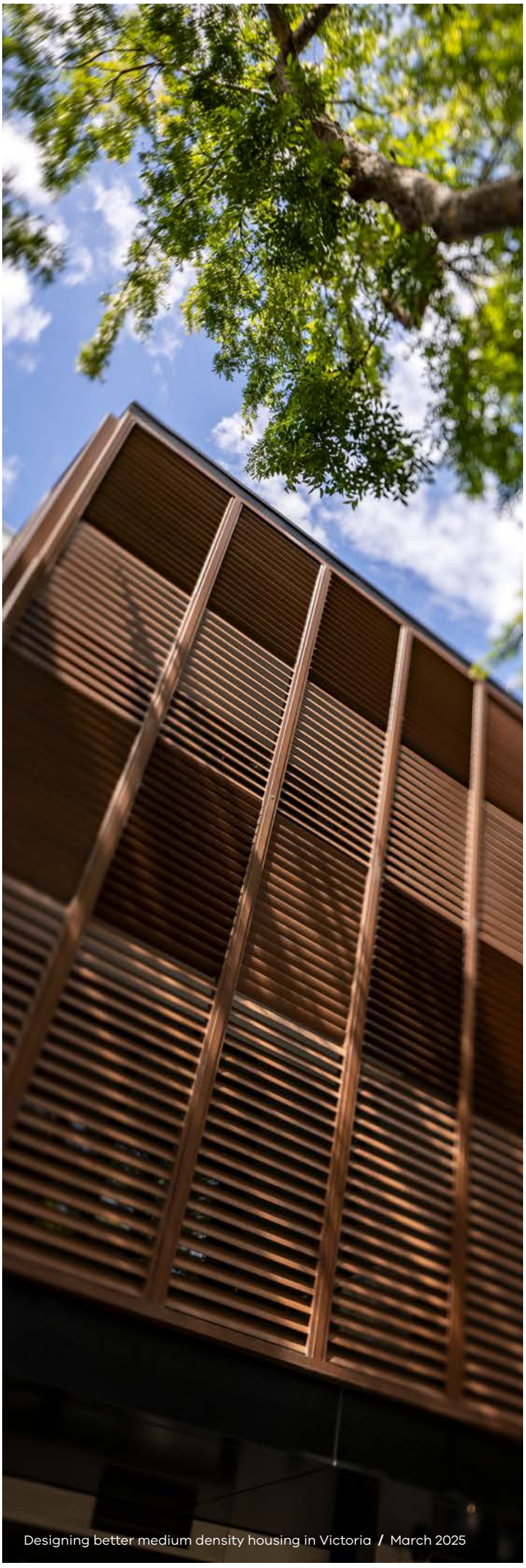
- Designed to maximise daylight, outlook and amenity for occupants.
- Allows occupants to adjust to changing environmental conditions.

Materiality

- Is thoughtfully managed to incorporate tone and texture through inherent material quality.
- Materials are selected to fit the size and residential purpose of the building.
- Material selection considers longevity, durability and maintenance.



Does the design detail complement the overall size and form of the building?



Architectural Form and Facade Articulation

Adopt simple forms that improve the visual quality of the public domain and reduce visual clutter.

- Carefully consider the three-dimensional appearance of the building, especially the resolution and detailing of any visually prominent corners.
- Where possible, avoid expanses of blank, inactive or flat facades by incorporating articulation such as openings or windows along these faces. Blank walls, nooks and crannies can make streets feel unsafe.
- Carports, patios, porches and verandahs should be considered as part of the overall design of the building, and built with materials that are compatible with the rest of the dwelling. They should be functional in size, and designed to create a consistent visual language with the main dwelling.

Develop a coherent design response through the placement and design of windows, doors, balconies, and shading shade elements.

- Create a consistent façade by ensuring various elements such as windows and framing are proportionate in size and shape to the roof and overall building form. Consider the size, location, form, depth and rhythm of openings across the facade.
- Facade elements such as operable screens, shutters, hoods and pergolas should be integrated into the design of the building, and used where needed for solar control and shading.

Figure 74. Punched windows, shading hoods, change in material texture and subtle breaks in the facade provide articulation to an otherwise simple form. The upper level setback adopts a lightweight treatment to appear less dominant from the street.

Railway Avenue, Armadale, VIC / Fieldwork / Photographer: Tom Ross

Figure 75. The use of regular dimensions and alignments can create a cohesive appearance across the facade. A modular approach to facade design can improve construction efficiency by reducing construction waste and time.

▲ **Figure 76.** Balustrades with built in planter boxes and cables.

Light Box, Collingwood, VIC / Clare Cousins / Photographer: Tess Kelly

Figure 77. Series of deep window reveals.

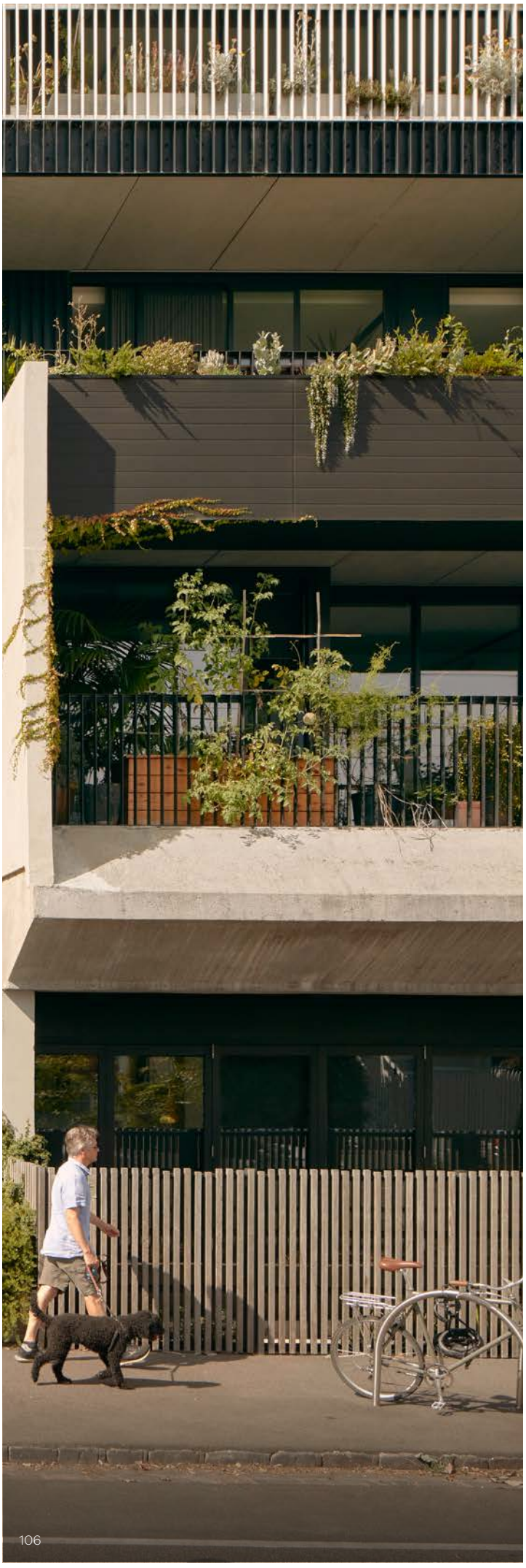
Beaumaris House, Beaumaris, VIC / Clare Cousins / Photographer: Sharyn Cairns

▲ **Figure 78.** Protruding bay window.

Longview Avenue House, Sandy Bay, TAS / Taylor & Hinds Architects / Photographer: Adam Gibson

▲ **Figure 79.** Considered use of durable and robust materials with quality detailing. The material choice suits the local area and climate conditions, and the facade has been designed for low maintenance.

Terrace Green Townhouses / MDC & Officer Woods Architects / Photographer: Robert Frith, Acorn



Incorporate balconies and balustrades as functional elements within the design, and avoid the addition of non-functional elements that are purely decorative.

- Elements such as balconies, recesses and windows can be used to create modulation, depth and articulation on the facade.
- Balconies and private open space should be integrated into the overall form of the development. Projecting balcony forms should be compatible with the building design, including the finishes of associated elements such as soffits, balustrades and fascias.
- Solid or semi-solid balustrades provide privacy and noise protection from the street. Avoid using glass balconies facing toward sensitive interfaces as they do not provide sufficient privacy, and encourage the use of temporary screening.

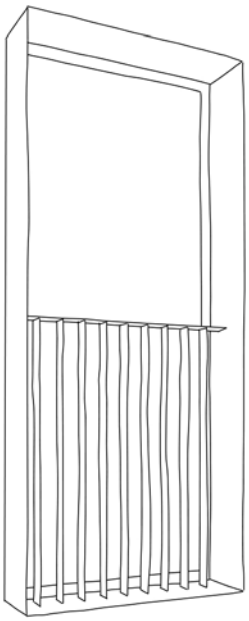
Figure 80. A privacy plate and/or balcony planter box can be used to create additional privacy to private open space.

Roseneath Street, Clifton Hill, VIC / Fieldwork / Photographer: Tom Ross

Figure 81. Solid or partially solid balustrades can be used to mitigate the impact of external noise sources.

Tarakan Street Housing, Heidelberg West, VIC / NH Architecture & Bird de la Coeur / Photographer: Dianna Snape

Figure 82. Juliet balconies can enable occupants to maximise natural ventilation and daylight.



Present a high quality, and well detailed facade, with maintenance and durability of materials and connections in mind.

- Design details such as material joints, flashings and capping's for weatherproofing, downpipes and other drainage elements should be integrated with the building facade, and not left as an afterthought.
- Determine the accessibility and ongoing maintenance requirements of facade elements, including balconies, screening and shading to avoid outcomes that will require excessive or unrealistic upkeep.

▼ Hope Street Housing, White Gum Valley WA / Officer Woods & MDC Architects / Photographer: Robert Frith, Acorn

Will my facade look good in ten years? How much maintenance will it require?

▲ **Figure 83.** The detailing of drainage elements such as gutters and downpipes is integrated and considered in the overall design of the facade. Downpipes are coupled with other vertical elements in the design, such as columns, following the vertical rhythm of the facade. The chosen materiality of these elements allow them to blend it, rather than stand out.

▲ **Figure 84.** Timber battens can provide shading that does not look overly dominant, while still allowing light to penetrate.

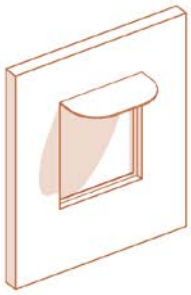
Arcadia, Brunswick, VIC / Architecture Architecture / Photographer: Tom Ross

Shading and Screening

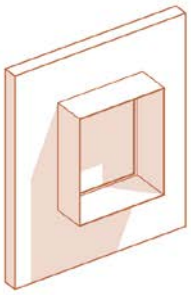
Design shading and screening to maximise occupant daylight, outlook and amenity.

- Encourage operability, flexibility and choice. Operable elements allow occupants to respond to environmental conditions and help to create an active facade.
- When designing windows, shading and screening, assess solar conditions across different times of day and provide orientation specific depth.

Figure 85. A range of shading devices can be integrated into the overall architectural approach, with consideration given to orientation, access, maintenance and operability. Adjustable shading is most valuable on east and west facades where low sun angles can render a traditional eave ineffective in the summer months.

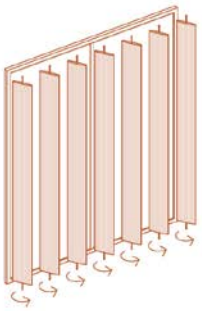


WINDOW HOOD

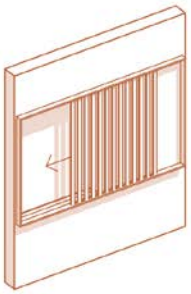


WINDOW SHROUD

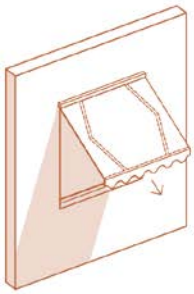
HINGED SCREEN



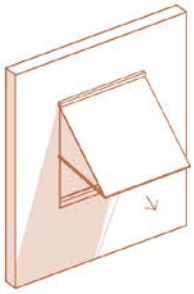
ROTATING LOUVRES



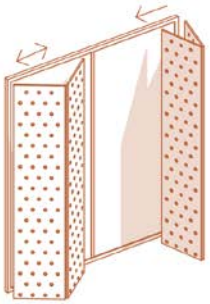
SLIDING BATTENS



FOLDING ARM AWNING



DROP ARM AWNING



FOLDING SHUTTERS

Figure 86. Operable screens with battens can provide a balance between privacy and outlook.

Botany Road Residential Complex, Zetland, NSW / Candalepas Associates / Photographer: Rory Gardiner

Materiality

Select high quality, sustainable and durable materials that are suited to the climate of the area.

- Ensure the selected materials suit the scale of the development. For example, domestic scale projects may employ materials such as brick, where as larger projects may require precast panels. Consider the distance at which materials will be viewed.
- Use a variety of tone and texture when selecting materials to create visual and tactile interest, particularly at ground level. Too many materials can create a cluttered appearance.

◀ **Figure 87.** Natural materials, such as timber should not require complex maintenance and should be in sheltered areas that are easy to access.

Dachshund House, Tamworth, NSW / Maxwell & Page Architects / Photographer: Toby Scott

Figure 88. Consider the location of materials across the facade, and the detailing between each material transition.

1 Durable materials are used on upper levels, with consideration given to waterproofing, flashing and capping details.

2 Flashing and expressed fixings are integrated into the design.

3 Patterned brickwork on lower levels creates visual interest at ground level.

4 Natural materials are located in sheltered areas.

Figure 89. Robust and hardy materials should be used on upper levels that are more exposed and harder to reach.

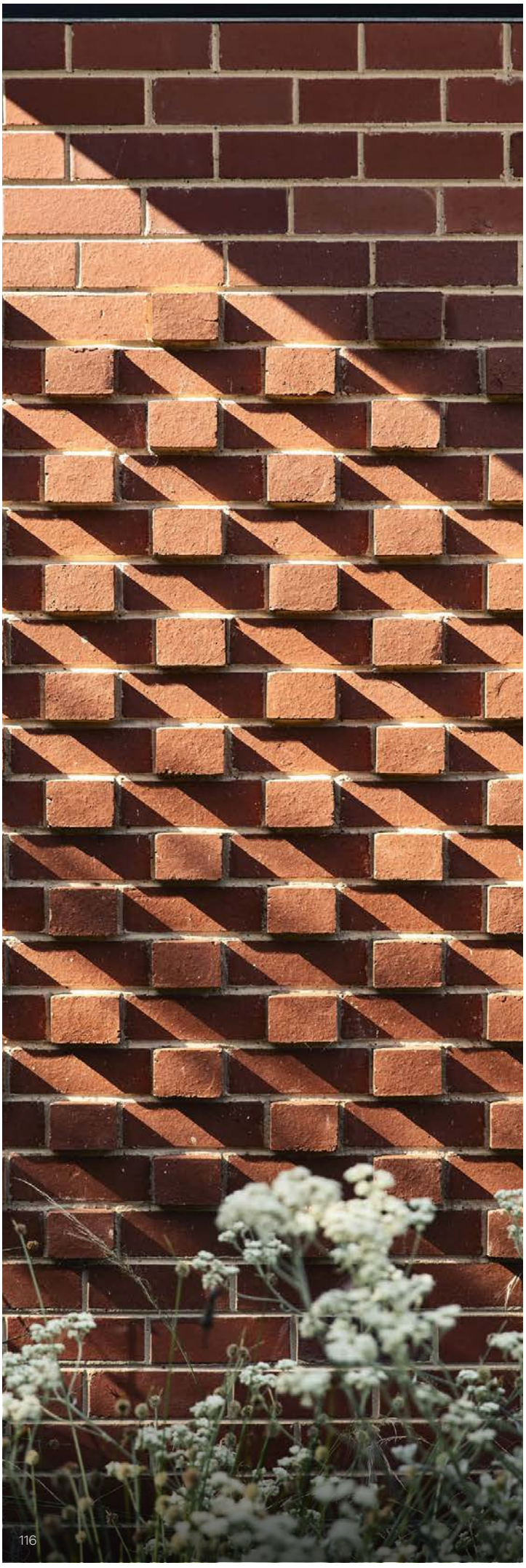
Farrier Lane Carbon Neutral Home, WA / MDC Architects / Photographer: Dion Robeson & Lajos Varga

Silver Creek House, Moore River, WA / Officer Woods / Photographer: Robert Frith

Figure 90. Tactile materials are well suited to levels close to the ground where they can be fully appreciated at human scale.

Maggie Street Townhouses, Newcastle, WA / Curious Practice / Photographer: Alex McIntyre

Fitzroy North Terrace VIC / Clare Cousins / Photographer: Tess Kelly



Select materials that are suitable for their location on the building.

- Materials in areas such as building entries or surrounding ground floor doors or windows can be more easily maintained and are suitable for natural or textural finishes of a finer scale.
- Materials located in hard to reach places, such as upper levels, roofs or without balcony access should be durable and low maintenance.
- Avoid the use of applied finishes such as films, vinyl's, stains or paints over surfaces which can deteriorate or fade with sun and rain exposure over time. Where practicable, use high quality materials that require no finish in order to maintain their integrity.

◀ **Figure 91.** Variation in depth can create interesting shadows and light play across a facade.

Frankston Mid Century Modern, Frankston, VIC / MRTN Architects / Photographer: Derek Swalwell

▲ **Figure 92.** Fibre cement (FC) sheet cladding is highly energy efficient, sturdy and contains fire-resistance properties. Avoid using FC sheet with an applied paint finish where possible, as this will increase the need for ongoing and regular maintenance.

Dachshund House, Tamworth, NSW / Maxwell & Page Architects / Photographer: Toby Scott

High quality and robust materials such as brick and blocks are well suited to residential construction, and can help to create a domestic sense of scale to the building.

Bricks and blocks are low maintenance, durable, high in thermal mass and have great weather resistant, fire-resistant and acoustic insulation properties. Where possible, they should be locally sourced or recycled, and used without unnecessary applied finishes.

Figure 93. Varied brick patterns can be used to add articulation, depth and shadow to the facade.

Ruskin Street Townhouses, Elwood, VIC / Fieldwork / Photographer: Tom Ross

Figure 94. Natural or textured brick finishes with finer details are well-suited for ground floor levels.

Nightingale Fremantle, WA / EHDO

▲ **Figure 95.** Exposed blockwork with protruding details on the ground floor wall creates visual and tactile interest. The solid concrete block wall is complemented by softer elements like timber seating and lush plants.

Nightingale 2.0, Fairfield, VIC / Six Degrees / Photographer: Rory Gardiner

SUSTAINABILITY AND BUILDING PERFORMANCE

Buildings and the construction sector account for 37% of global emissions (United Nations, 2023). In response, the Victorian Government aims to reduce Victoria's emissions by 75-80% by 2035 and has moved the net-zero emissions target forward from 2050 to 2045.

The built environment plays a crucial role in achieving these state targets. By focusing on the design, construction, and operation of both new and existing buildings, we can seize numerous opportunities to enhance energy performance, increase comfort, and reduce our emissions.

Future climate change impacts are expected to include more days of extreme weather, such as heatwaves, storms, and concentrated rainfall. To ensure community safety, our buildings and neighbourhoods must be designed to withstand these conditions.

This section provides an overview of sustainable design opportunities for dwellings that are energy-efficient, comfortable, healthy, and adaptable for the future.

▲ **Figure 96.** This environmentally sustainable collection of 3 apartments features a climate-responsive layout, integrating solar passive design principles to ensure natural light and cross-ventilation for each unit. Constructed with light framed timber for all walls and pre-finished refrigerant roof panels, the development features deeper wall studs which allow for excellent thermal insulation and an air gap. Robust and durable materials minimise ongoing maintenance. The project includes a 9kW solar system with battery storage and a 10,000L underground rainwater harvesting tank. The indigenous landscape supports habitat, provides cooling, and manages stormwater runoff.

Gen Y Housing Project, White Gum Valley / Cast Studio / Photographer: Robert Frith

Sustainability and Building Performance

Buildings can consume significant energy and water, contributing to climate impacts. Efficient design minimises resource use, reduces maintenance, operating costs, and lowers carbon emissions. Recognising each project as part of a larger ecosystem, it is essential to plan for adaptability, energy conservation, and water resilience.

What are we seeking to achieve

Energy source and efficiency

– Implements passive design strategies, consideration of natural site opportunities, high-performance insulation and renewable energy sources.

Integrated water and stormwater management

– Employs smart water management techniques, including rainwater harvesting, passive irrigation, and greywater re-use systems, to enhance water resilience.

Waste and recycling

– Encourages reduced material use and increased ease of recycling through well-designed facilities.

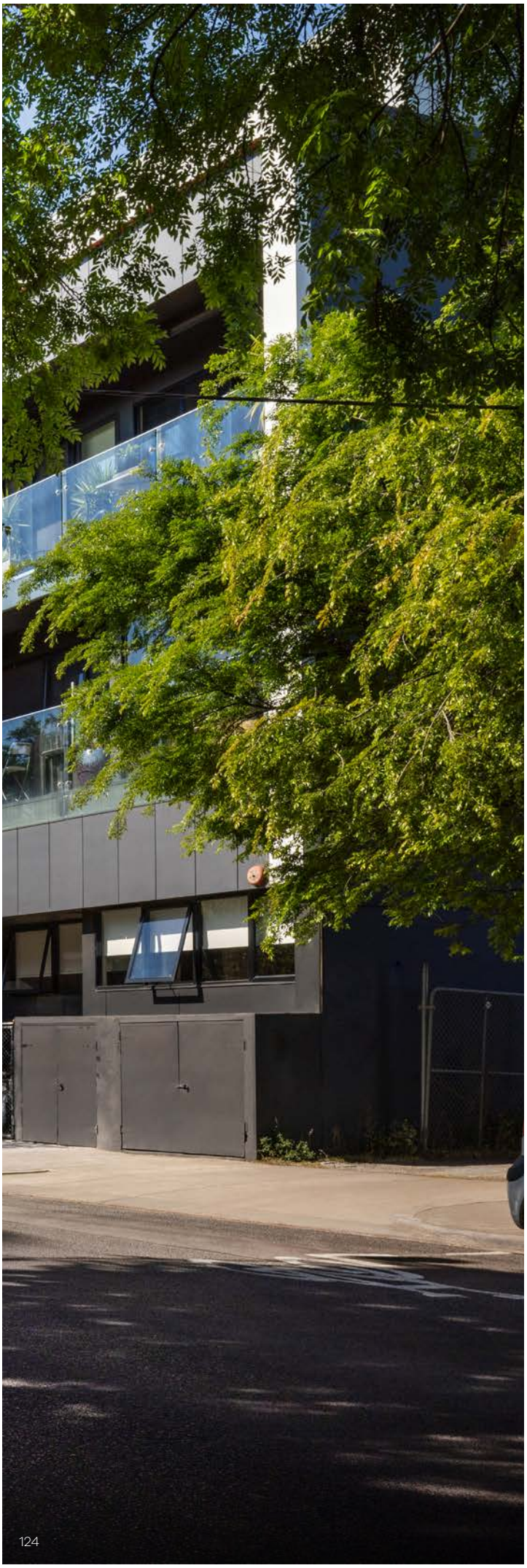
Building materials and construction systems

– Incorporates healthy, durable, local and high-quality materials with minimal carbon footprint.

Adaptability

– Dwellings are designed for flexibility and future adaptability.

How does the development contribute to a sustainable future for the community and environment?

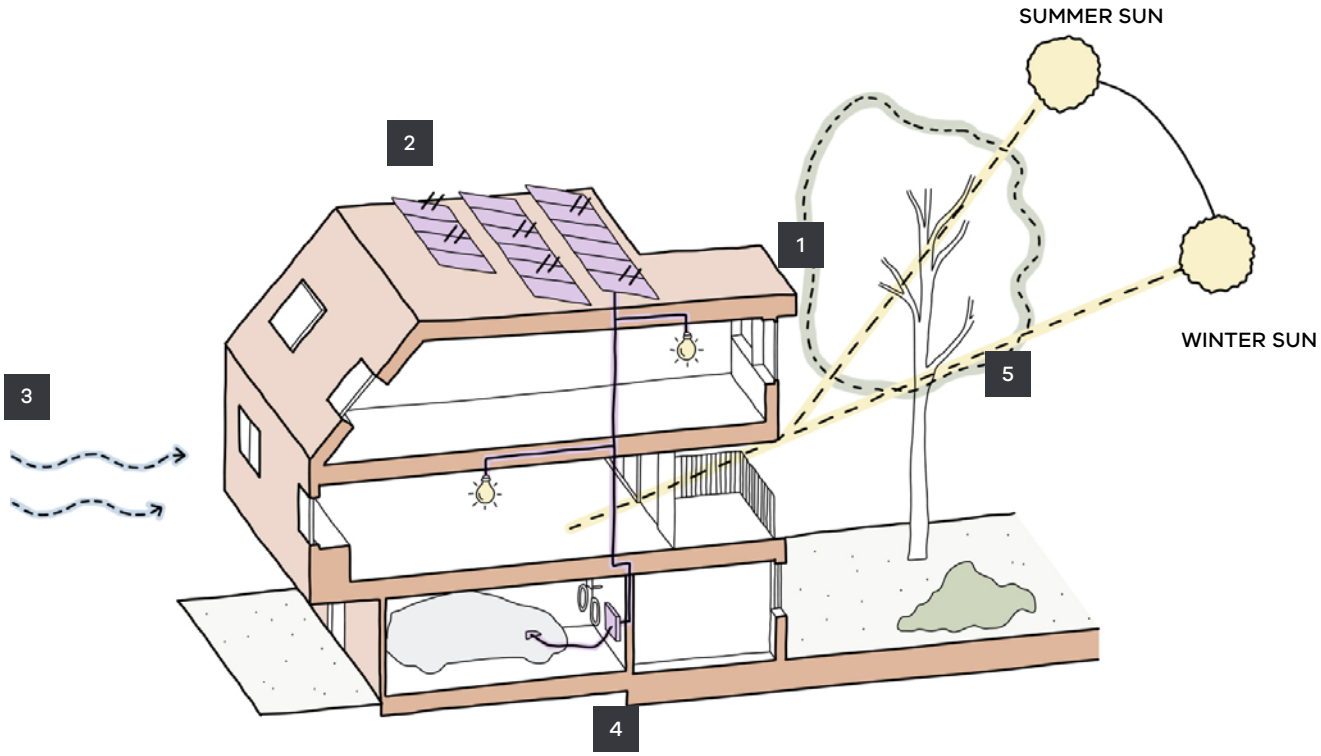


Energy Source and Efficiency

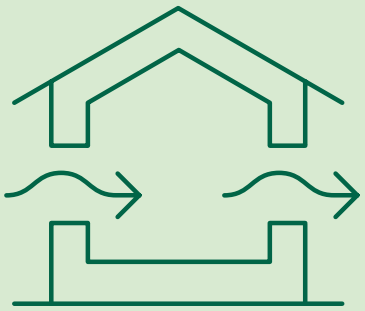
Prioritise passive design strategies to reduce reliance on active heating and cooling systems.

- Analyse climate data for the local area, with regard given to the orientation of the site, angle of the sun, and prevailing summer and winter breezes.
- Orientate windows and living spaces to maximise sunlight capture in winter, using overhangs, eaves, and landscaping to block excessive summer sun, especially from the west. Avoid orientating single aspect apartments to the south.
- Materials with high thermal mass, such as concrete, brick, and tiles, can be used to absorb and release heat as needed. Locate these materials internally on the ground floor to maximise exposure to direct sunlight, or radiant heat sources for optimal thermal performance.
- Incorporate on-site renewable energy systems into the building design, such as rooftop solar PV panels, household batteries, solar water heaters and EV charging infrastructure. Ensure that building orientation and layout support the optimal functioning of these systems, with consideration given to the location of future neighbouring development.
- Achieve a high performing envelope by prioritising high quality double glazing, thermally broken windows and materials with high insulative value to maximise occupant comfort throughout the seasons. Place external windows and doors in line with wall insulation to optimise performance, and limit unwanted heat transfer via surrounding materials.

Figure 97. Incorporating passive design principles and on-site renewable energy systems into a design response.



1. Fixed horizontal shading such as eaves and overhangs to the North provide passive solar control; blocking the sun in summer, but allowing it to shine through in winter to provide passive heating.
2. Rooftop solar PV panels form part of on-site renewable energy systems.
3. Providing dual-aspect dwellings encourages airflow from prevailing winds. To balance ventilation with protection from strong winds, landscaping can be used to funnel cool breezes and filter harsh winds.
4. EV charging infrastructure is incorporated into the design to allow for electric vehicle use.
5. Shading to the north of a dwelling can be provided by deciduous plants which drop their leaves in winter.



How comfortable is the dwelling during heatwave and power outage?

Incorporate high quality window systems into the design from the beginning, to maximise occupant comfort.

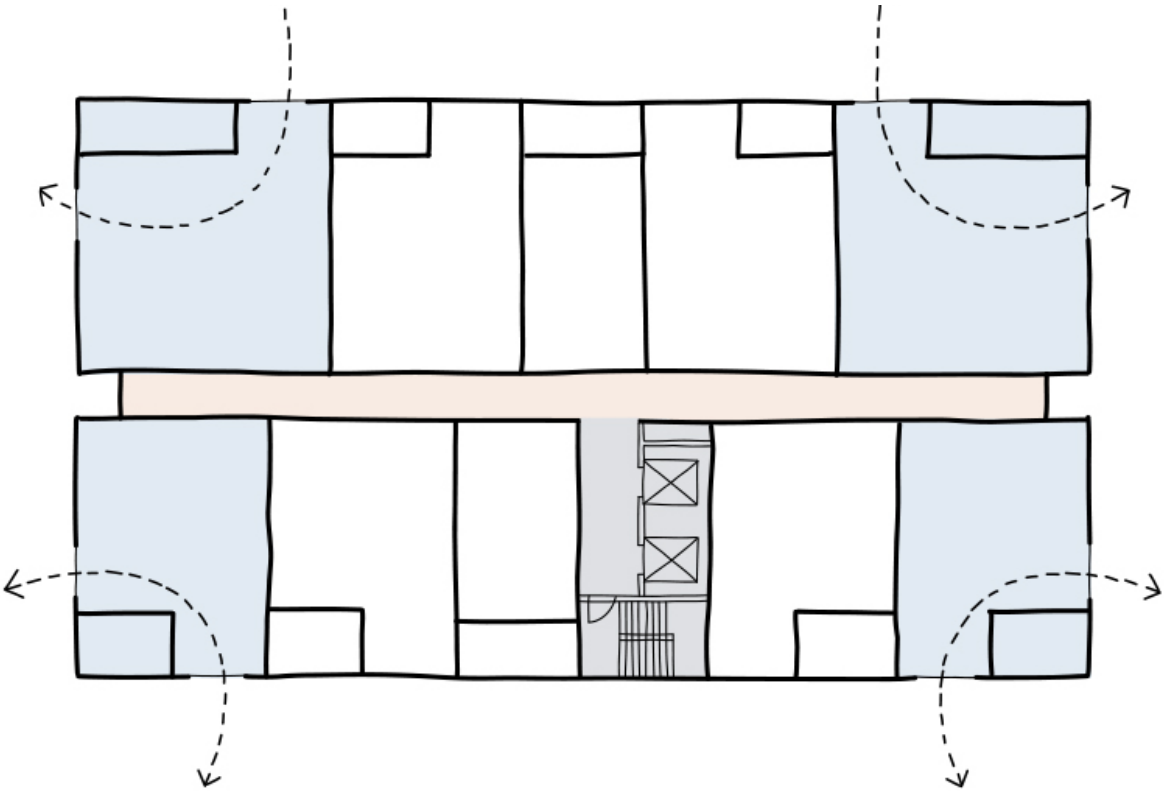
- Ensure airtightness through well sealed windows, doors and other building envelope penetrations.
- As airtightness improves, ensure there is good ventilation to maintain healthy air quality, manage condensation, and optimise building performance.
- When using mechanical ventilation, include heat recovery ventilation systems to reduce energy use and improve comfort. This is especially necessary in very airtight buildings or locations compromised by acoustic or airborne pollution.
- Design for cross-ventilation and stack effects by strategically placing windows and doors to face different directions, taking advantage of prevailing cool summer breezes. Where practicable, place windows at varying heights to maximise the rise of warm air which pulls cooler air into the building from lower levels.

A **thermally broken window** is a window designed to reduce heat transfer between the inside and outside of a building. This is achieved by adding a material, usually plastic or foam, between the interior and exterior parts of the window frame, which acts as a break to heat flow.

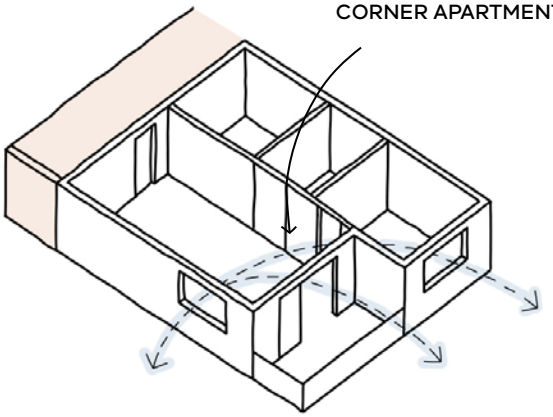
A **heat recovery system** is a mechanical home ventilation system that captures and uses the heat from outgoing air to warm fresh air drawn in from outside.

The **stack effect** is the tendency for air to move and rise due to thermal differences. The warm air rises and escapes through high-level windows or vents, drawing in cooler night air or cooler daytime air from shaded lower-level openings.

Figure 98. Floor plates with corner apartments allow for effective cross ventilation.



Does the building provide a healthy indoor environment?



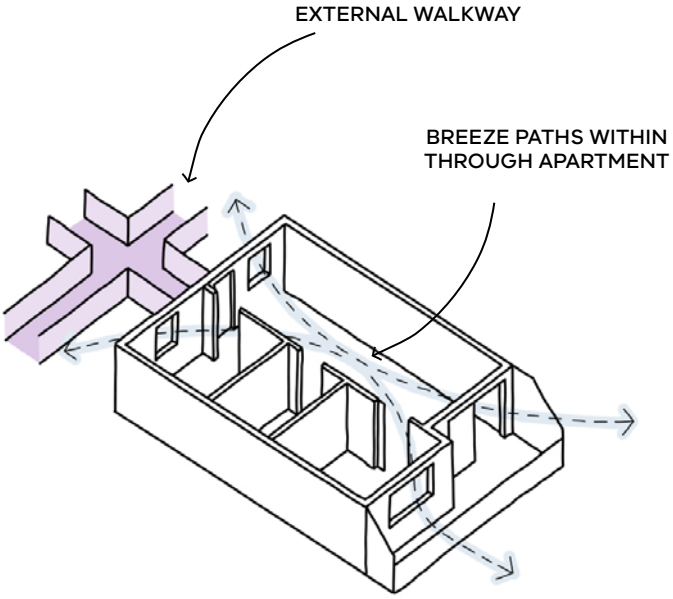
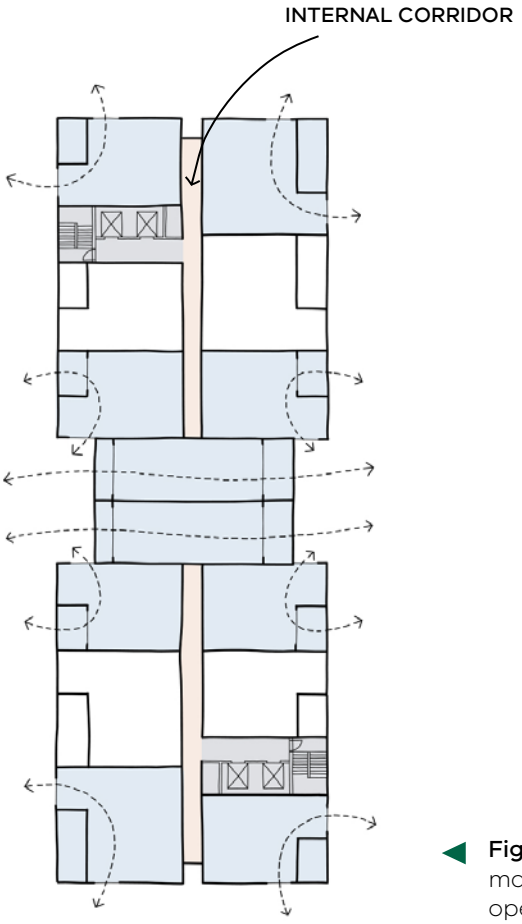


Figure 99. A central, external walkway provides through apartments that achieve effective cross ventilation. Opposite air pressures on each side of the through apartment allow air to be drawn through the apartment.



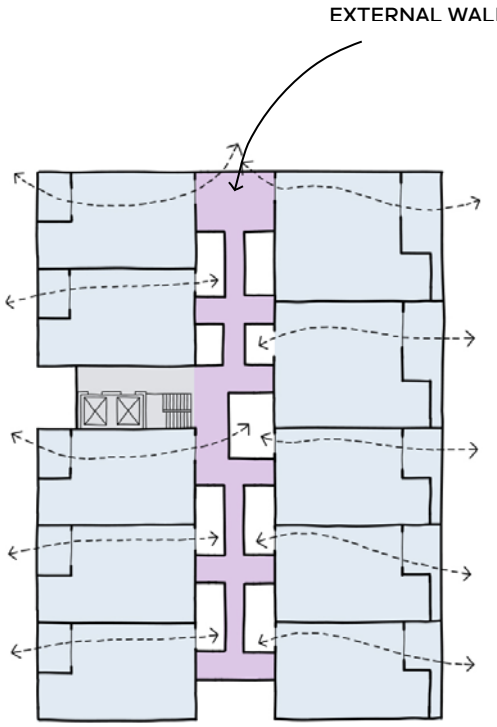


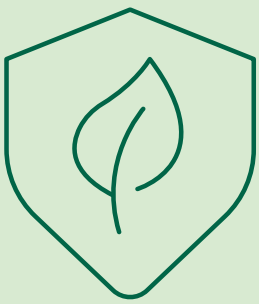
Figure 100. Through apartments and floorplate configuration maximise the number of apartments that have ventilation openings on different orientations of the dwelling.

Integrated Water and Stormwater Management

- Incorporate Water Sensitive Urban Design (WSUD) solutions, such as capturing stormwater run-off from the driveway for passive irrigation, rainwater tanks and previous surfaces or landscaped areas to support tree and vegetation growth.
- Use porous paving and permeable surfaces for outdoor spaces to break up hard surfaces like concrete. Incorporate softscaping with hardscaping to limit surface water run-off.
- Implement rainwater harvesting systems with storage tanks and reuse grey-water to minimise stormwater output. Design buildings to capture rainwater for various uses, such as garden irrigation, toilet flushing, and laundry to reduce the dependency on potable water. Ensure grey-water is treated for reuse according to local regulations.

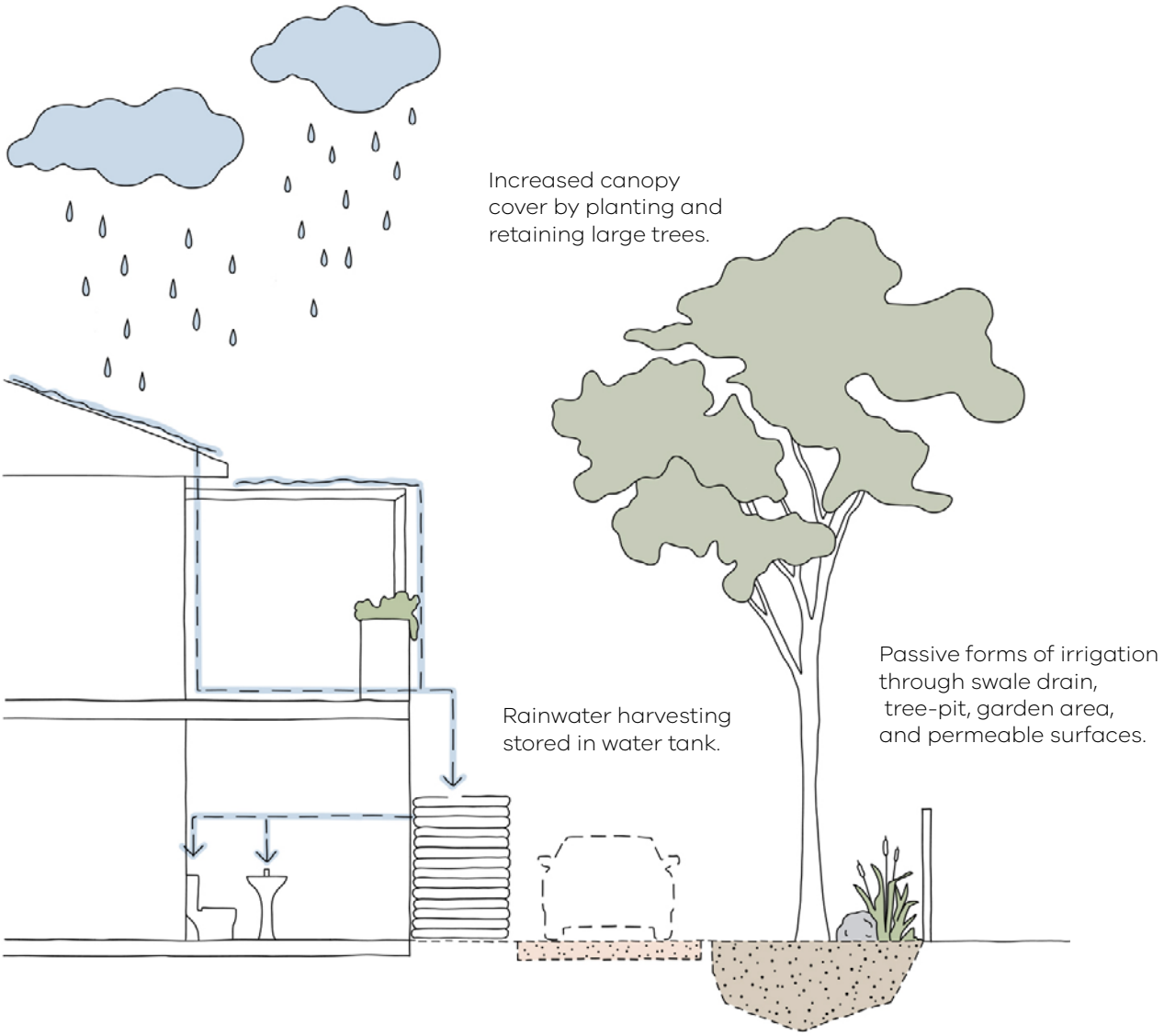
Waste and Re-cycling

- Ensure sufficient space for both current and future waste streams in order to maximise the diversion of household waste from landfill.
- Provide space in communal areas for composting, or worm farms to help support healthy gardens and landscaped areas. These could be commercial composting machines located in bin rooms, or manual composters placed in shared garden areas.
- Promote good recycling behaviours by positioning bins in highly visible locations. In larger developments, this could be a consolidated collection of bins. This ensures that waste separation and recycling is convenient and practical.



Do the waste management facilities encourage good recycling and waste behaviours?

Figure 101. Incorporating Water sensitive design solutions into a development.



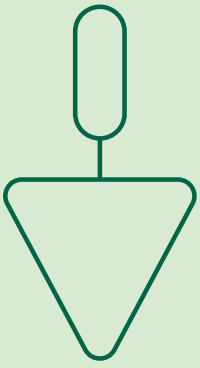
Greywater is wastewater from showers, basins and taps and it can be reused, for example for watering the garden.

On-site infiltration of stormwater is increased by maximising permeable driveway surfaces such as ground covers, lawn surfaces, and permeable pavers.

Does the development enhance water resilience in the community?

Building Materials and Construction Systems

- Use carbon neutral or 'low upfront carbon' building materials. When using timber, ensure it is from a certified sustainable source, such as FSC certified timber. Source materials locally, from manufacturers that are committed to sustainability.
- Prioritise low-VOC materials and applied finishes. Products should be NAF (no added formaldehyde) or low formaldehyde where NAF is not practicable.
- Undertake an audit of existing materials on site, including any fabric of existing structures or hard stand areas. Identify opportunities for the re-use of materials onsite including brick, timber and concrete, and ensure the demolition contractor can provide evidence of how materials that leave site will be handled.
- Use high quality, durable materials that are made to last. Refer to the Design Detail chapter for further information regarding the placement and selection of materials.
- Choose materials and colours purposefully, to suit their application and location within the development. Assess why each material is required, and what properties you are looking for when selecting. Look for certification on materials to demonstrate their environmental credentials before specifying for use.
- Use light colours on roofs and facades. Utilise cool roofs that have high solar reflectance and high emittance. Select lighter aggregates and pigments in paved surfaces to reduce urban heat island effect. Darker colours should be used selectively as part of designing for winter to support thermal mass.
- Where practical, use modular or prefabricated construction like cross-laminated timber (CLT) panels, to reduce construction waste, time, and weather-related delays. Ensure site access and module size considerations are addressed to enable efficient assembly.



Does the use of the material nurture the health and wellbeing of the environment?

VOC refers to 'volatile organic compounds'. Low-VOC refers to products such as paints, adhesives, solvents and coatings that have significantly lower levels of harmful chemicals. They are less toxic, emit reduced odours and have a lower impact on air quality and our environment.

Forest Stewardship Council (FSC) is an international organisation dedicated to promoting responsible management of the world's forests. FSC certified timber enables businesses and consumers to choose materials that support responsible forestry.

When using concrete, specify concrete that contains locally sourced recycled aggregates.

Prioritise Australian recycled timber or certified timber.

Use recycled and/or recyclable metals that do not require a finish.

Use locally sourced recycled bricks or Australian made carbon neutral bricks.

Figure 102. Use of engineered timber products such as Cross-Laminated Timber (CLT) and Glue Laminated Timber (GLT) can reduce upfront carbon expenditure. Medium density housing is the most optimised scale for this type of construction.

Prefab CLT Structure / High St Apartments / Gardiner Architects

Use of prefabricated cross-laminated timber (CLT) panels being installed on site.

Figure 103. Solar photovoltaic (PV) panels utilise the design of the roof and are not visually dominant from the street. Water tanks can be used to collect and store rainwater which can be used on the garden or in the building for toilet flushing

Witchcliffe Ecovillage, WA.

▲ **Figure 104.** This largely energy-independent building uses light colours and natural materials such as rammed earth for high thermal mass. Windows from west to east allow winter sunlight to warm the southern interior and provide ventilation in the summer. The design optimises passive solar heating, maximises PV power generation and uses battery storage, minimising energy used for heating and cooling. Water conservation is integral to both the building and the garden.

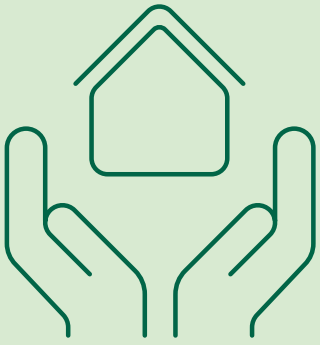
Kalma House / Ian Sercombe Architect

Adaptability

- Accommodate for changing needs of future occupants by providing flexible or modular structural systems, the considered placement of load-bearing walls, and the location of vertical circulation and services. Incorporate generous ceiling heights and simplified, regular wall alignments.
- Where possible, provide more than one accessible entrance to larger developments to accommodate for future occupants, and their changing needs.
- Rather than demolishing and rebuilding, consider the adaptive re-use of an existing building. Assess which parts of the development, such as the structure, could be retained or recycled.

◀ **Figure 105.** Mid-century walk-up apartments are renovated, rather than being demolished and rebuilt. Gas infrastructure has been removed with service made fully electric, with energy-efficient heating and cooling systems. Concrete spaces were transformed into landscaped outdoor areas. The construction of the project was completed in 4 months, providing much needed housing in a much shorter time frame.

Park Street / Breathe / Photographer: Tom Ross



Can the dwelling support a wide range of lifestyles and life stages for now and into the future?


35 Victoria Street

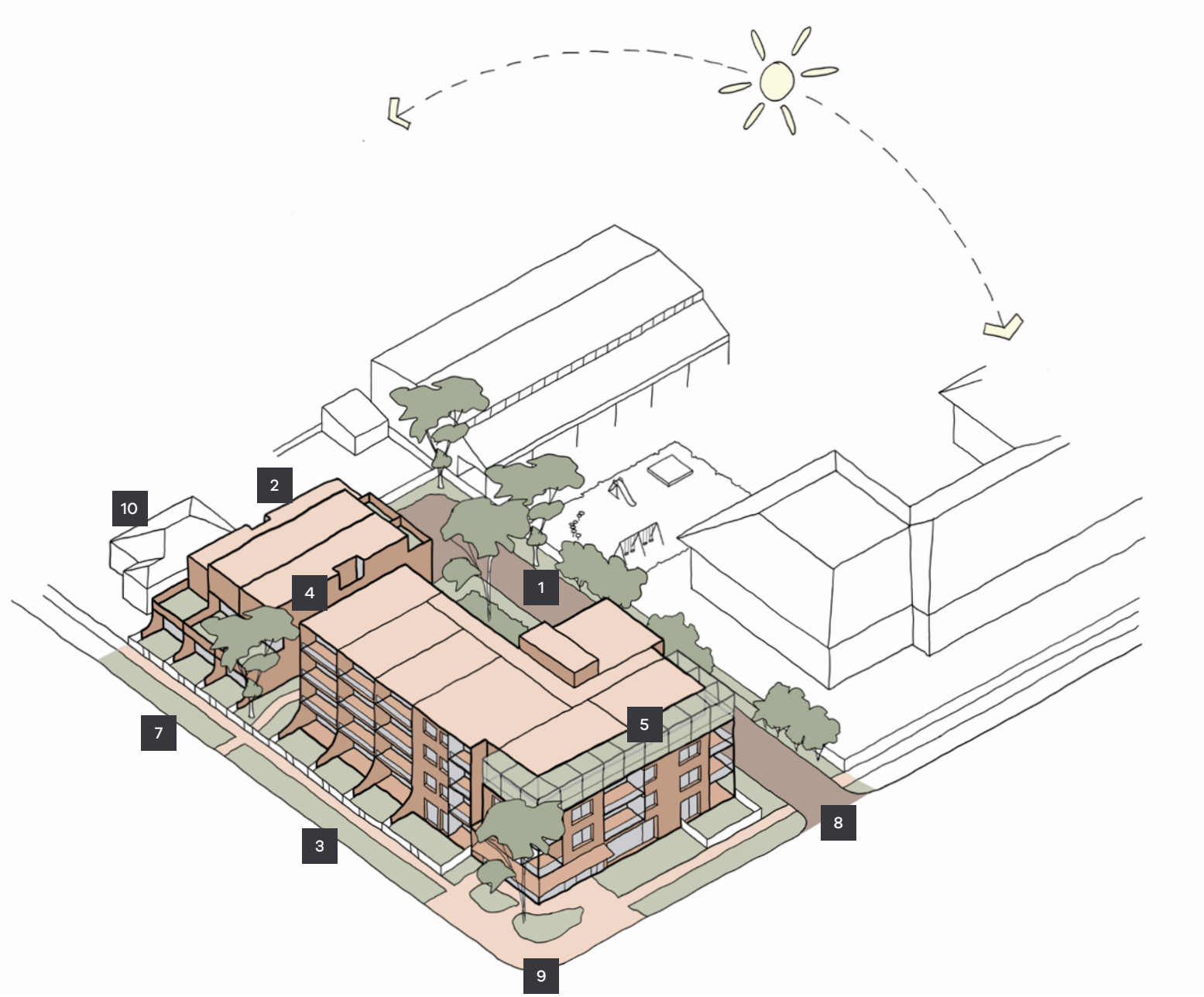
PART 3: PRACTICAL APPLICATION

Site Design

How does all of the design guidance on *Site Design* work together?

This hypothetical project illustrates how a design can meet all of the design guidance in *Site Design* simultaneously.

1. Buildings are set back using the placement of the driveway to the north, helping to maintain privacy for the children's playground.
2. Adjacent to an existing house, the massing steps down to avoid overshadowing, and does not rely on outlook into the neighbouring property, allowing for their future development.
3. Dwellings are orientated toward the street, to promote activation. Overcoming the south-facing street, most south-facing dwellings have dual aspect, including through the use of an open breezeway corridor.
4. The length of the facade is broken up by providing a landscape space between the townhouses and apartments.
5. Where there is an upper level setback, it is used to create meaningful private open space, and takes on a more lightweight character. An upper level pergola prevents a "wedding cake" appearance.
6. A variety of dwelling types is provided, including townhouses and apartments of varying sizes and orientations.
7. A pedestrian link connects the communal open space to all dwellings in a straight line, providing good visibility. The pedestrian access is separate to vehicular access.
8. The vehicular entry is designed as a shared lane, using a different surface to the road. It is surrounded by garden space, allowing it to be more than just a place for cars.
9. Pedestrian and bike access is from the most prominent corner of the site, and is located near the stairs and lift, allowing for safe and easy wayfinding.
10. Where there is the potential for overlooking, the townhouse faces front and back, rather than to the side, minimising the need to rely on overlooking screening.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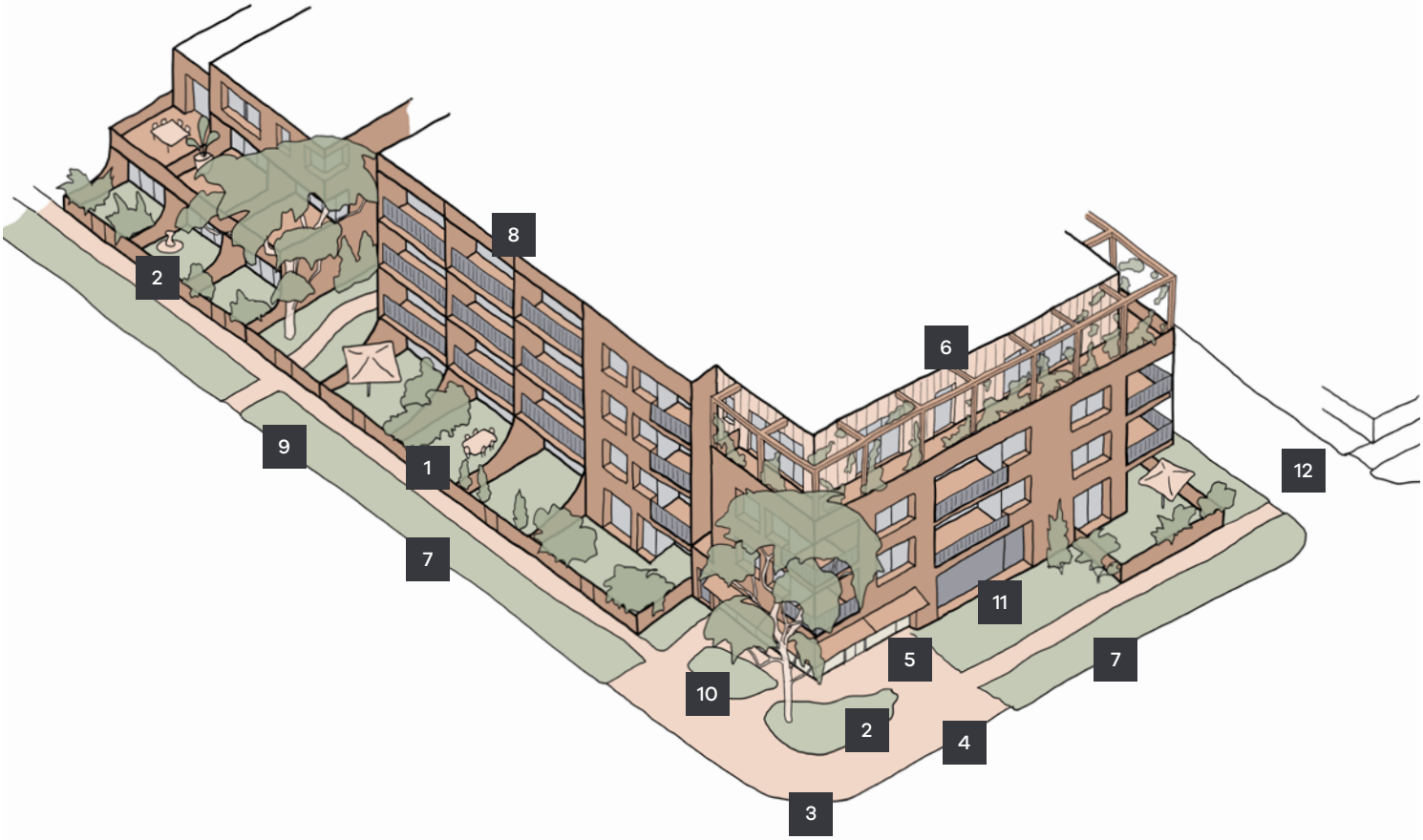
Public Interface

How does all of the design guidance on *Public Interface* work together?

This hypothetical project illustrates how a design can meet all of the design guidance in Public Interface simultaneously.

1. Entrances to lobbies and dwellings are convenient and direct, with many points of access along the frontage to assist in activating the street.
2. Lobby and dwelling entries are sheltered, either by canopies or from the built form above. A generous space allows these areas to be personalised.
3. The lobby addresses the public realm, from a key position on the street corner.
4. Entries are accessible, avoiding the use of stairs at dwelling entries.
5. Building entry is identifiably different, using different glazing, opening width and canopy type to distinguish it from a ground floor dwelling. Wide pathways and open landscaping creates a more public feel.
6. Filtered privacy is provided to dwellings, with a mixture of solid and open balustrades, fences, and use of landscaping to provide screening.
7. Both streets are activated, with dwellings facing the streets that bound the site.
8. Active parts of the development are positioned to face the street. These areas include the lobby, private open spaces and living rooms.
9. Straight fences along the footpath and a simple ground floor building footprint provide clear lines of sight.
10. Where there are indentations on the ground floor plan, such as around the lobby, they do not provide opportunity for concealment.
11. Services, such as the substation and water meters, are integrated into the building design.
12. Parking and waste collection is in the basement, accessed from the northern laneway / driveway. Minimising the presence of these elements on the public interface is what allows some of the other positive outcomes.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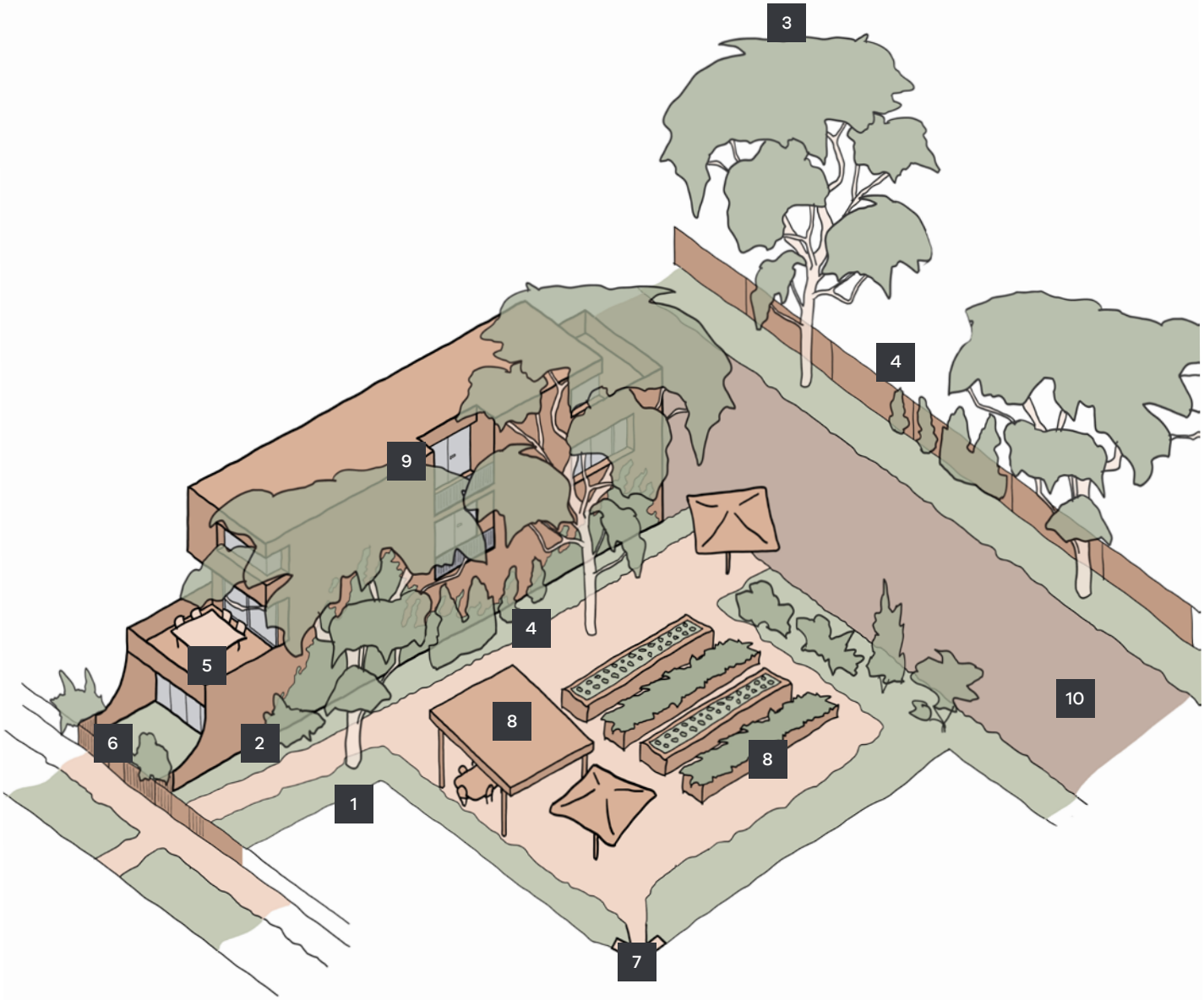
Landscape and Open Space

How does all of the design guidance on *Landscape and Open Space* work together?

This hypothetical project illustrates how a design can meet all of the design guidance in landscape and open space simultaneously.

1. Deep soil opportunities are used to plant large trees with canopy cover.
2. Visually attractive landscape spaces are visible from public and private open spaces, enhancing their amenity.
3. Native species are re-introduced to the site, improving biodiversity and extending the habitat of local native animals.
4. Landscaping is used to soften harsh interfaces.
5. Private open space allows for the functional layout of furniture, suitable for everyday use and entertaining.
6. Private open spaces have views out, but are screened enough from public view that they can be comfortably used without additional occupant-driven privacy measures. This allows the private open space to remain connected to the surrounding landscape.
7. Communal open space is located close to the apartment building's stairs and lifts, making it convenient for everyone to access.
8. A variety of landscape spaces and uses, such as a vegetable garden and BBQ area, encourage interaction between residents.
9. Upper levels have breakout spaces that are positioned with a view outward, creating passive surveillance to landscaped areas and shared zones.
10. Permeable surfaces are used to help retain groundwater that in turn keeps vegetation healthy. Surfaces other than asphalt or concrete are more likely to be seen as "shared" zones that are safer for pedestrians.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