Auckland Design Manual

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Apartment Design Guidance

Tāmaki Makaurau Design Ope 18/11/2024 Version 1.0

1 Introduction

Apartment buildings are multi-storey buildings with individual residential units on all or most floors. In certain locations, such as town and metro centres, apartment buildings may have commercial uses on the ground and lower floors.

One of the primary characteristics that define apartment buildings is the horizontal separation of residential units across different floors. This distinguishes apartment buildings from terraced houses, where individual residential units are separated by vertical party walls.

Apartments can share outdoor space, car parking, waste and storage areas. Car parking associated with the building is often located in a basement, or under croft, and / or behind other uses ("sleeved") on the ground floor, or on levels above the ground floor.

Apartments are enabled in specific zones in the Unitary Plan and are ideally located in or near centres and public transport. Apartment buildings have several benefits including:

- Increased residential densities.
- Reduced urban sprawl.
- Reduced distances between residential and commercial uses and enables accommodation close to services, amenity and public transport.
- Increased activity and vibrancy of streets.

This document provides guidance on how to design apartment buildings well. Design Statements are a helpful tool to assist with designing apartment buildings and communicating the rationale behind the design. The ADM has guidance on how to prepare a Design Statement in the Design and consenting processes section: Design statement guidance

2 Site design

The first step in developing an apartment building is site design. Existing site conditions such as ecology and topography can significantly impact on how the site is developed. It is important that the layout of the elements that comprise the development are considered at the same time as these elements themselves.

2.1 Site ecology and habitats

Design outcome: The design maintains and enhances the important natural features of the site and surroundings.

1. Part of the unique appeal of urban Auckland are the highly valued views of the natural environment, and the wide variety of native and exotic species. Urban development will bring change, but this change should not lead to a permanent loss of ecosystems or habitats.

2. Prepare a thorough analysis of the natural environment before any design work is undertaken. This will identify key aspects of the natural environment that should be protected and enhanced. Avoid building on or close to important habitat areas.

3. Protect mature trees or other vegetation, particularly natives, and use them as features of the development. This is an effective way of integrating a new development into an existing environment and providing amenity to residents.

4. Improve the ecology and habitat of the site as an integrated part of the development by:

    a) Riparian and other planting, including street trees.

    b) Treating land that has been contaminated.

    c) Reducing stormwater quantity and improving stormwater quality through wetlands and natural ponds.

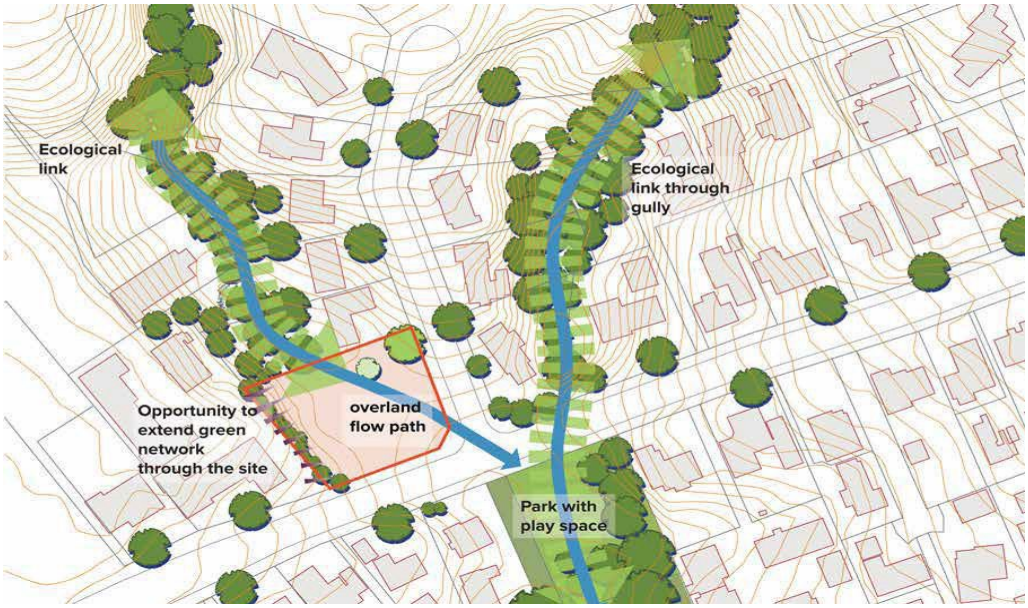
    d) Changing exotic plant cover to native plant cover (preferably eco-sourced).

    e) Pest and weed management.

    f) Retaining and enhancing existing gullies and riparian corridors.

5. Designing housing to front and overlook non-sensitive natural environments including parks, vegetated areas, ponds and wetlands can increase amenity for residents and ensure the spaces are safe and well looked after.

Native planting provided in landscaped areas and open spaces.



A sound understanding of the natural features and ecological systems around the site is important for ensuring climate-resilient development.

Wetland networks that detain and treat stormwater are valuable ecological assets that can minimise flooding and provide attractive amenity values for residents.

Setback distances from riparian edges protect biodiversity corridors and houses from possible flooding and establish a recreational green connection.

2.2 Designing for topography

Design outcome: The site design responds to and works with the existing topography to minimise earthworks. Ensure retaining elements are integrated.

It is important that any apartment building responds to the existing topography and maximises views, solar access and shelter from the wind. It is important to decide how the apartment form aligns with the slope (i.e. along contours or across them), as this can determine the visual impact of the scheme.

1. Any changes to sloping land should appear as natural as possible. This could include:

    a) Using stepped and angled retaining wherever possible to reduce the visual impact and create areas for landscaping.

    b) Including space for planting and vegetation to soften the view of large-scale engineering structures.

    c) Designing stormwater ponds like natural bodies of water, not artificial 'boxes' with straight sides.

2. Balance cuts into the land with fill, instead of only using cuts or fill alone. Use parts of the slope for the open spaces associated with the development, incorporating it as terracing, and create flat outdoor spaces around the buildings.

3. Use the slope for under croft or basement car parking wherever possible. Carefully locate the building entry and car parking access, while creating a street presence.

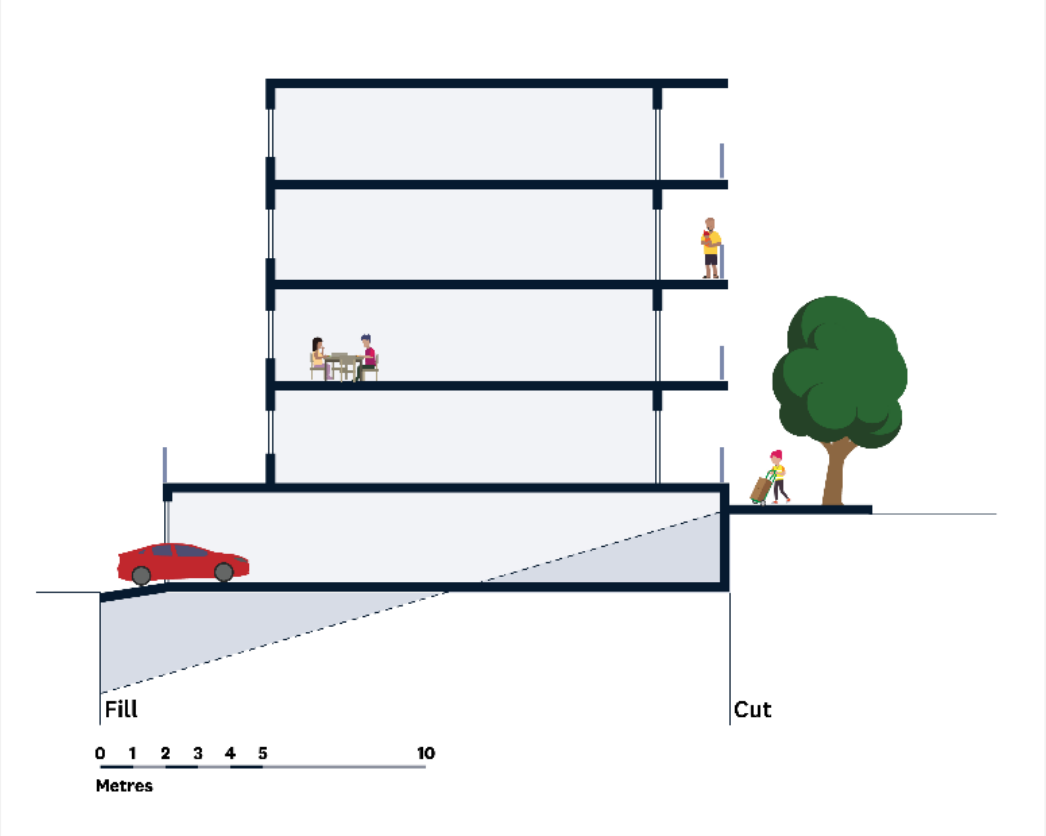
4. Incorporate retaining as part of the overall building or as part of the landscape proposal. This can enhance the value of the project. Design the building for 'up-slope' and 'down-slope' conditions relative to the street by:

    a) Balancing car parking and access with the creation of a strong building façade along the street.

    b) Minimising the setback for up-slope conditions to achieve a close relationship between the building and street edge. The setback of the building from the footpath determines the extent of earthworks.

    c) Aiming for level access to the front door wherever possible. However, where ground floor apartment units are close to the road, setting ground floor units slightly higher can assist with privacy.

    d) Minimise the use of large retaining walls. If they are over a metre, they should be stepped and landscaped.



The slope is used to enable under croft parking with limited cut and fill.

The slope of the land is accommodated within the development by a series of staggered platforms within the courtyard area.

2.3 Integrating site and building

Design outcome: The building and layout of the development responds to the context of the street and wider neighbourhood now and in the future.

It is important to understand the context of a site and the surroundings including the streetscape, form and appearance of buildings, movement and open space networks, and location of facilities.

1. The layout and location of buildings should maximise solar aspect, views, access to and overlooking of trees and the natural environment, and protection from the wind. Design the development to capitalise on important views from the site, and views or connections from the wider neighbourhood onto the site.

2. The building and layout of the development should show an understanding of the street context including the scale and appearance of buildings, and existing building lines. To enhance the amenity of the street the development should have a distinctive form that addresses the street with good levels of passive surveillance. It should avoid blank facades and long monotonous street frontages.

3. The amenity of adjoining developments should be maintained. In some instances, this can be achieved by using buffers such as vegetation or fencing between different sites.

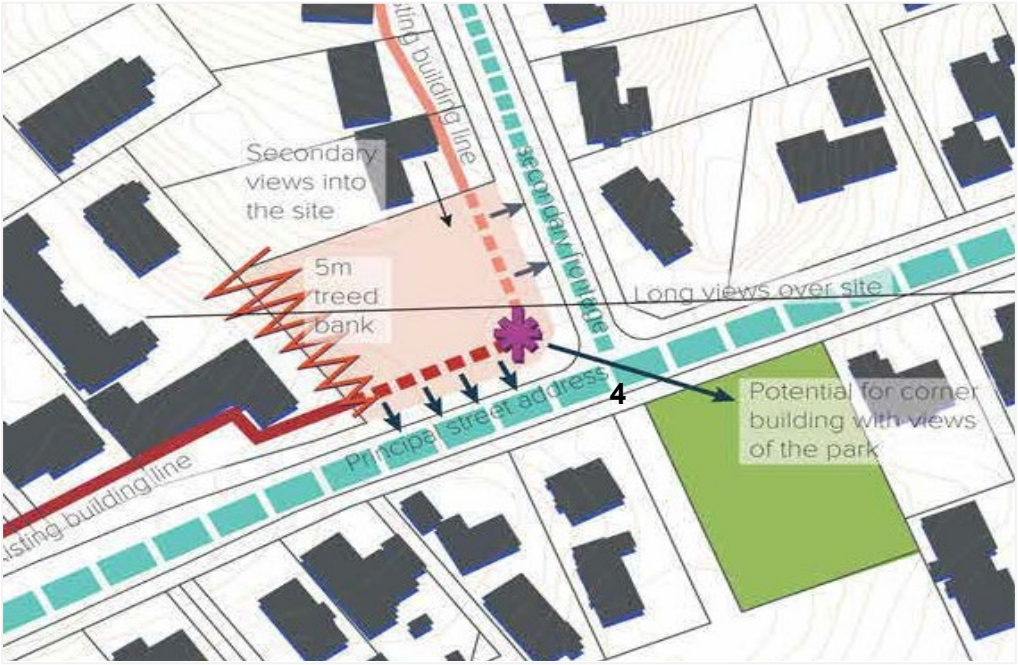
4. An analysis of the wider neighbourhood within a 5–10-minute walk can show local facilities, movement and open space networks and how the development can support these. It can inform the best location for new access points and road crossings, making the site and neighbourhood easier to move around.

5. Laneways created as part of the development need to have clear visibility from the main street, and separated vehicle and pedestrian spaces. These should connect safely to existing paths and movement networks.

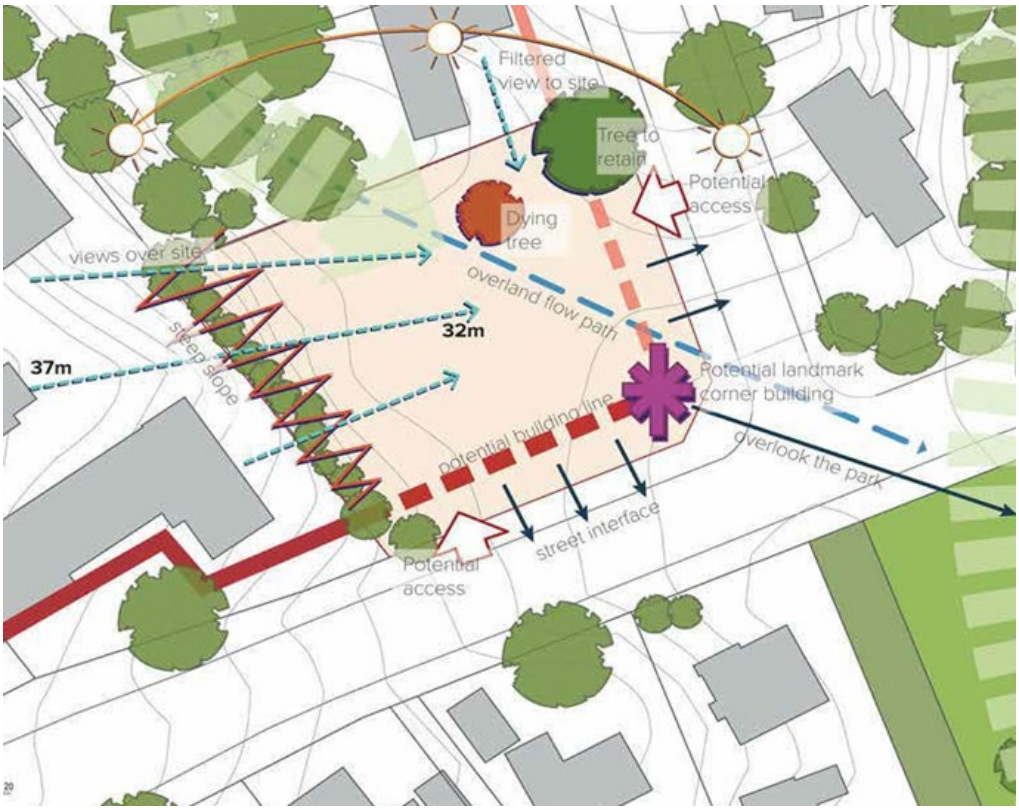
6. The design should explore opportunities to incorporate Māori cultural values into the function and design of the building and landscaping. Engage mana whenua at the beginning of the project for guidance on how to appropriately respond to Whakapapa (ancestral lineage) and Taiao (natural world).

7. In larger developments the types of open space that will benefit residents the most, such as children's play facilities and communal open spaces, should be provided for.

8. A mix of tenures and housing types, including one and two bedrooms as well as larger family housing should be provided within the development to meet the housing needs of the community now and in the future.



An analysis of the streetscape can help to understand existing form, appearance and character and how the development could respond.



An understanding of the solar aspect, prevailing winds, views to open spaces and green areas can inform how and where to locate buildings on the site to maximise amenity for residents.

An analysis of the surrounding neighbourhood within a 5–10-minute walk can help to identify activities, movement and open space networks that the development can respond to.

The building demonstrates an understanding of the immediate street context.

Space is provided in front of the apartment building to provide for planting and communal outdoor spaces.

3 Placing the building

Placement of the building(s) should be considered early in the design process to ensure fronts and backs, building separation and outlook, respecting the neighbours, and designing for privacy and passive surveillance are worked through carefully.

3.1 Public fronts and private backs

Design outcome: Apartment buildings present a clearly defined 'front' to the public street to provide passive surveillance and contain communal spaces at the back for privacy.

1. Enhance perceived safety and minimise the potential for crime by orienting apartments to overlook streets and open spaces.

2. Align buildings with street edges or open space and maximise back-to-back distances with other buildings. This also allows for 'perimeter blocks' which reinforce the street edge and maximise the available open space within the centre of the block where they are protected from the public and provide privacy for residents.

3. Apartment buildings should provide amenity and passive surveillance to the street, access lanes and driveways or communal parking courts. Key qualities of 'fronts' include:

    a) A clearly visible front door to ground-level apartments and / or a clearly visible communal building entry with a sheltered porch or threshold.

    b) Functional and attractive planting.

    c) A kitchen or other well-used habitable room windows adjacent to the front entrance.

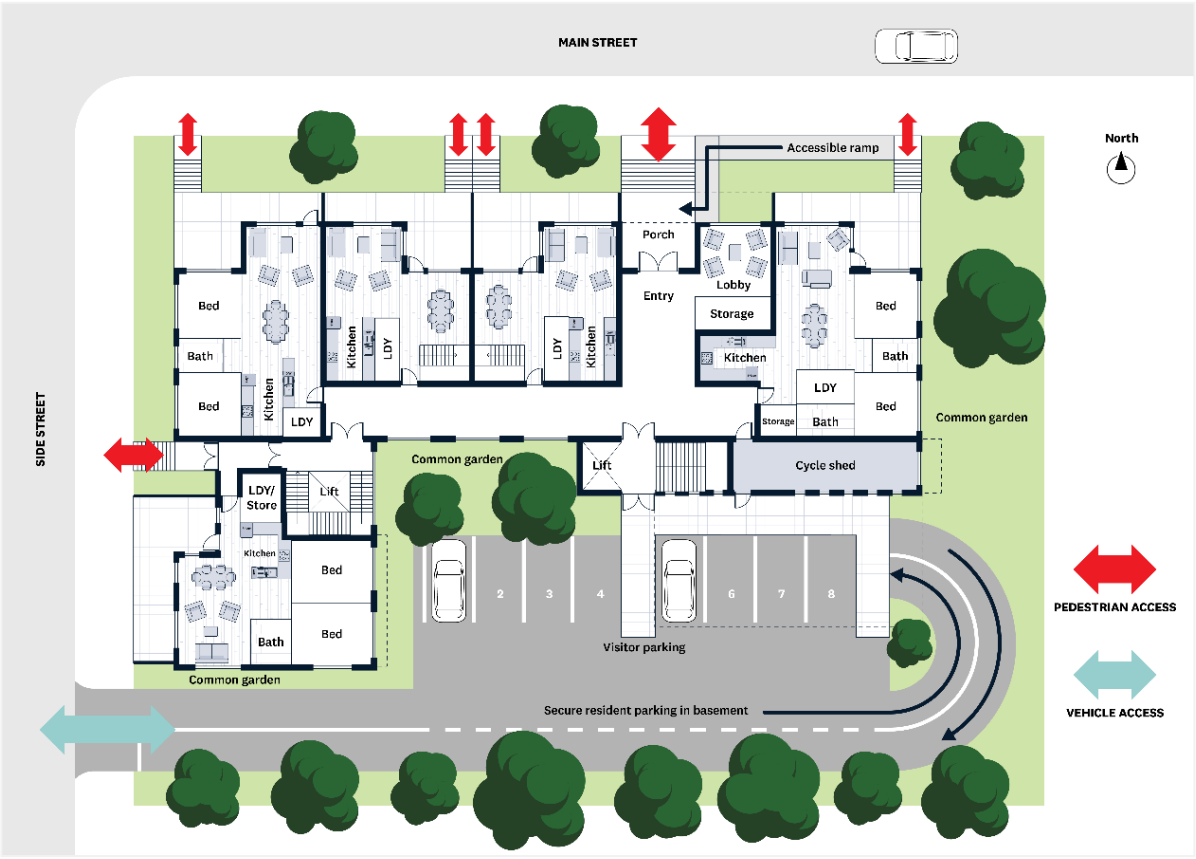
    d) Windows should be waist height so that residents can look out onto the street, while maintaining privacy.

4. Larger windows and balconies should be provided at the first-floor level to address the street and provide additional passive surveillance, particularly where there is less ground floor activation and surveillance.

5. Buildings on corners that face streets and access lanes should address both edges.

6. Design external walls visible to public streets and open spaces with as much attention as the front façade.

Large balconies on the upper floors compensate for a lack of passive surveillance on the ground floor.



The building arrangement addresses both streets with front doors and pedestrian paths from the street.

3.2 Building separation and outlook

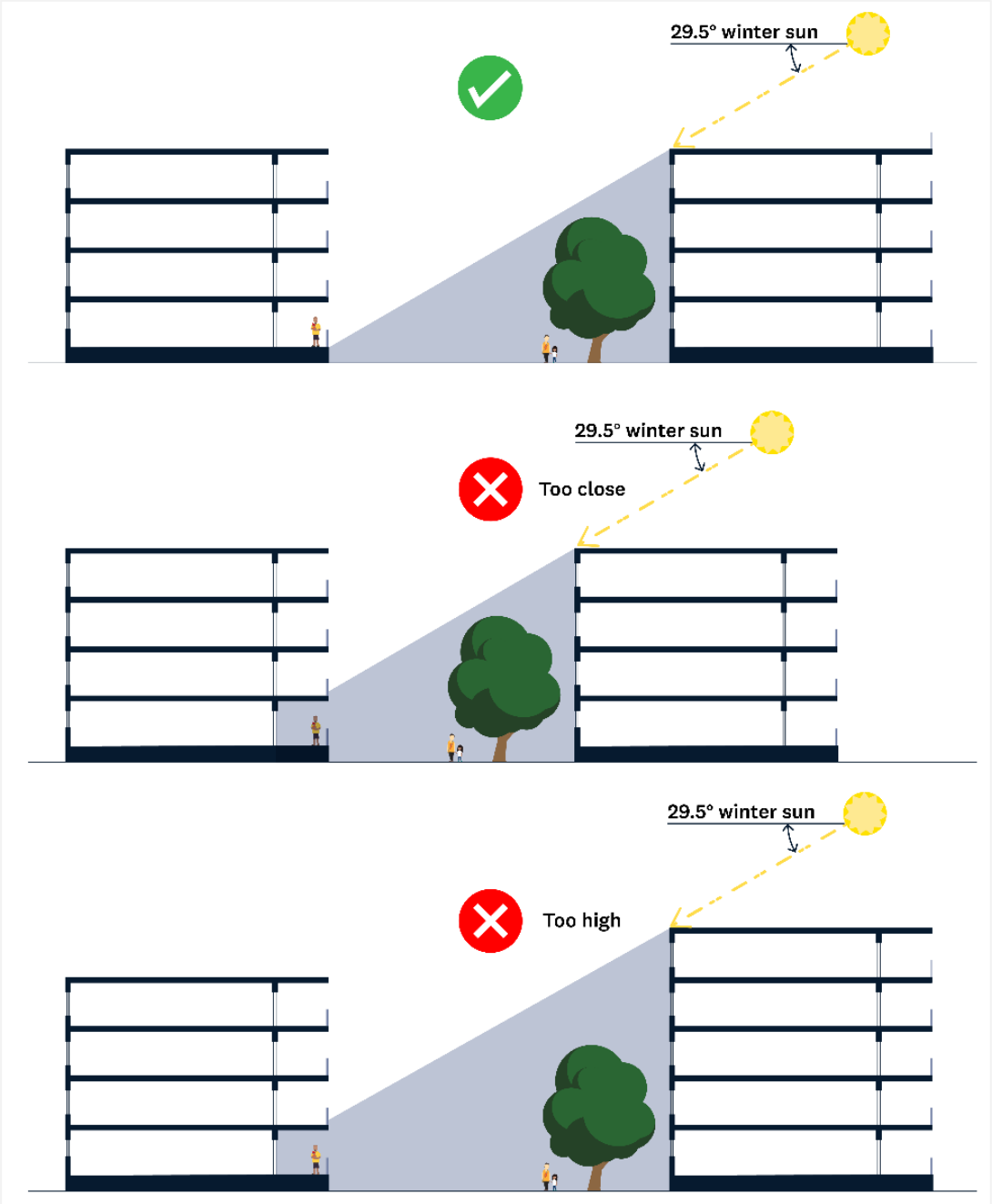
Design outcome: Dwellings have adequate separation distances between them that provide for a sense of space and openness and ensure privacy.

The distance between buildings is a key factor in the success of any development and contributes to:

- Visual and acoustic privacy.
- The perception of 'building dominance' from other development.
- The admittance of sunlight and daylight.
- Extent and quality of outlook.
- Microclimatic performance, especially shelter from wind.
- The provision of communal open space behind buildings.
- Space for trees and planting.

The home is a private setting and should be a place of retreat while also providing the opportunity to look out onto surrounding open space. The immediate proximity of individual apartments within a development requires greater focus on achieving visual and acoustic privacy, and access to light and outlook in the design.

1. Ensure the building separation allows for the admittance of sunlight and daylight as well as providing a good standard of outlook and privacy. A wider separation distance is always better than a smaller one and designs should allow for sunlight access into the outdoor spaces particularly for ground floor units during the winter solstice.

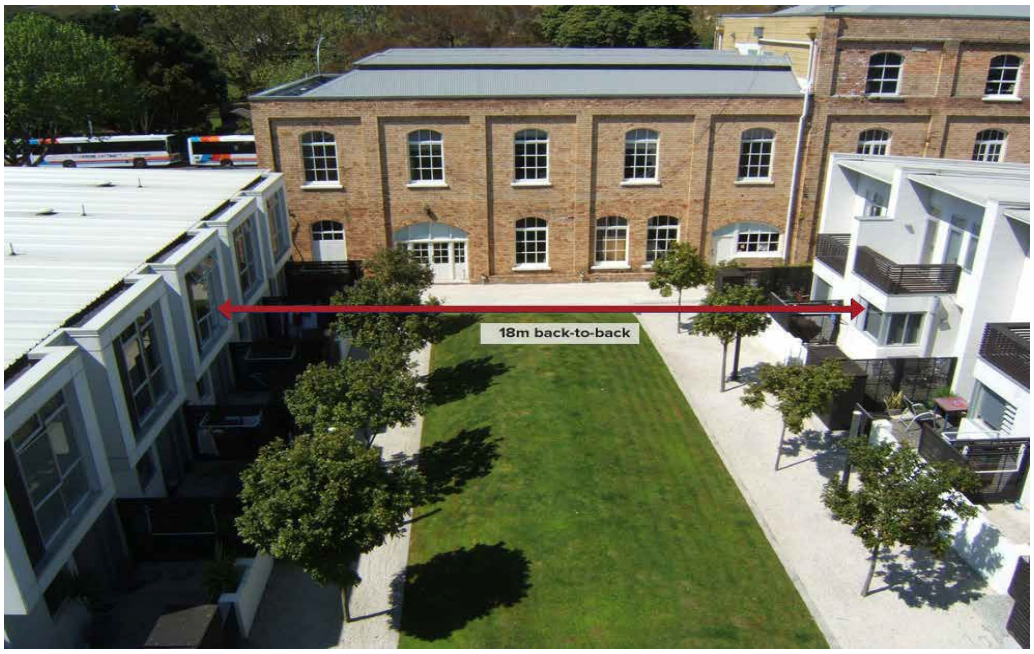


Ensure adequate building separation relative to height to allow sunlight access into ground floor apartments.

2. Where the separation distance is less than 15m, additional design measures such as offsetting, screening and other devices should be used to ensure sunlight access and a good standard of outlook and privacy.

3. Taller buildings will require greater separation to achieve private amenity outcomes where windows directly face the windows of another development across the boundary. Consider sunlight and outlook for adjacent sites and open spaces. This will require a shading analysis of neighbouring sites and an understanding of where their outdoor spaces are located.

4. Design the apartment buildings to anticipate where neighbouring sites are likely to redevelop or where areas are changing. The correct response will depend on the site, but building along any street edge and maximising the separation distance to adjoining sites is always a good outcome.



An 18m separation distance allows for sunlight access into the homes and the communal open space, as well as ensuring privacy between habitable windows and balconies.

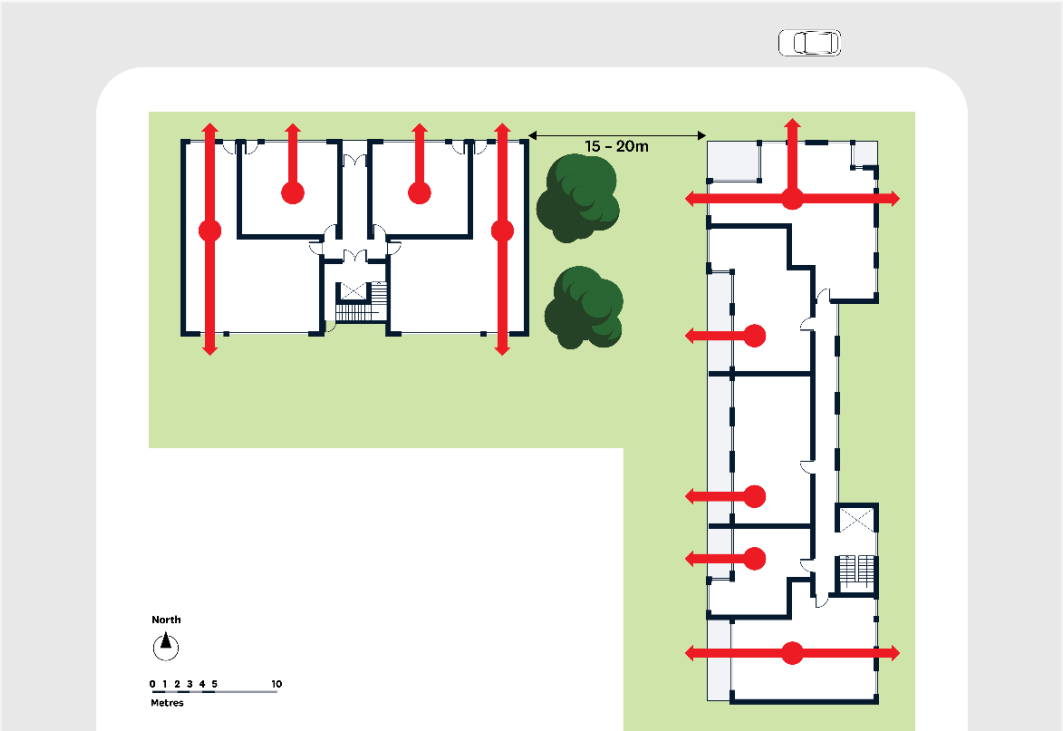
The separation from the adjacent buildings means good sunlight access to the lower apartment and the private communal spaces.

3.3 Designing for privacy

Design outcome: The building design and arrangement provides a good level of privacy for residents and neighbours.

Privacy is an important consideration in the design and arrangement of apartment buildings. It is important that individual desires for privacy are balanced with potentially conflicting communal desires for safety and security through natural surveillance.

1. Design building layouts to minimise direct overlooking of neighbouring developments, on the same or adjacent sites, and their private or communal outdoor spaces. This can be achieved by staggering buildings and increasing separation distances.



Orientate buildings so that habitable rooms do not face each other directly. Separation between blocks can help create a good level of amenity and privacy for each unit.

2. Orientate proposed living spaces, balconies and outdoor spaces towards the street or to the back yard. Avoid orientating them directly over the side or rear boundaries wherever possible and offset windows to reduce privacy impacts.

The living space, kitchen and balcony are located next to the street while the more private bedrooms and bathrooms are at the rear.

3. Ground level private outdoor spaces should be screened with fences and planting to ensure the privacy of residents and neighbours. Tall planting can be used to assist with creating privacy screens. Introducing a change in level between ground floor private space and the public domain increases privacy.

4. Consider potential development on adjacent sites and ensure that the proposed development guards against any impacts on privacy. By checking the development rights and potential building envelopes of adjacent sites, principal living spaces and primary views can be located where they will not be blocked or built out.

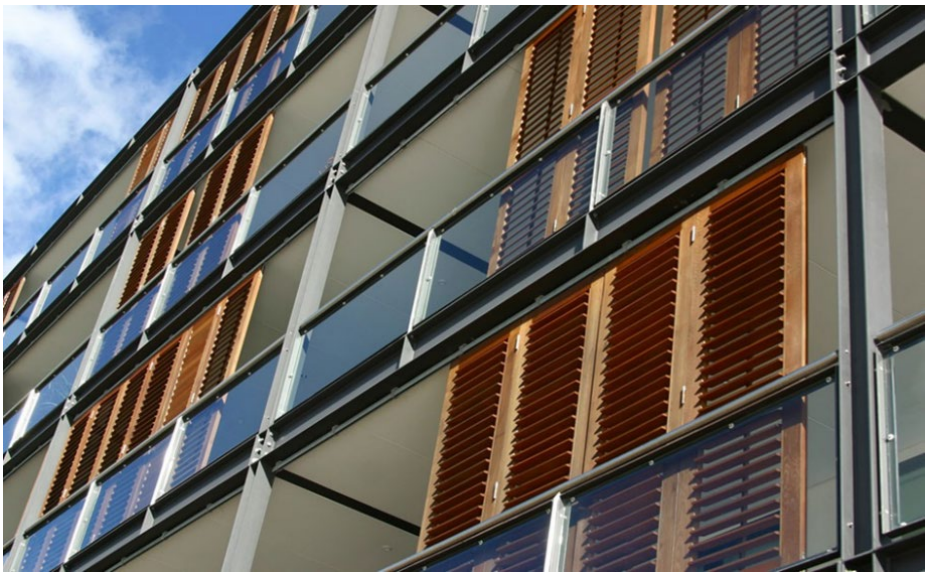
5. Balconies should be integrated within the building form to ensure privacy from

dwellings adjoining either side, while extending outdoor living spaces. Wing walls on balconies can provide privacy for and from adjoining dwellings. Design options to improve the privacy of balconies could include:

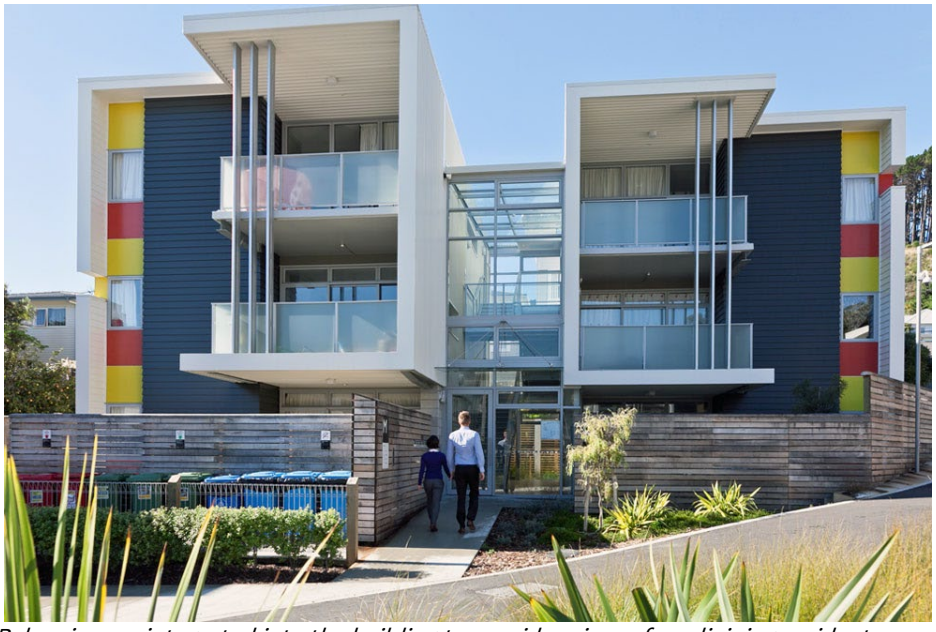
a) Offset windows or balconies on elevations that face each other.

b) Recessed balconies and / or vertical fins, screens, louvres on balustrades as well as pergolas and planter boxes between adjacent balconies.

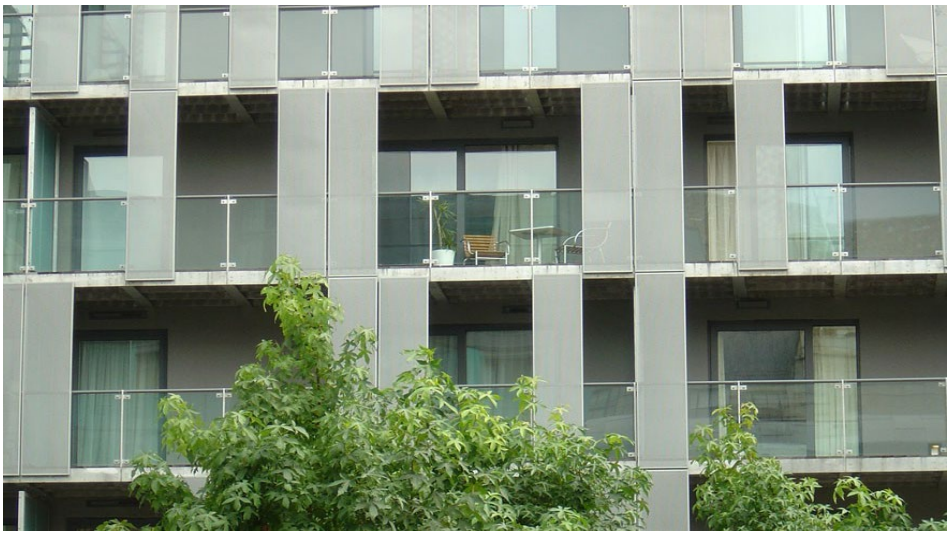
c) Solid or semi-solid balustrades on balconies.



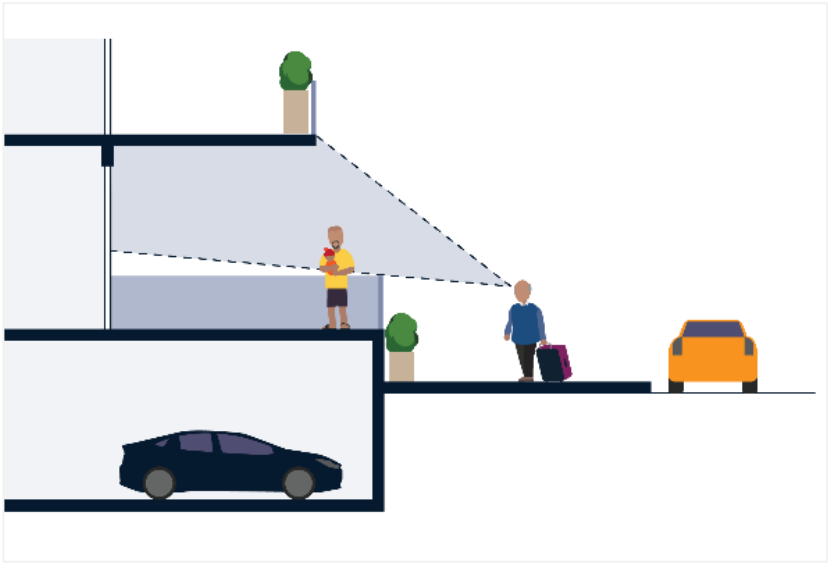
Wooden louvres are set behind the edge of the balcony, allowing them to be folded back and hidden when not needed.



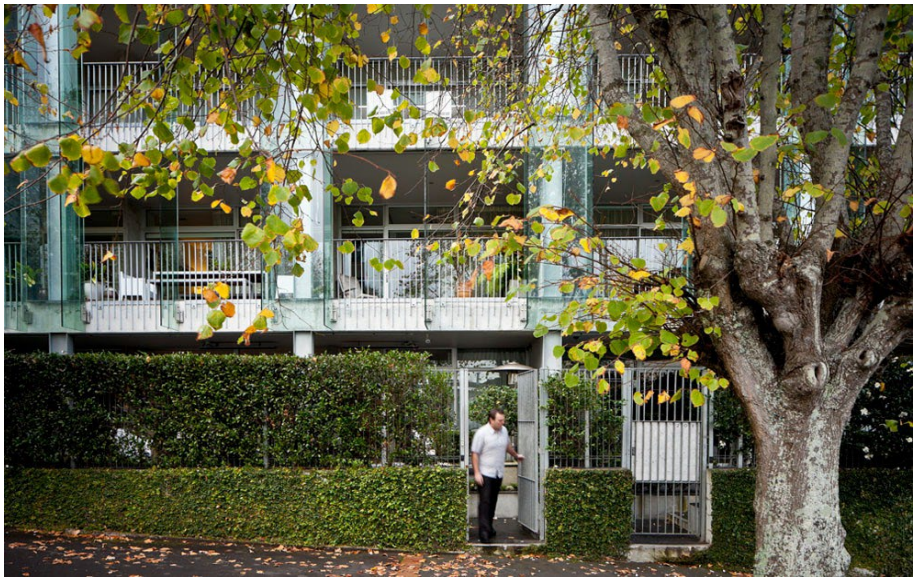
Balconies are integrated into the building to provide privacy for adjoining residents.



Thin mesh screens are used as part of the overall building design and provide privacy to each balcony.



A change in level at the front helps to provide privacy for ground floor units.



Planting provides privacy for ground floor dwellings.

3.4 Designing for light and sun

Design outcome: Apartments are orientated to make the best use of sunlight to principal living areas and open spaces, and to provide for shading from summer sun.

'Passive solar design' means orientating and designing dwellings to receive heat from the sun during winter months and shade and natural ventilation during warmer months. With a careful approach a passive solar design can be achieved while ensuring other design outcomes such as addressing the street.

1. Sunlight should be prioritised to the principal living area and the accessible outdoor garden or balcony, so that everybody in the house can maximise the enjoyment of this space.

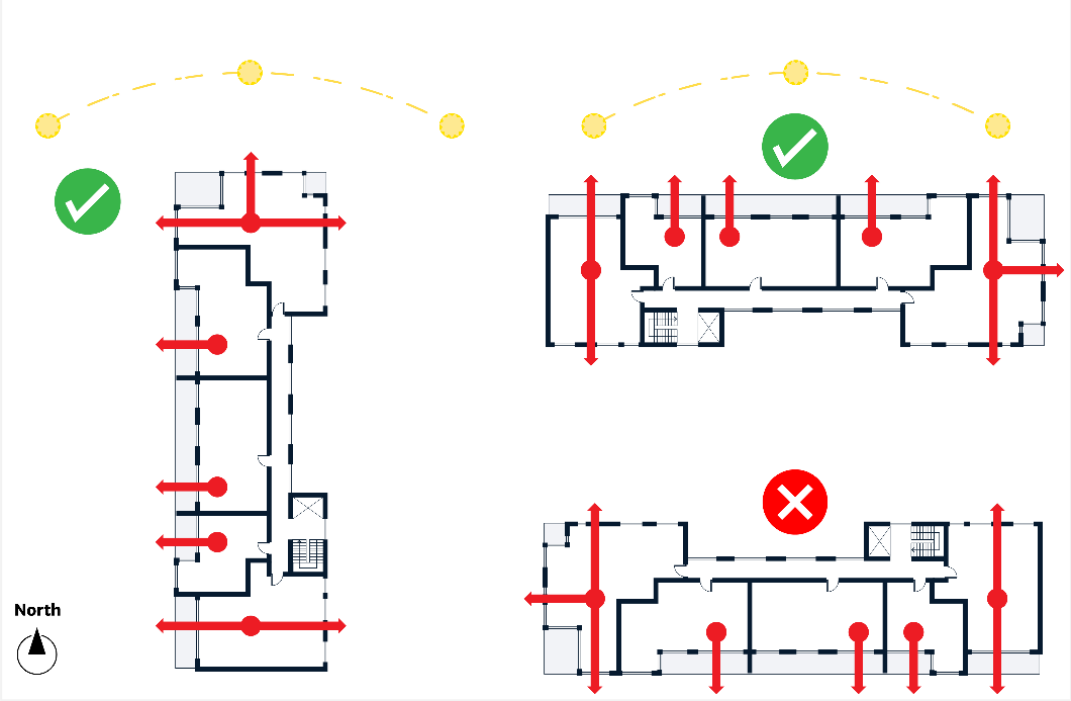
2. Plan the site to optimise solar access by:

    a) Providing adequate building separation within the development and from adjacent buildings to allow sunlight into ground floor apartments and outdoor living spaces.

    b) Orientating single aspect apartments to face east, west or north.

    c) Limiting the number of single aspect apartments facing south.

    d) Using dual aspect apartments when the long elevation of the building faces east and west.



Orientate single aspect apartments to face east, west or north.

3. All private open spaces should receive at least five hours of sunlight across at least half of the courtyard, balcony or roof terrace, as measured on the equinox (22 March /

September).

4. Design and orientate all principal living spaces to be directly accessible from private outdoor spaces, and to maximise sunlight admission as measured at the equinox (22 March / September).

5. Single aspect apartments with a southerly aspect (southwest to southeast) should account for a maximum of 10 per cent of the total units proposed. Developments that do not meet this minimum should be able to demonstrate how site constraints and orientation prohibit these outcomes from being achieved.

6. Daylight should be provided into all habitable rooms through windows, skylights and clerestory windows, as well as mezzanine arrangements to bring in light.

7. Design for summer shading and glare control by:

    a) Using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting.

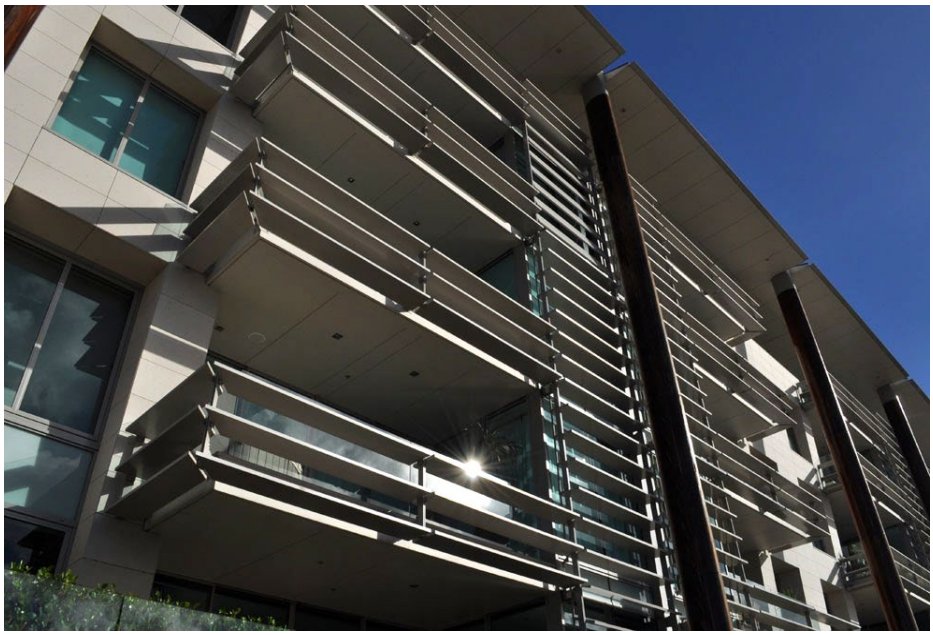
    b) Providing external horizontal shading to north-facing windows.

    c) Providing vertical shading to west windows.

    d) Buildings should be designed to enable residents to adjust natural lighting to suit their needs.

The building is located and orientated to make the best use of sunlight.

The building is designed to allow residents to adjust natural lighting to suit their needs.



The roof overhangs and louvres help as shading devices for the apartments.

3.5 Site Access

Design outcome: All access points to the site are located and designed to integrate effectively with the street and movement network beyond the site.

Selecting the best location for pedestrian, car and cycle access into the site is an important site planning decision.

1. Site access should allow for direct pedestrian and cycle access into the site from the street.

2. Vehicular access from the street to a basement or other car park should be supported by attractive and well-designed pedestrian and cycle access for those entering the site on foot or bicycle.

3. Minimise the number and width of vehicle entry and exit points. Large sites may require separate site access points for servicing vehicles and residents.

4. Design site access to be direct, legible, clear and safe for residents and visitors alike, and ensure pedestrian safety is maintained by minimising conflicts between pedestrian and vehicle accessways.

5. Maintain adequate separation distances between street junctions and vehicle entry points.

Pedestrian access is provided directly from the street.

Vehicular access from the street to this basement car park is supported by attractive and well-designed pedestrian access.

4 Street to front door

A successful city has streets that people feel connected with. The way a street looks and feels is determined by everything from the front of its building's forwards. First impressions count, and the perceived quality of an apartment development is strongly influenced by the design of the transition between a public street and private building.

A well-designed frontage can enhance the safety of users, reduce management costs and create long-term success. Where there are apartments that have commercial uses at the ground floor, the clarity of a residential entrance is important.

This section provides advice on the elements of the apartment building that contribute to creating a successful street including:

- The interface to the street.
- Boundary treatments.
- Safety, activity and overlooking.
- Shared driveways and accessways.

4.1 Interface with the street

Design outcome: The design of the apartment frontage responds to the context of the wider street, and the building entrance is safe, welcoming and clearly visible from the street.

1. Undertake an analysis of the streetscape to understand the characteristics of the street, the built environment and building lines, the landscaping and boundary treatments.

2. Design the apartment development so that the massing of the building reinforces the street edge. The building frontage should face the street and should be well composed with careful attention to the arrangement of components such as entrances, windows and canopies, to support an attractive pedestrian experience. Main entrances should provide shelter from wind and rain.

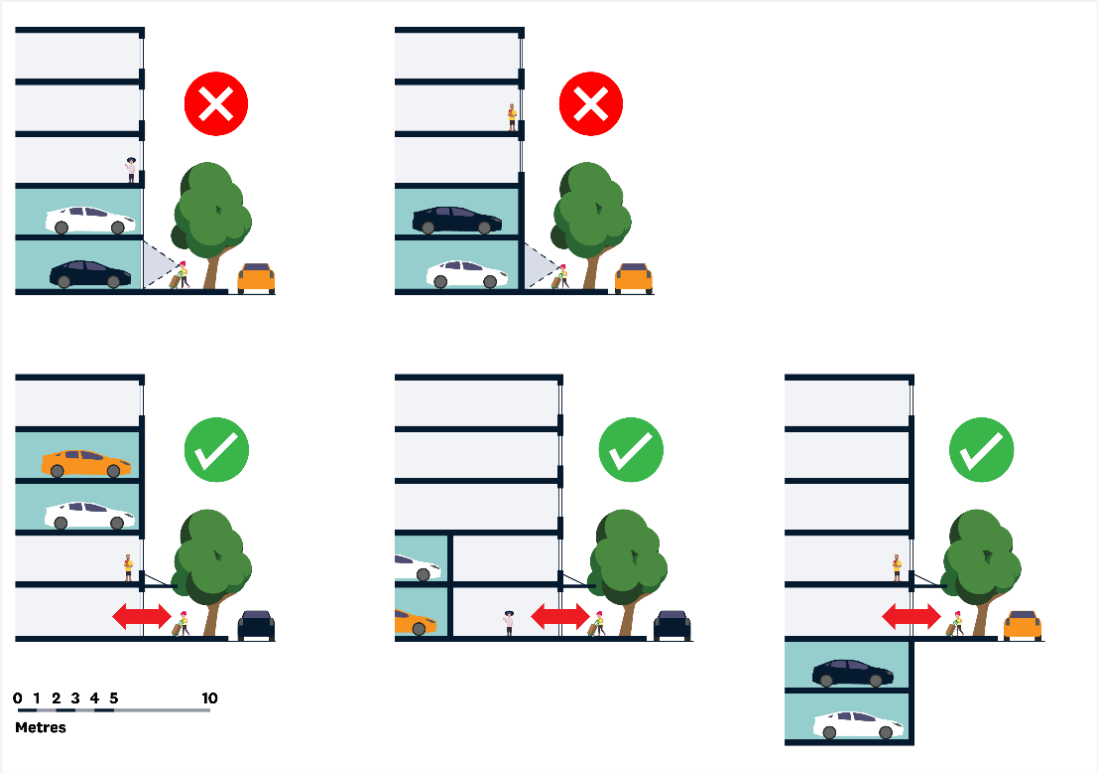
3. The building entrance should be well lit and have level (or gently sloping) access from the street (1:12 / 1:20), to enable access for all.

4. Car parking at the street front creates a poor-quality edge and reduces passive surveillance for pedestrians. Options for avoiding this include:

    a) Raising the parking above street level.

    b) Sleeving parking behind an active frontage including apartments.

    c) Providing basement parking.



Parking at street level creates a poor pedestrian experience. It should be underground or sleeved behind active uses.

5. Any drop-off facility or car parking between the street and the building should be designed to a high standard so as not to detract from the building frontage. Such elements should be kept to a minimum and designed as an integral part of the development.

6. Use locally appropriate landscaping and fencing to help a new development fit into the existing area and reinforce a sense of place.

7. Low fencing and landscaping between the street and front door and window allow visual interaction between the dwelling and the street.

8. Level changes offer privacy from the street for the rooms on the ground floor.

9. Locate all services (waste, recycling etc.) away from the building frontage or entrances. Provide designated areas that are visually contained but easily accessible for residents.

10. On sites that have commercial ground floors a 'zero' setback maintains a strong street edge and provides a direct relationship between the commercial ground floor uses, which are often shops, and the street.

11. Where buildings are built up to the street edge, generally in commercial (shopping) streets, and where no podium is provided, upper-level setbacks should be used to maintain a human scale along the street. This prevents taller buildings appearing oppressive or dominant.

The building entrance is clearly visible from the street.

A canopy is provided to emphasise the entrance and provide shelter. Entrance is level with the street.

The retail premises on the ground floor means that this apartment building has a zero setback from the street.

4.2 Boundary Treatments

Design outcome: Boundary treatments balance views and passive surveillance of the street with creating separation and a degree of privacy.

Boundary treatments are those elements that define the site and differentiate between public, communal and private spaces. Front boundary elements generally separate privately owned land from the public realm. The design of front boundary treatments needs to provide a balance of passive surveillance and privacy. Carefully design fences or walls to provide privacy and security while maintaining views and light.

The front wall and landscape marks the boundary between the public and private realms.

1. Consider the choice of material including the ratio of solid to transparent materials and design. Visually permeable soft landscaping or planted elements soften the street edge whilst providing privacy, dappled light and intermittent views of the street. Avoid continuous and monotonous lengths of blank walls at street level.

2. Low front fences allow a positive interface with the street. Front fences should be up to 1.2m-1.4m in height to allow natural surveillance of the street. Limiting the height of front and side fences to 1.2m within the first 5m of the street allows drivers to see pedestrians on the footpath.

3. Where private open space is in front of the dwelling next to the street, privacy and street surveillance can be balanced by:

    a) Using a fence, wall, hedge or planting that is sufficiently visually permeable to give passing pedestrians a sense of the private garden or terrace without a clear view in.

    b) Minimising direct sightlines by using a change in level from the street to the private garden or terrace, or to the ground floor when the frontage is to the street edge.

c) Carefully designing the height of boundary and retaining walls to control views into a property while allowing views out.

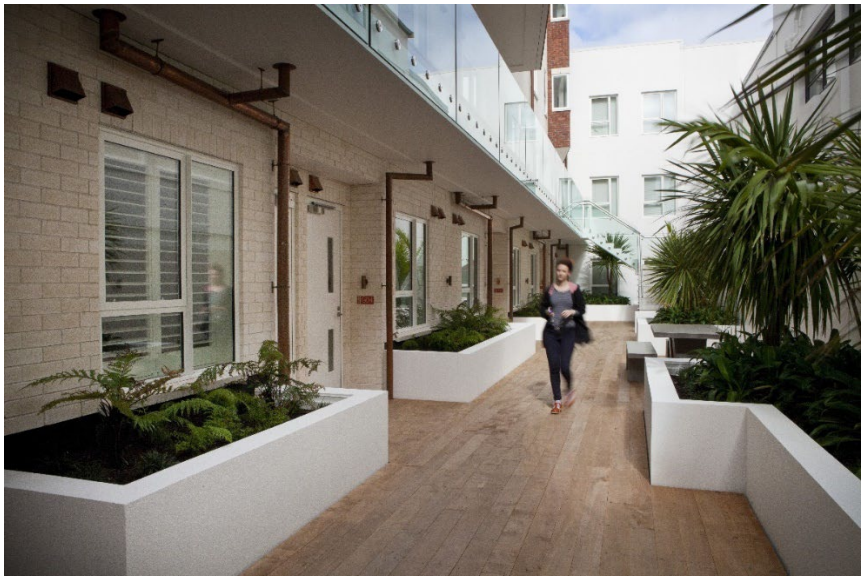
d) Providing a screening device (which may be adjustable) around an outdoor area rather than at the boundary.

e) Design fences and walls to add value to the amenity of private or communal open spaces e.g. by incorporating seats into their edge.

4. Use planting to reduce the scale of any street-facing raised terraces, e.g. those over sub- basement car parking, and to soften their edge. Select durable materials that are easily cleaned and graffiti resistant.

Low walls allow good views from the apartment to the street while providing separation and privacy.

Planting softens the street edge.



Boundary treatments provide a clear delineation between semi-public and private spaces while providing for passive surveillance.

The vertical bars reduce the height of the wall and provide permeability.

4.3 Safety, activity and overlooking

Design outcome: Safe and secure public environments with natural surveillance of the street, parking, pedestrian areas, communal spaces and public open spaces.

1. Design the building to maximise natural surveillance of public and communal areas by orientating buildings to address these spaces and locating windows and balconies to provide views over them. The more windows overlooking public and communal spaces the better. Place the main entrances on the public street front, not the rear.

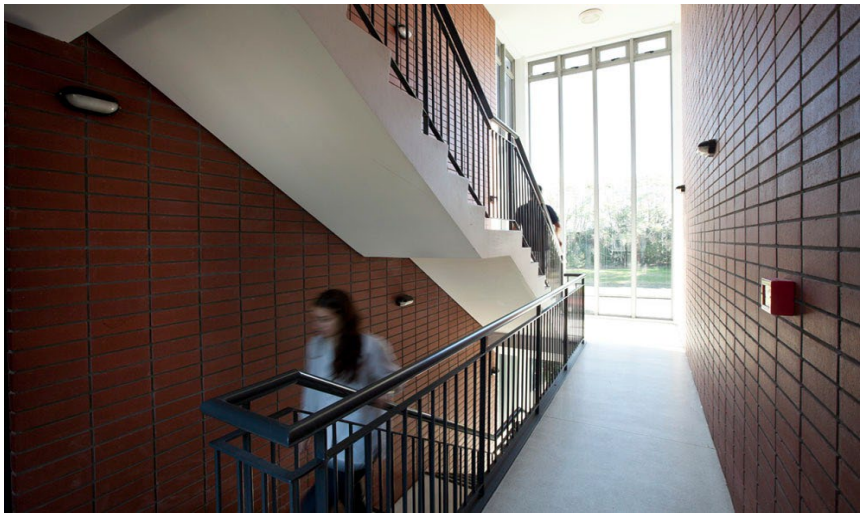
2. Place active areas within the dwelling including kitchens and dining rooms facing public or communal areas to provide regular passive surveillance and overlooking of these spaces.

3. Avoid placing full-height windows on the ground floor facing public and communal areas as this will create a conflict with privacy and lead to closed curtains. Waist and shoulder height windows with blinds provide a balanced solution to passive surveillance and privacy.

4. Avoid blind or dark alcoves near entrances, lifts and stairwells, and within car parks, corridors and walkways. Create clear sightlines into the development and provide well-lit routes throughout the development and communal areas.

5. On corner sites provide windows, balconies and front doors on both facades to ensure passive surveillance to both streets and public/communal environments.

The communal open space is well overlooked by windows and balconies.



The double height glazing in this common stair allows casual surveillance to and from the exterior.

Balconies provide casual surveillance over the building entrance.

5 Outdoor space

For residential dwellings the design of outdoor spaces, both private and communal, is as important as the design of the building. Outdoor areas help to meet people's fundamental expectations to be able to enjoy the outside environment, and the arrangement and quality of the spaces will have a significant impact on residents and neighbours.

Well-designed outdoor spaces are highly valued by residents and should be provided for all dwellings. Outdoor space mitigates the effects of living in smaller dwellings and improves the overall liveability of a development. Outdoor spaces provide areas for children and young people to play and help to foster a sense of community amongst residents.

5.1 Communal outdoor spaces

Design outcome: Communal outdoor space is provided for additional places for residents to meet, play, relax and to create community cohesion.

1. The location and design of the communal outdoor space should take advantage of the sun, be protected from prevailing wind and provide shade in summer.

2. Design the communal open space to maximise sunlight at the spring and Autumn Equinox (22 March and 22 September).

3. Communal outdoor space should be universally accessible and well overlooked by surrounding apartments within the development.

4. Size communal outdoor spaces relative to the number of residents and appropriate to its location. This should be informed by the availability and type of public open space nearby. Buildings next to a park may require less communal space than those further away.

5. Use both soft landscaping (trees, shrubs, grass, planted beds etc.) and hard landscaping (paving, furniture, fixtures etc.) to define areas.

6. Design for both day and nighttime use. Good lighting helps to ensure that communal spaces are attractive and aids surveillance after sundown.

7. Provide formal and informal play spaces that are suitable for the intended apartment mix and future resident demographics, particularly children of different ages.

8. Design communal spaces so there is a clear distinction between any areas designated for servicing (rubbish collection, outdoor washing-drying spaces) and communal amenity spaces. Locate ventilation duct outlets to avoid noise and loss of amenity within the communal space.

9. Use a water sensitive design approach and locate outdoor areas to suit the natural overland flow path.

10. Use productive gardens and trees to aid amenity.

The private communal space has been designed to be well overlooked by adjacent apartments.

This private courtyard uses hard and soft landscaping to create an attractive space for all residents.

This rooftop outdoor space capitalises on the small site and great views to provide usable space for residents above ground.

5.2 Private outdoor space

Design outcome: Private outdoor spaces are well designed, maximising spaciousness and are fit for purpose for the size of the apartment.

1. The location and design of the private outdoor space should take advantage of the sun and be protected from prevailing wind. All private outdoor spaces should receive at least five hours of sunlight on the equinox (22 March or 22 September) on at least half the garden, courtyard or balcony. If primary open spaces are to the south, a secondary open space facing as close to north as possible should be provided.

2. For ground level apartments, private outdoor space should be provided as a garden, paved terrace (patio) or courtyard area.

3. For apartments located above the ground floor, the private outdoor space should be provided as a balcony.

4. Above-ground balconies should be oriented to maximise views over public and communal spaces, and natural areas, and away from neighbouring windows and private outdoor spaces.

5. The connection between the principal living area and the private garden, courtyard or balcony should be directly accessible with a level threshold.

6. Private outdoor spaces should allow for a range of different uses including outdoor dining in reasonable privacy, as well as clothes drying, bin storage and other service functions. Balconies or patios should provide an area which can be screened to allow for clothes drying.

7. A balcony, deck or terrace should be large enough so that the equivalent of two people per bedroom can circulate, sit, eat or barbeque safely and comfortably.

8. Balconies and terraces should be integrated into the overall architectural form and detail of the building. Utilise screens, pergolas, shutters and opening walls to control sunlight, wind and to manage privacy.

9. Consider the most appropriate balcony type (recessed, cantilevered or partially cantilevered) according to available daylight, wind, acoustic privacy and visual privacy.

10. In some cases, it will be a better to enclose the balcony on tall buildings, along busy roads or accessways or other areas where noise and privacy is an issue, and in areas with adverse environmental conditions such as wind.

11. Enclosed balconies should always be in addition to the living area and should still allow for the same uses as an open balcony. These should open for the majority of the wall area above balustrade height and should be made out of an all-weather surface and include a drain.

12. Ensure balconies are not so deep that they prevent sunlight entering the apartment below. Aim for recessed balconies where possible as they provide better privacy, better weather protection and better architectural articulation and façade depth than cantilevered balconies.

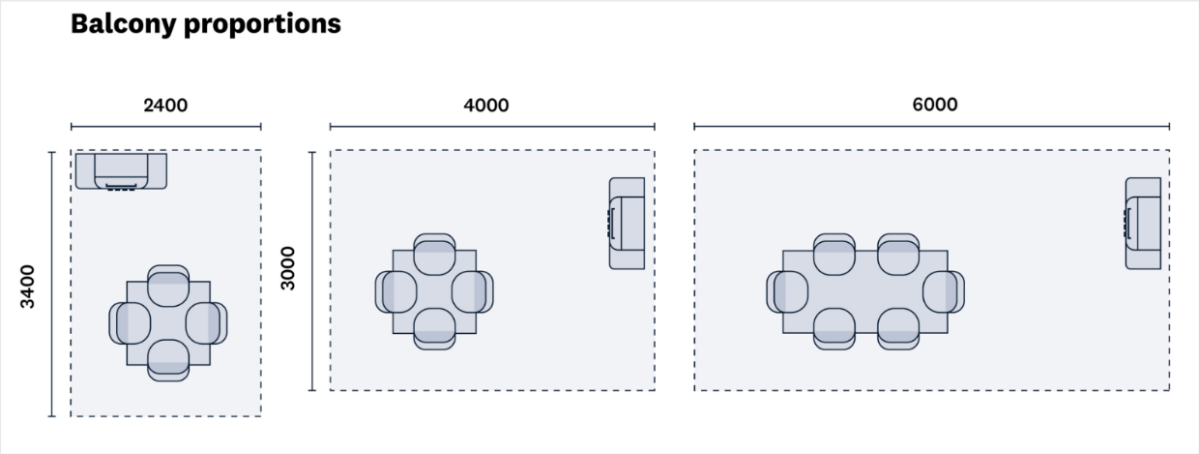
13. In larger apartments, use secondary balconies for clothes drying and accommodating any services. Ensure that heat pumps, air conditioning units and other mechanical services do not cause safety issues for climbing and are screened for visual amenity.

14. Design balustrades to allow views and natural surveillance of the street, while ensuring safety and visual privacy.

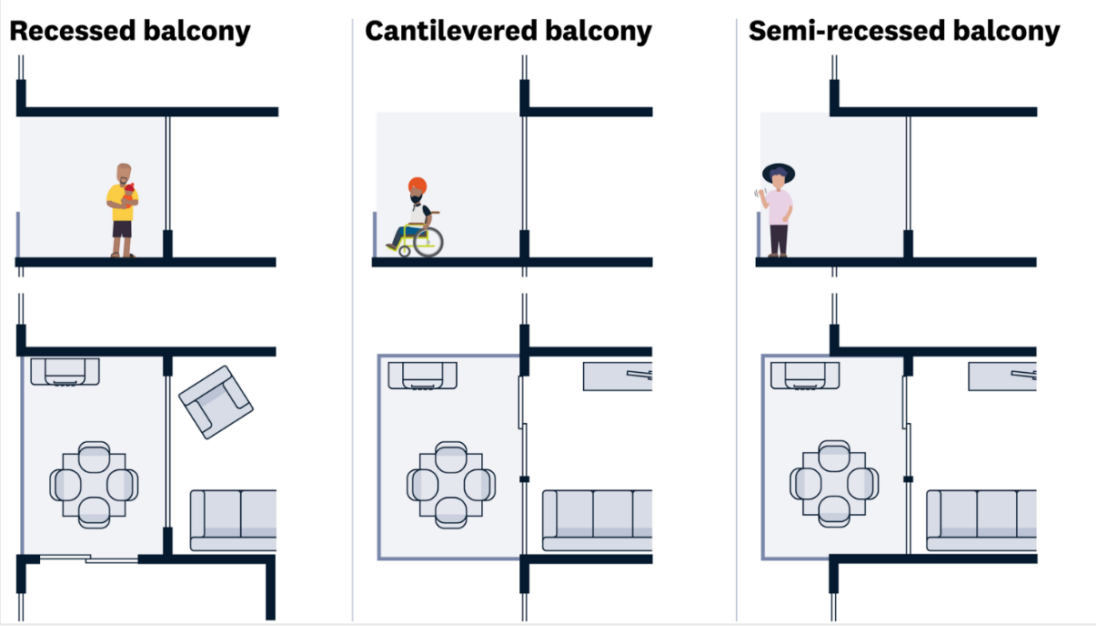
Balconies and terraces are well designed and, have adequate levels of privacy.

Balconies and terraces are integrated into the overall architectural form and detail of the building.

A large sliding door allows level access from the living room to the balcony while being weathertight.



Balconies should be proportioned to the number of people and for their intended purpose.



Balconies can be cantilevered, semi-recessed or recessed into the building line. Recessing the space can offer a greater degree of privacy.

This recessed balcony offers good shading and weather protection while still being outside.

The sliding external screens can be moved by the residents as they need privacy.

The living spaces are recessed but the balconies allow uninterrupted views of the street below.

This balcony can be fully enclosed via sliding doors to further assist with noise reduction from the street.

5.3 Service areas

Design outcome: Service areas are integrated into the design of the development, are located for ease of use, and are not visible from the street, communal areas or building entrances.

Service areas are external to the building and used for storage and collection of waste and recycling from individual apartments.

1. Auckland Council's Solid Waste Calculator can be used to determine space requirements for storing waste.

2. Locate storage areas for rubbish bins away from the front of the development where they can adversely impact on the streetscape, the visual presentation of the building entry and on the amenity of residents.

3. Locate bin storage areas in places that are safe and convenient for residents.

4. Consider integrating rubbish areas into a communal refuse area for efficient collection. Communal rubbish areas should always be screened and integrated with the design of the building and the landscaped area.

5. Rubbish collection is an important part of how to design for rubbish bins. Having rubbish collection that is twice as frequent will require half as much storage for bins.

The planting and low-level brick walls help to disguise the bin store from the street.

Although the bin store is at the front of the apartments it has been designed to be screened by the hedges once they mature.

5.4 Landscaped areas

Design Outcome: The landscape design adds greening, biodiversity and amenity, works with the topography and reinforces the local distinctiveness of the area.

1. The landscaped areas can improve the appearance of the development, liveability of the unit and, provide shade and reduce temperatures in summer, bring biodiversity to the area, and help to manage stormwater.

2. New landscape should include trees, shrubs and ground covers, ideally native that are common to the area to reinforce local character. Hard landscape elements that are characteristic of the area should be used in the local concept.

3. Retain existing mature trees and incorporate them into the overall development. Locate private and communal spaces and entranceways to take advantage of existing trees. Trees reduce sun and heat in summer, provide an essential rainwater soakage function, and contribute to landscape amenity both on site and for the wider neighbourhood.

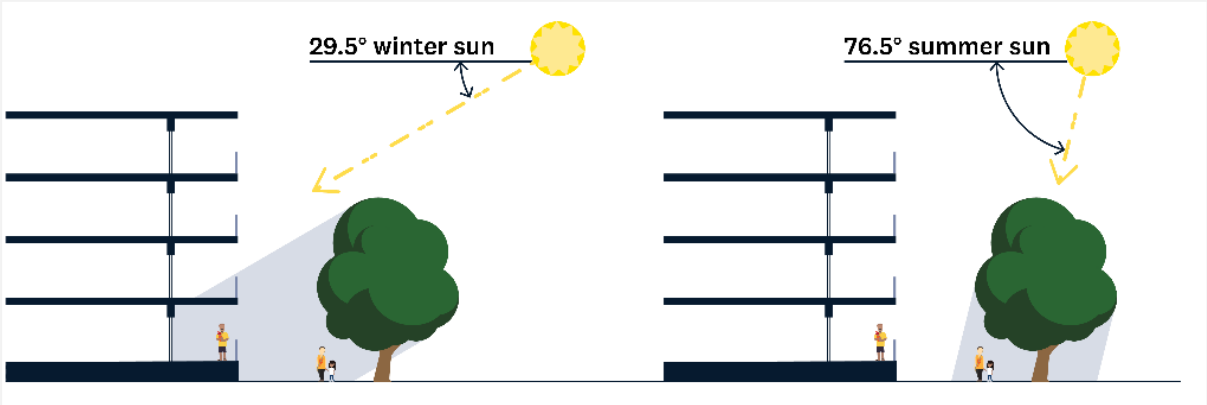
4. Identify ecological areas, streams and planted areas in the adjoining and surrounding areas that development can connect to and enhance through the landscape design.

5. Use specialist landscape inputs to design the landscape areas. This will ensure that it is given the same attention to detail as the buildings.

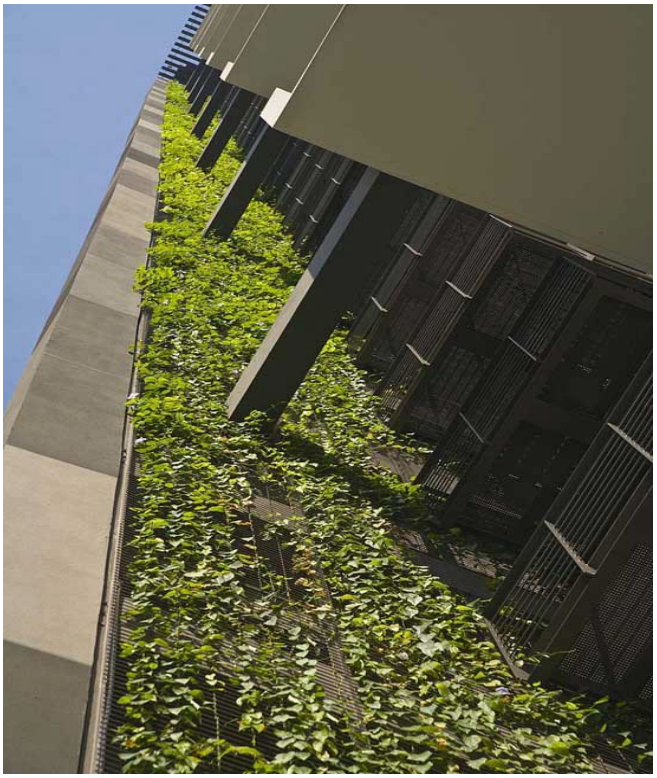
6. Prepare and implement a landscape maintenance plan to ensure landscape areas remain attractive and contribute to biodiversity and stormwater management over time.

Specialist landscape design input has meant that this small communal area is well designed with a mixture of natural planting and hard paving.

Hard and soft landscape elements contribute to the identity and character of the development.



Deciduous planting can ensure direct solar access to outdoor spaces between March and September and provide appropriate shading in summer.



Vertical planting helps to 'green' the building façade.

6 Designing the building

This section covers the scale, massing and design and appearance of the building.

6.1 Scale and massing

Design outcome: The scale and massing of the development responds well to its context and reduces the impacts on privacy and shading.

1. The scale and massing of an apartment development will have an impact on how it is perceived from adjoining neighbours, the street and the surrounding environment.

2. Building massing refers to the overall form and composition of the building. The way a building is arranged on its site is particularly important for larger buildings. The following should be considered in relation to building massing:

    a) Permitted maximum height.

    b) Street character and position within the town/city context – is the location part of an established neighbourhood and does there need to be a consistent height.

    c) Height punctuation and accent at corners, junctions, or to terminate views.

    d) How to support local street views and strategic views.

    e) Avoiding overshadowing and optimising sunlight access into adjacent public space and neighbouring properties.

    f) Local micro-climatic factors, particularly wind.

3. The massing of apartment building developments should maximize access to daylight and sunlight – for internal spaces, outdoor spaces and for the adjacent street(s).

4. Subdividing the overall mass of an apartment building into smaller forms that results in a hierarchy of elements to avoid, or break up, overly large forms.

5. Avoiding significant and visually jarring contrasts in scale between the proposed apartment building and adjacent buildings / sites. Consider setbacks, steps in façades or variations in roof form to create a softer transition.

6. Introducing setbacks at upper levels to achieve a human scale form at street level and encourage sunlight into the street.

7. When the form is predominantly vertical, organise the building's mass to express the base, middle and top.

8. Horizontal and vertical elements can be emphasised through different bands of colour or materials and through recessed elements and staggered building lines.

9. Providing the greatest internal floor-to-ceiling height at the ground level and offering an appearance of greater solidarity and connection to the ground.

10. The mass of an apartment building can be further broken down by:

11. Recessing and projecting elements such as balconies to avoid flat façades.

    a) Expressing the entry points.

    b) Expressing the individual units to achieve identity.

    c) Creating a relationship between the front façade and street edge to achieve a consistent streetscape.

    d) Varying roof form to create visual interest.

The expression of different internal functions assists in breaking down a larger built form.

Stepping and changes in colour and texture create interest on a larger apartment building.

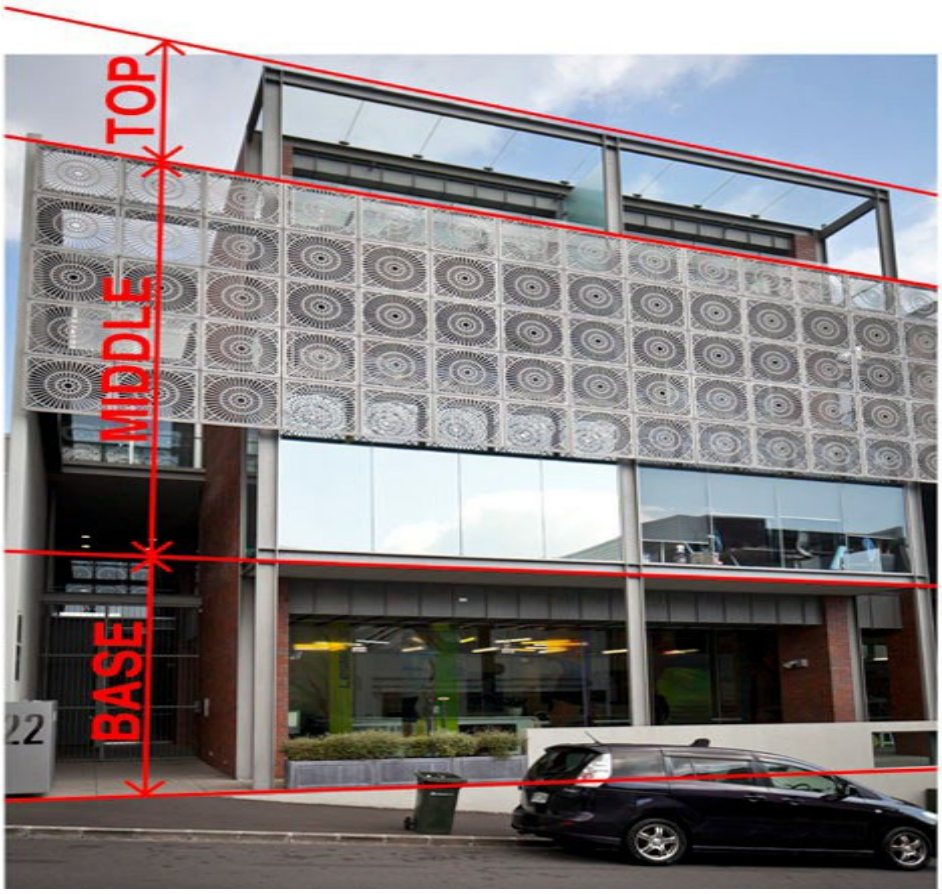
Stepping building volumes assists this building in related well to its lower-height neighbours.

The stair cores and living areas project out from the main floor plates to break up the mass of the building.

Vertical elements are well utilised to create interest on an otherwise long apartment building.

The building on the left is a contemporary response that sits well in terms of height and massing with its neighbour on the right.

Vertical elements help to visually balance the overall size of a wide building.



On taller or larger buildings different materials or elements can be utilised to visually break up building height or mass.

This building has been designed with a large block broken up into smaller secondary, and predominantly vertical elements to reduce the overall scale.

6.1.1 Building access arrangements

Design outcome: The design of the building access is safe and legible and contributes to the overall amenity of the development.

The type of access provided to apartment buildings and units will have a large influence on the design and configuration of the building.

Individual access arrangements are where apartments have their own front door which leads directly from the street or courtyard. This is generally for ground floor apartments and can enhance street activity through a greater frequency of entrances.

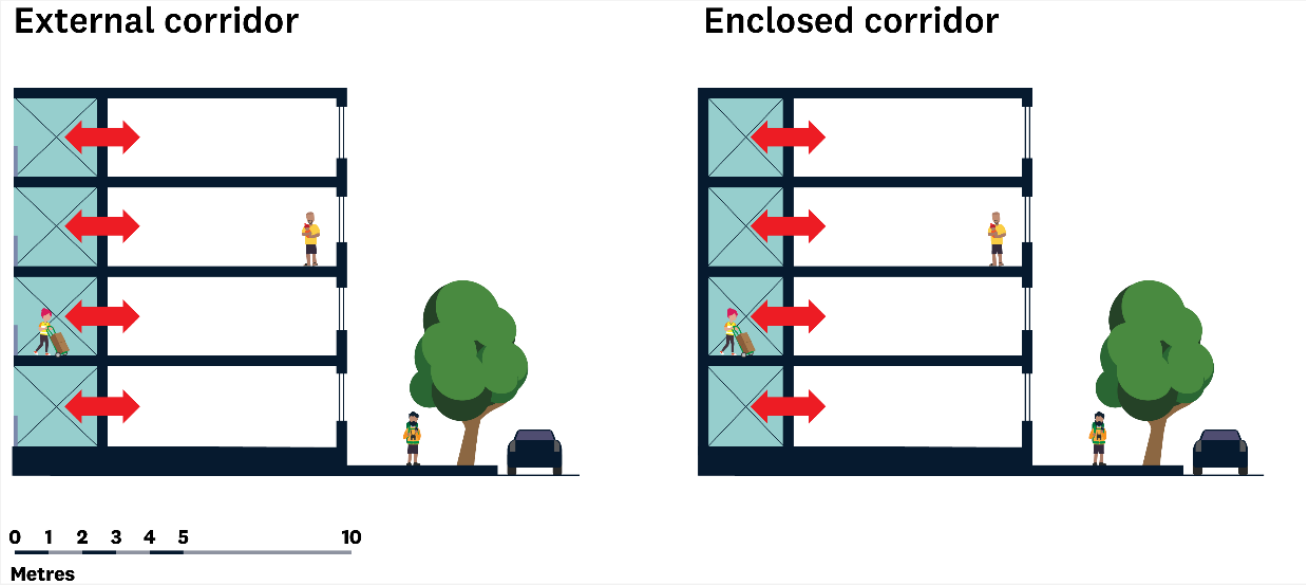
Individual access arrangements

Vertical access arrangements are where apartments are accessed directly via a stairwell or lifts. Vertical cores can be placed internally or externally and can contribute to the external appearance of the building.

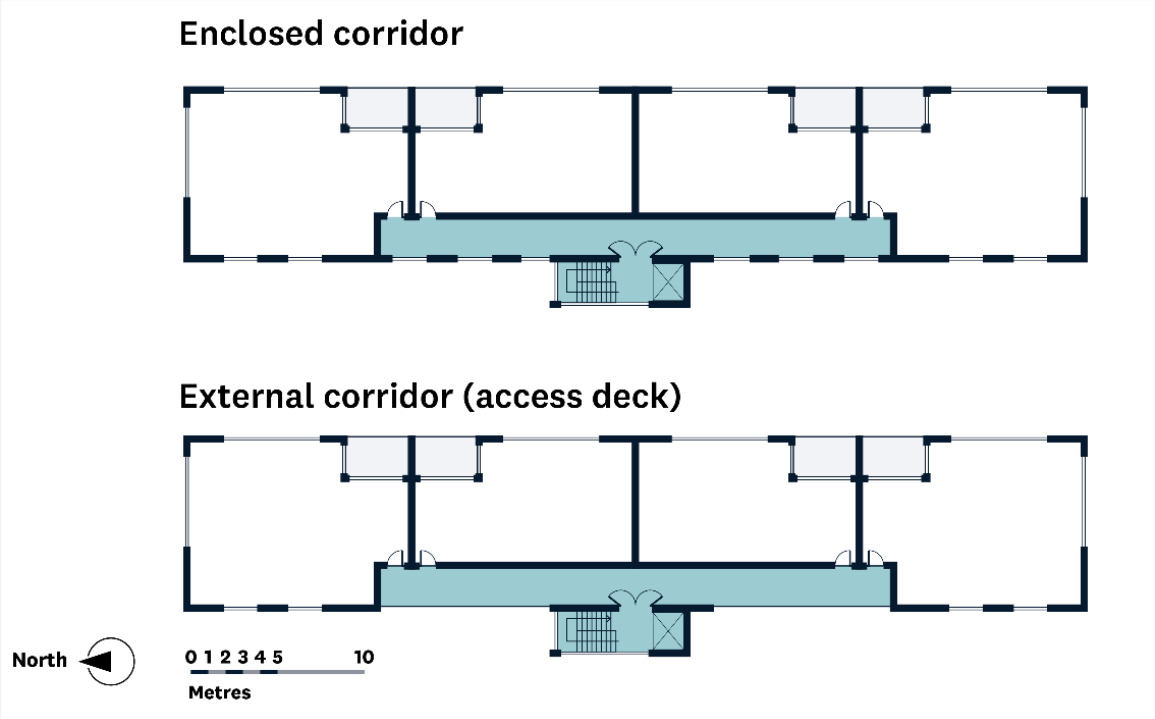
Vertical access arrangement

Horizontal access arrangements are where apartments are accessed from a shared corridor, which connects to a lift or stair core.

A single-loaded corridor can be placed internally or externally. There is potential for a dual-aspect apartment with cross-ventilation if the corridor is external. External corridors are often referred to as breezeways.



The horizontal access can be an external breezeway on the outside of the building (left image) or an enclosed corridor within the building (right image).



A single-loaded corridor apartment block tends to be one apartment deep with apartments accessed from one side of a corridor.

A double-loaded corridor is located within the building. Apartments are accessed off both sides of the internal corridor and are therefore predominantly single aspect. The overall building depth is deeper than a single-loaded arrangement.

Access is by an internal, double-loaded corridor with apartment accessed off both sides of the corridor.

The following should be considered in relation to the access arrangement of a building:

1. Ensure that breezeways are carefully designed to be integrated into the overall form of the building and does not look 'stuck on', has good weather protection and feels safe.

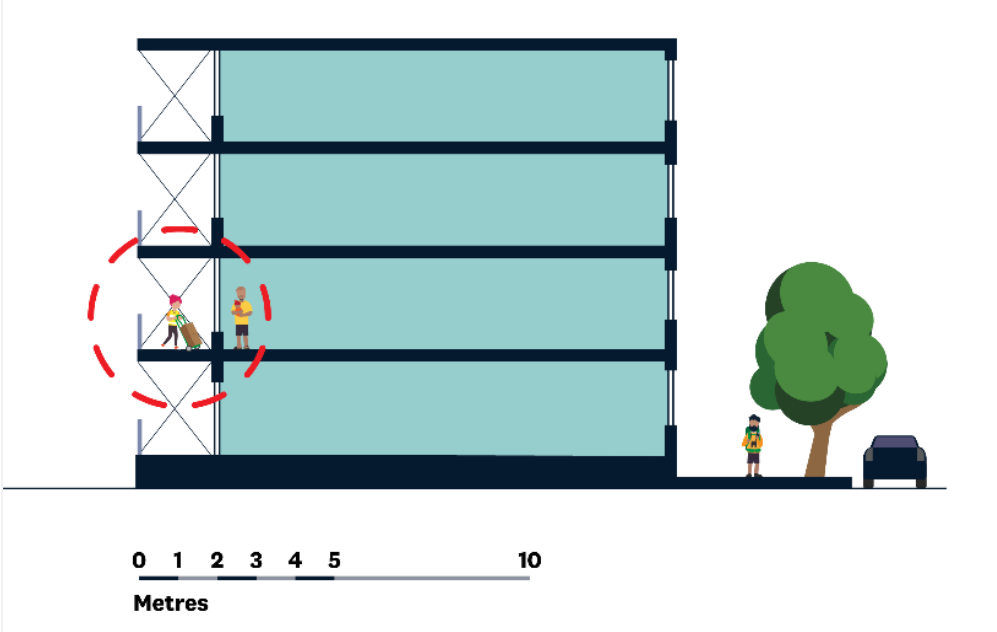
2. Have windows opening onto the external breezeway to enable cross-ventilation.

3. Locate the entrance or kitchen areas adjacent to the external corridor (breezeway). A bedroom in this location with windows opening onto the breezeway will require careful design to ensure adequate levels of privacy, ventilation and quietness. Habitable room windows should not open into or access an internal corridor.

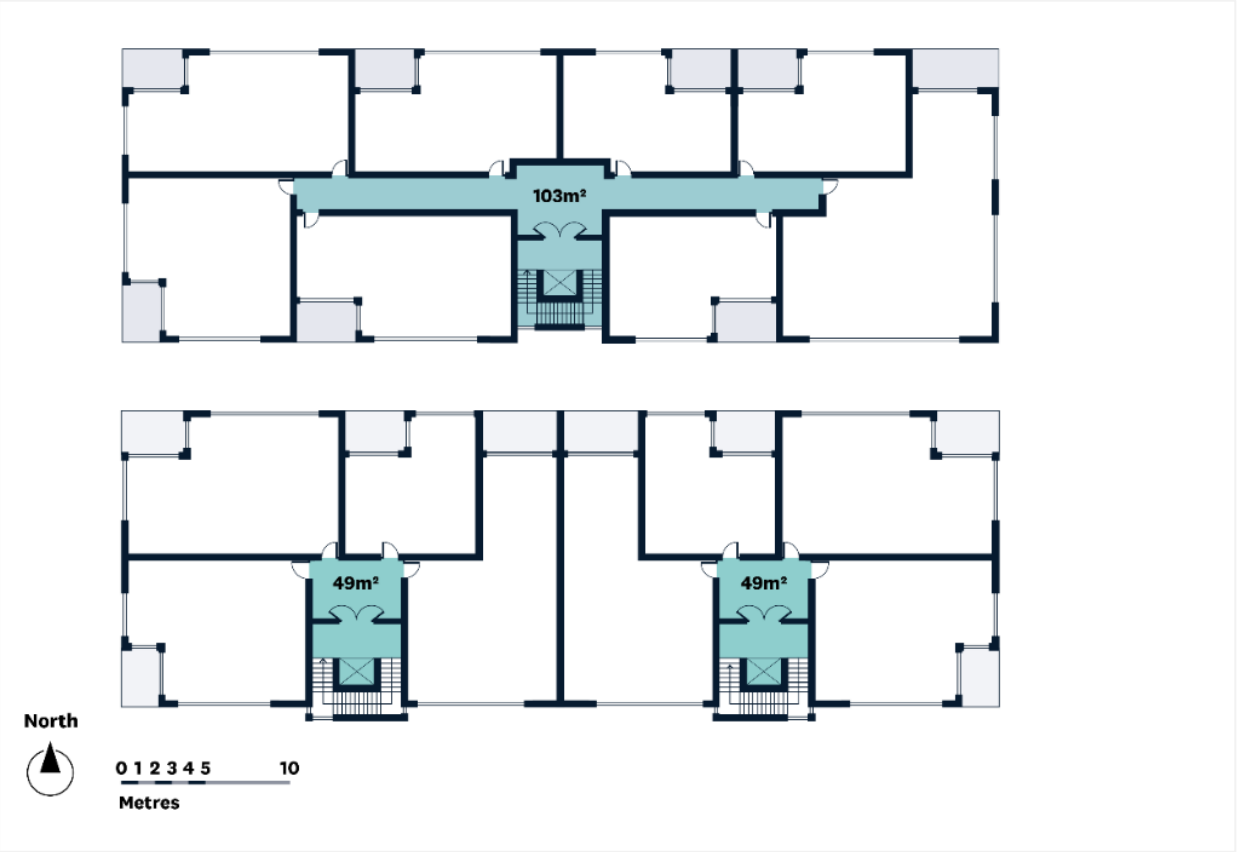
4. Include extra space around stairs and lifts to form a lobby space where people can meet. This may also give a feeling of spaciousness.

5. Have windows at the end of internal corridors to let in light and air and allow views out.

6. Use an atrium in a building with a deep plan. This can let in light to the middle of the building.

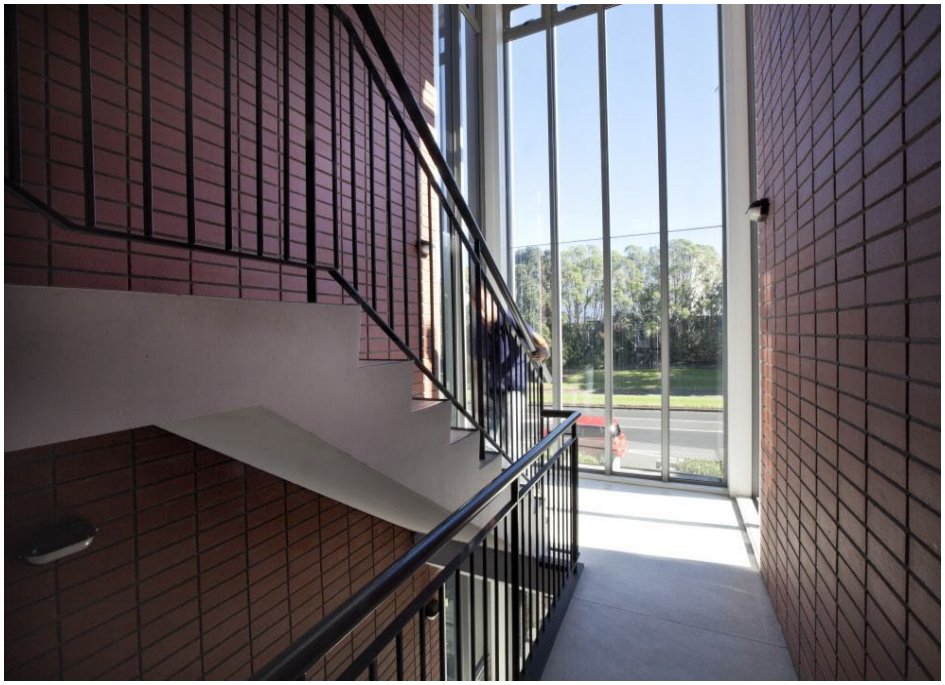


Ensure there is an adequate level of amenity - natural light, natural ventilation, privacy – where a habitable room faces onto an external accessway (breezeway).



The circulation area of the double vertical access core is roughly the same per level as the example with a single core and corridors.

The external stairs are integrated into the overall building design.



Double height glazing at the end of the corridor provides a good quality of natural light and passive surveillance in this communal stair.

This building provides well-lit and weather-protected horizontal, semi-external access to individual apartments.

6.2 Design and appearance

Design outcome: The design and appearance of walls, roofs, windows are considered together to create a high-quality building that relates well to its context.

1. The building will usually comprise of a principal façade that addresses the adjacent street or communal accessway. That façade should be visible and attractive and should enhance the existing character of the local area or street context. When a building is exposed to public view on all sides all visible parts of its façades should be carefully designed.

2. Ensure the façade displays an appropriate scale, rhythm and proportion through a hierarchical arrangement of elements. The façade should achieve this by:

    a) Avoiding monotonous repetition of the same unit.

    b) Having dimensions appropriate to the scale of the building and adjoining development.

    c) Establishing vertical and horizontal lines and modules with features such as party walls, exposed downpipes, setbacks, string courses, cornices, balconies, eaves lines and door or window heads.

    d) Clearly defining building entries.

    e) Incorporating a well-proportioned solid-to-void ratio of openings along the façade.

3. Elevations should be designed to express aspects of the building such as internal spaces, fronts and backs, entrances and orientation to sun and views.

4. Each apartment unit should be well defined and expressed as a separate entity.

5. Integrate façade depth and shadow casting detail, including projecting elements, setbacks and expression of window reveals, to give visual richness and interest.

6. Respond to any locally relevant or important character. The design should either directly reference or contrast with this. Mimicking, or a pastiche, of character is never a good design response.

7. Coordinate details and integrate building service elements such as down pipes, grilles, screens, ventilation louvres and garage doors into the overall façade. Consider the position and attachment details of fixtures such as TV aerials in the early design stages.

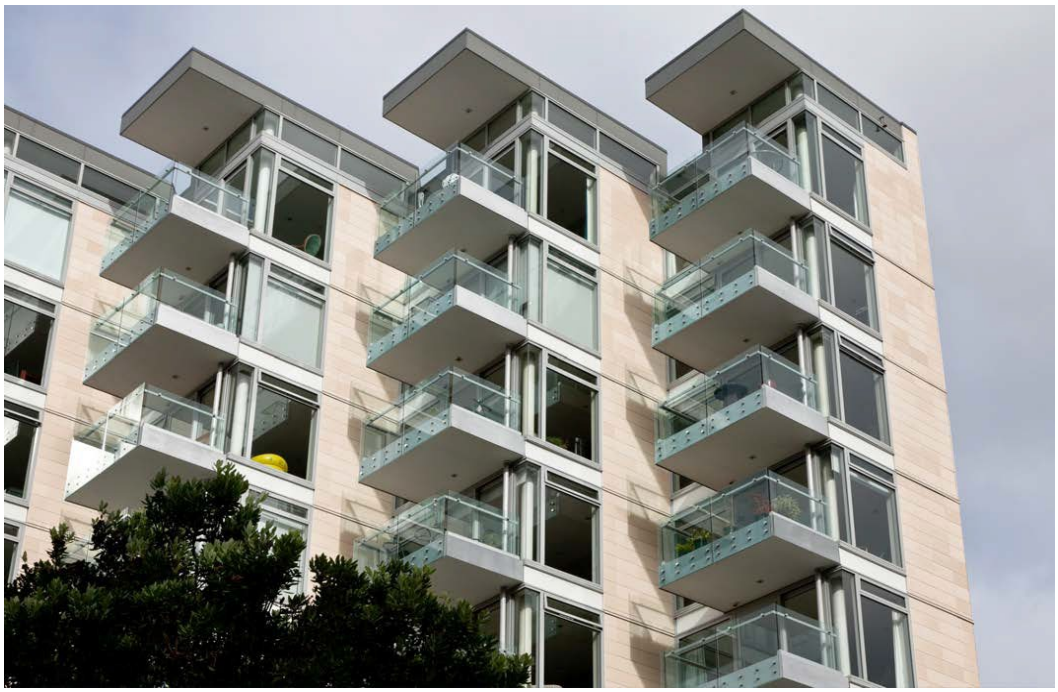
8. Incorporate elements such as sunshades, screens, fins and blades to control the admittance of sunlight where required.

9. Ensure the different elevations or façades respond to their particular orientation for optimal access to sunlight. Integrate any required signage into the façade design.

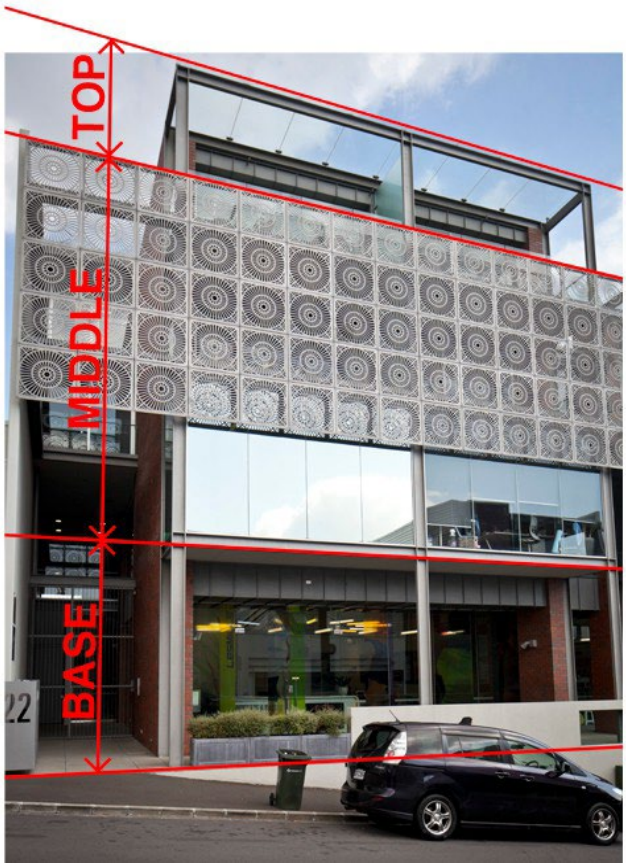
10. Balconies have the potential to enhance the design of a building. They should be designed to ensure the user will have a good level of privacy and to provide functional space. Cheap balustrade treatments should be avoided.

11. The roof should be integrated into the overall design of the apartment building and create interesting rhythms to reduce any visually dominant massing.

12. Apartment buildings on corner sites or adjacent to laneways or public open spaces should offer as much attention to detail on the secondary elevation as the primary street façade. Providing balconies and windows on the ends of rows is encouraged.



The staggered balconies create a strong vertical form to the street.



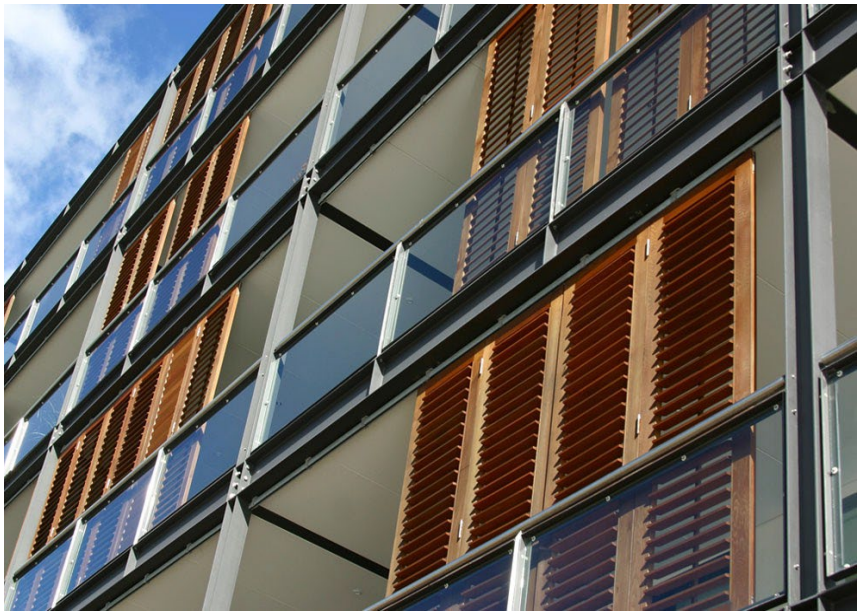
This building form is composed of three clear sections base, middle and top.

The roof form is stepped to break up the overall form and present a positive face to nearby development.

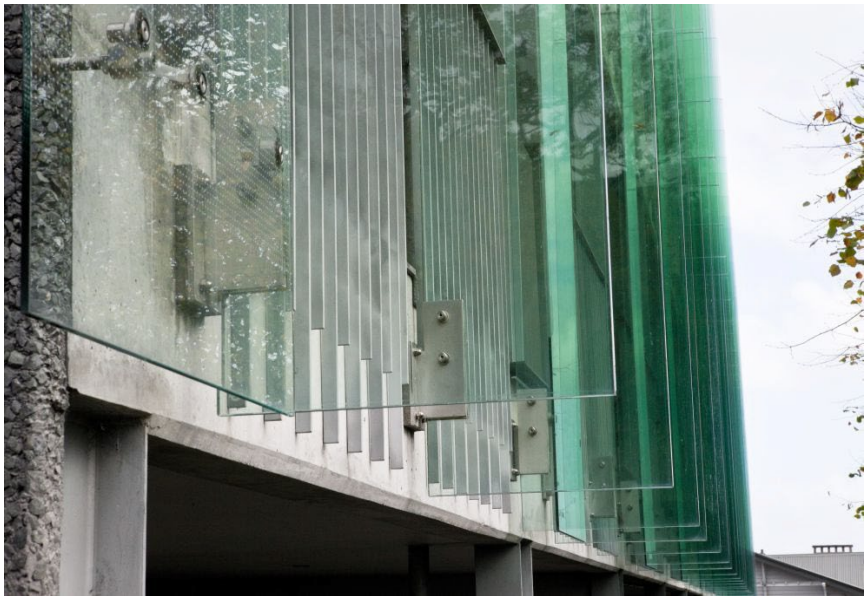
The apartment block is broken up into a series of smaller forms by pulling edges of the building out of the main form.

This building uses a simple material (brick) but it is used in an innovative manner to add shadow and depth to the façade.

Ventilation grilles have been carefully incorporated into the overall apartment design.



All the building elements the balcony structure, the balustrade, the wooden louvres are coordinated and carefully detailed.



Glass fins are interspersed with the steel balconies to create a distinctive façade.

These sliding movable screens create an attractive point of interest for the building façade.

The movable screens in this building are located on long tracks. This means the whole façade changes on a regular basis as the residents move their individual panels as they need them.

6.3 Detailed building elements

Design outcome: The detailed parts of the apartment building contribute positively to the overall design.

It is important to design the building and all façades as a whole, not forgetting about the details.

6.3.1 Apartment building entries

Apartment building entrances establish a desirable and strong residential identity for the development, which contribute positively to the streetscape and integrate into the overall building facade design.

1. Entries should be designed as an integral part of the building and be clearly visible, address the street or driveway/accessway and provide shelter for people entering the building.

2. Make communal entries deep enough to be functional, allowing them to accommodate a person with shopping and/or a pram, as well as providing a suitably generous space for meeting and greeting.

3. Use a main communal entry plus multiple private ground floor entries where appropriate to animate the street edge and create a rhythm of openings along the street.

4. Car park and service entries should be recessed and made secondary to the main entrance.

5. Provide safe and secure access by providing a direct physical and visual connection between the street and building entry, and providing sheltered, well-lit and highly visible spaces in which to enter the building.

6. Provide separate entrances, especially from the street, for:

    a) Pedestrians and vehicles.

    b) Different uses, e.g. residential and commercial uses in a mixed-use development.

    c) Ground floor apartments (where possible).

    d) Recycling, waste collection and removal.

7. Make mailboxes safe and convenient for residents and ensure that they do not clutter the appearance of the development from the street by:

    a) Locating them adjacent to the major entrance in a common collection area and integrating them into a wall.

    b) Setting them at 90 degrees to the street, rather than facing it.

    c) Making the public side of mailboxes vandal-resistant and secure.

d) Provide orientation signage that is clearly visible and in character with the building.

Entrances establish a desirable and strong residential identity for the development, which contribute positively to the streetscape and integrate into the overall building design.

The entry is a functional, accessible, safe area with good shelter and lighting.

The glazed stairwell of this building separates the two halves of this apartment building – this means this entrance and circulation space are clearly seen from the street.

Care has been taken to understand how and where residents will access both the ground floor and the apartments above.

The entrance on the left provides a clear line of the sight from the street. The entrance on the right uses the overhead canopy and the sun to project the apartment number onto the door.

6.3.2 Materials and colours

1. Integrate material selection with the overall façade design. Materials are an important element to consider in responding to character and reinforcing or establishing sense of place.

2. Use a materials board, including colours, to illustrate materials, choice, and how they work together.

3. Consider how materials selection and use of colour can reinforce and tie together the primary building elements of the apartment building.

4. Provide a varied but co-ordinated palette of materials where appropriate.

5. Aim for low maintenance, robust materials that will weather well.

7 Internal living spaces

This section provides guidance on internal space requirements of apartment units, including for kitchen/living/dining spaces, habitable rooms and storage, so that they meet the needs of occupants.

Best practice design should provide for homes which are flexible and adaptable over time. Where relevant, this section also incorporates Universal Design principles. Universal Design refers to designs and spaces which are accessible to all.

This guidance references the New Zealand Lifemark Standards which have been created to achieve adaptable, accessible design solutions.

For further detailed information refer to the Lifemark website www.lifemark.co.nz

7.1 Living and dining spaces

Design outcome: That the fittings and furniture for the target occupancy level (two people per bedroom) can be accommodated to enable occupants to comfortably carry out normal daily activities.

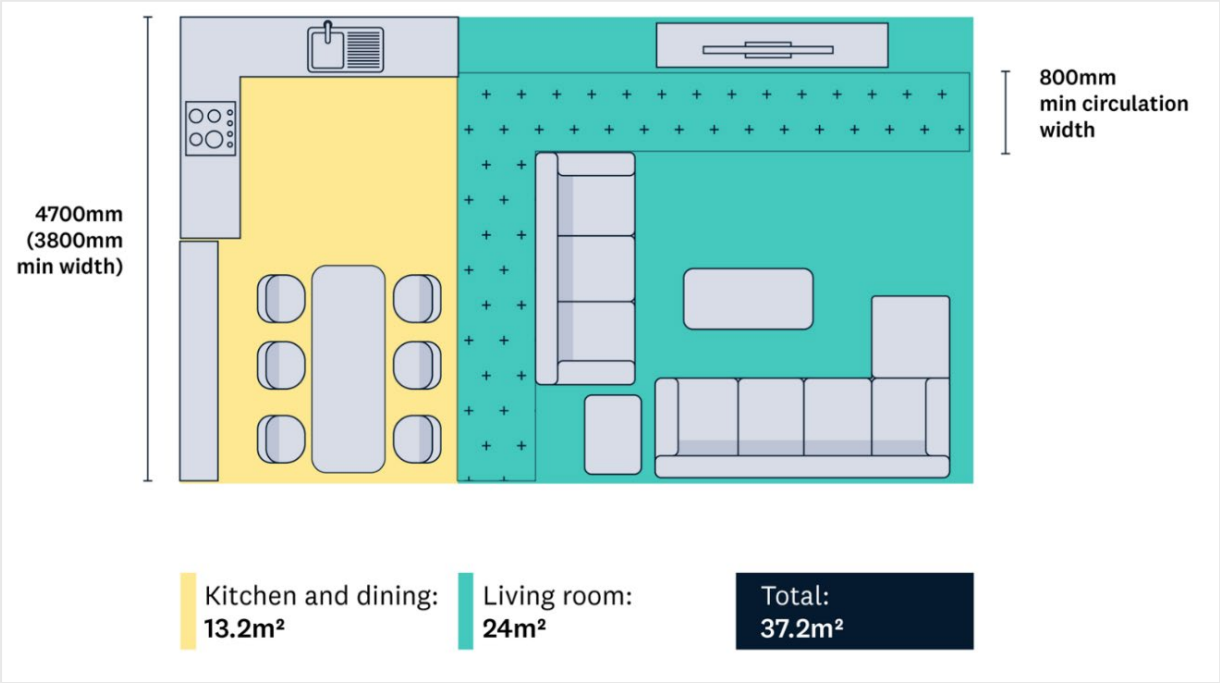
Apartments tend to combine dining, kitchen and living areas into open plan layouts and this is often considered desirable by occupants. Where apartments are being designed for specific cultural needs, it may be preferable to separate the kitchen from living and dining or other combinations.

1. Living and dining rooms should have a minimum width of 3.8m. This helps to create functional spaces that can comfortably accommodate furniture and allow for easy movement through rooms.

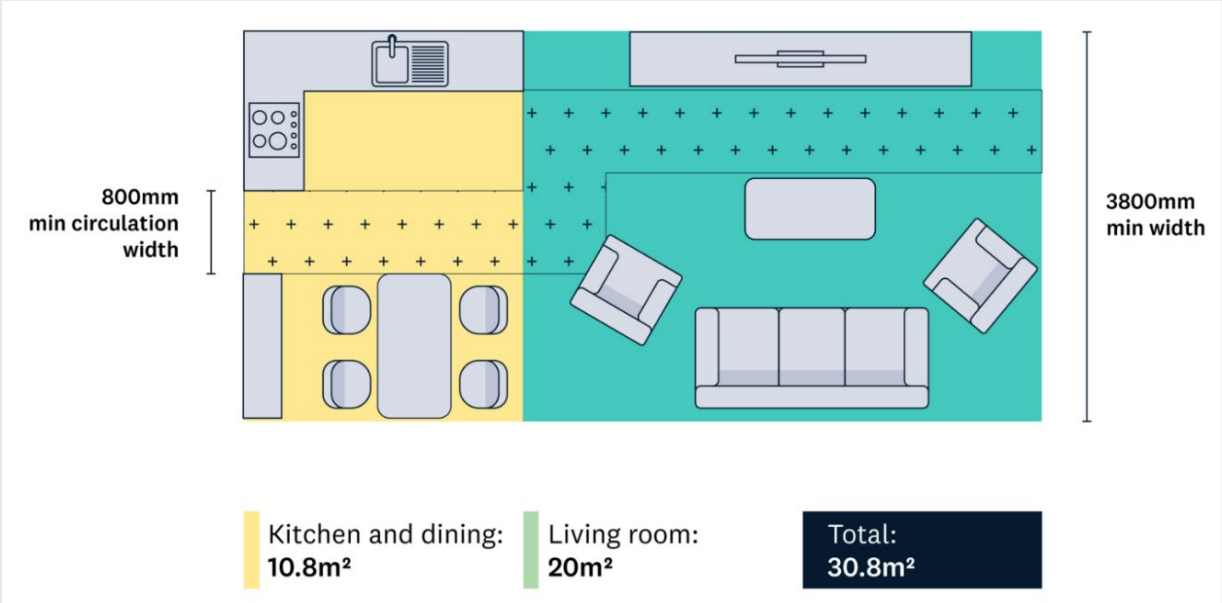
2. When designing living and designing rooms consider how the space will function. Floor plans should show a proposed furniture layout. The arrangement of furniture should create spaces that are practical and pleasant to use. This includes:

    a) A circulation space of at least 800mm around furniture and fittings.

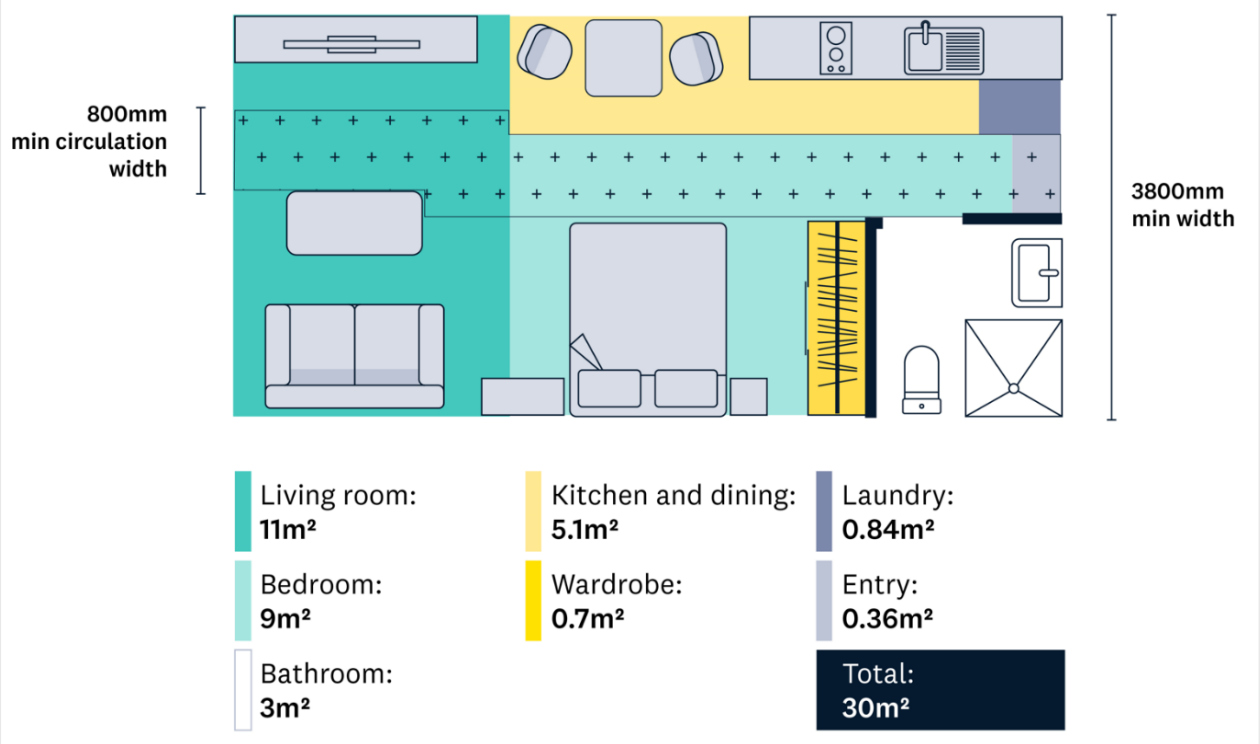
    b) Access to bedrooms and bathrooms that avoids crossing through the middle of living spaces. Movement should be directed around the edges of these rooms.



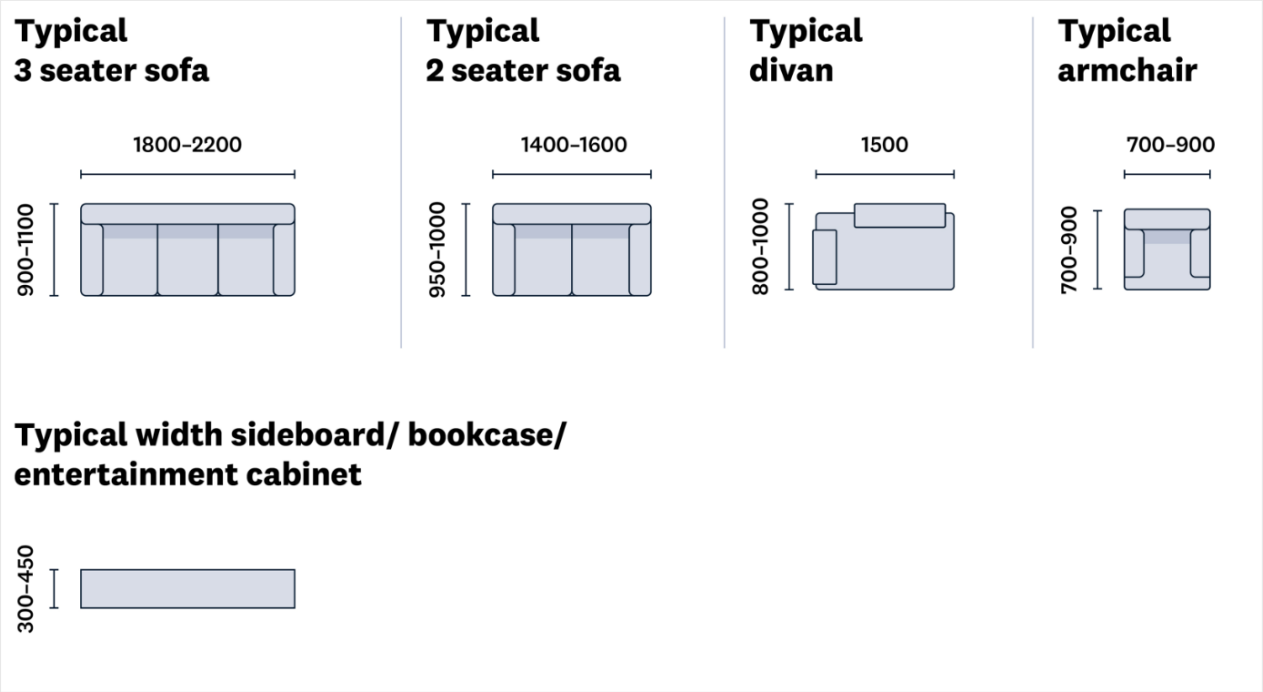
Minimum living / dining / kitchen room dimensions for a 2-bedroom dwelling.



Minimum living /dining/kitchen room dimensions for a 1-bedroom dwelling.

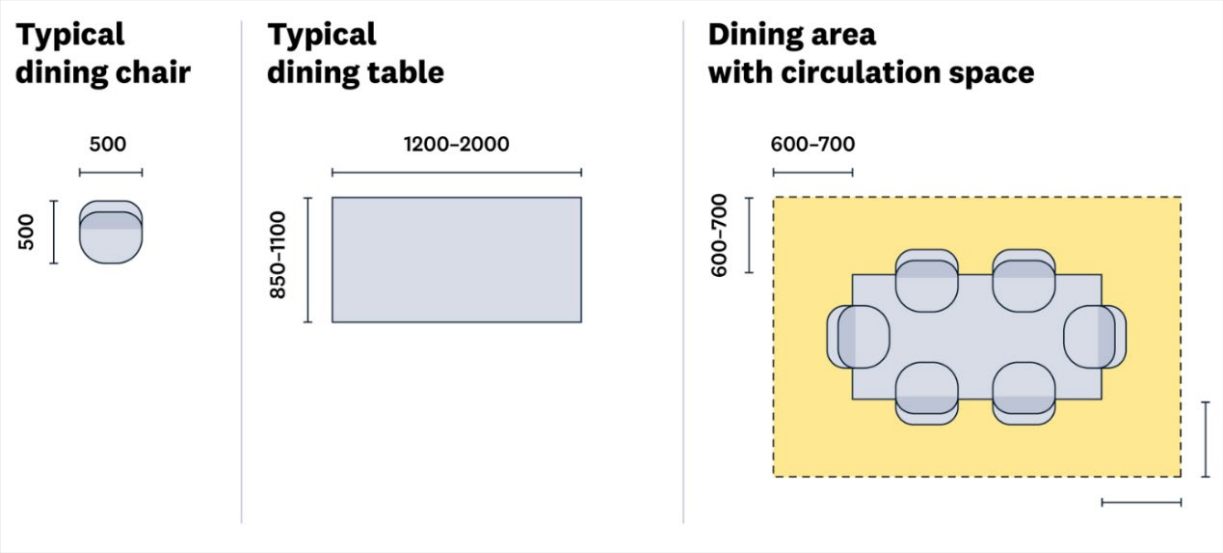


Minimum room dimensions for a studio dwelling.



Standard size of living room furniture.

3. The size of furniture should also be considered when designing living spaces as this has an impact on the size of the spaces and circulation areas required. The type and size of furniture also affects the sense of spaciousness within the home.



Standard sizes of dining room furniture.

4. Access around a dining table should be a minimum of 600 to 700mm. Increased circulation space may contribute to greater comfort if the table is not accessible from both ends or if the space is bounded by walls, rather than adjacent open living space.

5. All living spaces should have external windows. Living areas should have a maximum window sill height of 800 to 1000mm above the finished floor level to maintain views out when seated.

6. Apartments should conform to New Zealand Standard 4121 (Design for Access and Mobility) for wheelchair user access.

Adequate space is provided around the dining table.

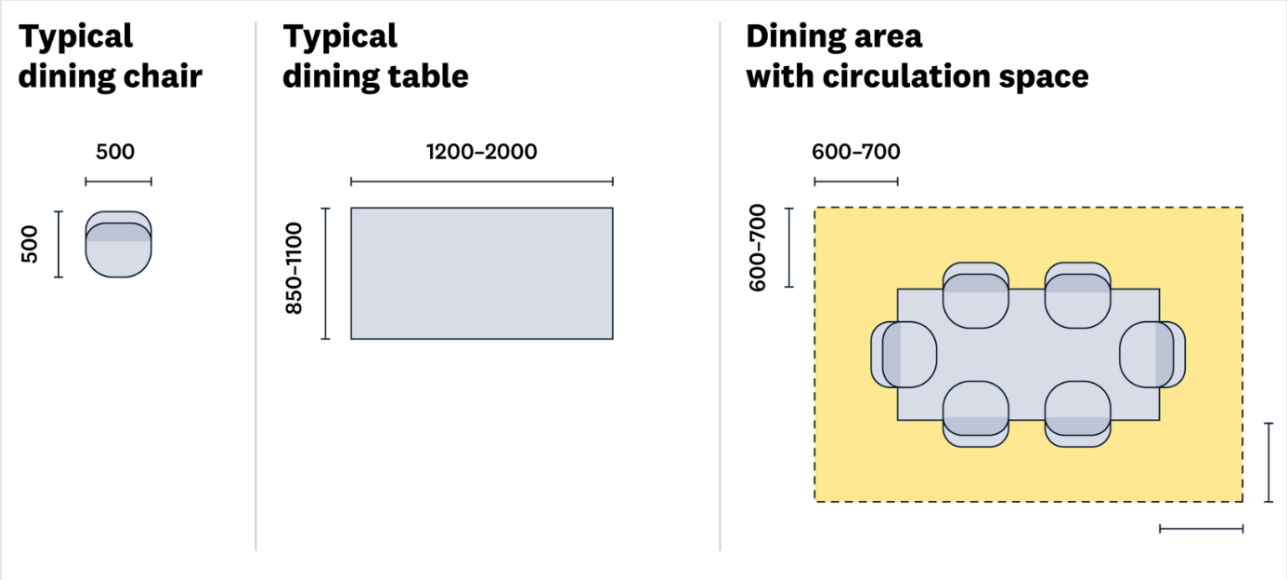
Kitchen, living and dining spaces are often provided in open plan rooms in apartments.

The apartments are functional, well organised and have enough space to meet the needs of the intended number of occupants.

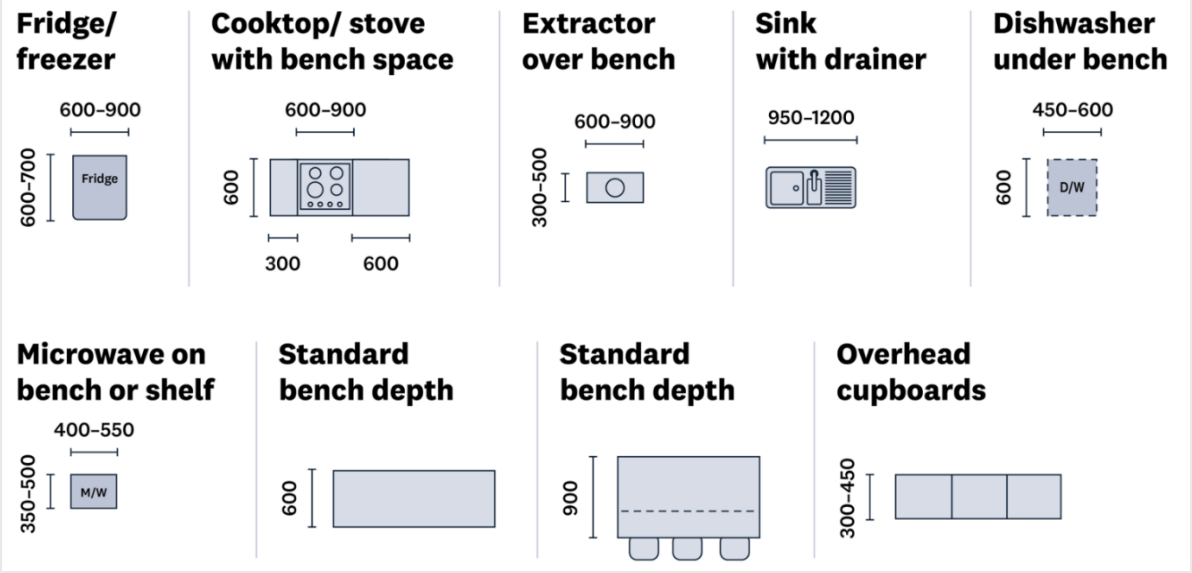
7.2 Kitchens

Desing outcome: Kitchen space, fittings and furniture allow two people to circulate conveniently, carry out food storage, food preparation and cooking, serving, eating (if no separate dining area) and storage of separated waste.

1. Kitchens should have a 1.2m access space in front of the base kitchen units. This may be reduced to 700mm where the access space adjoins general circulation space (i.e. a 500mm deep overlap is acceptable).



Kitchen layout with adequate circulation space.



Standard kitchen dimensions.

2. Kitchen design will vary according to the size of the apartment unit. A large, family unit has different requirements to a more compact apartment. However there are some basic space requirements to be incorporated in a kitchen area, as illustrated below:

   a) The standard bench depth should be 600mm.

   b) Storage should be provided for:

   - Food
   - Crockery
   - Cutlery
   - Miscellaneous kitchen appliances
   - Bowls, baking and roasting dishes
   - Baking papers, wraps etc.

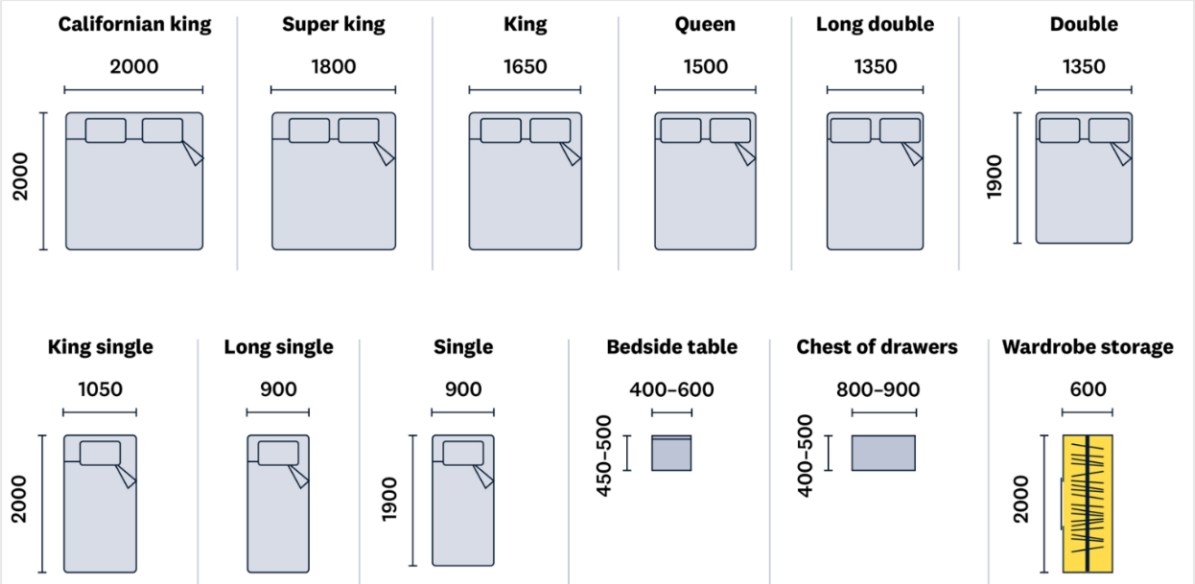
7.3 Bedrooms

Design outcome: Bedrooms comfortably fit two people per bedroom, as well as their fittings and furniture.

Occupants should be able to conveniently carry out the following activities in the bedroom:

- Sleeping
- Reading
- Watching television
- Studying or using a computer
- Storing clothes.

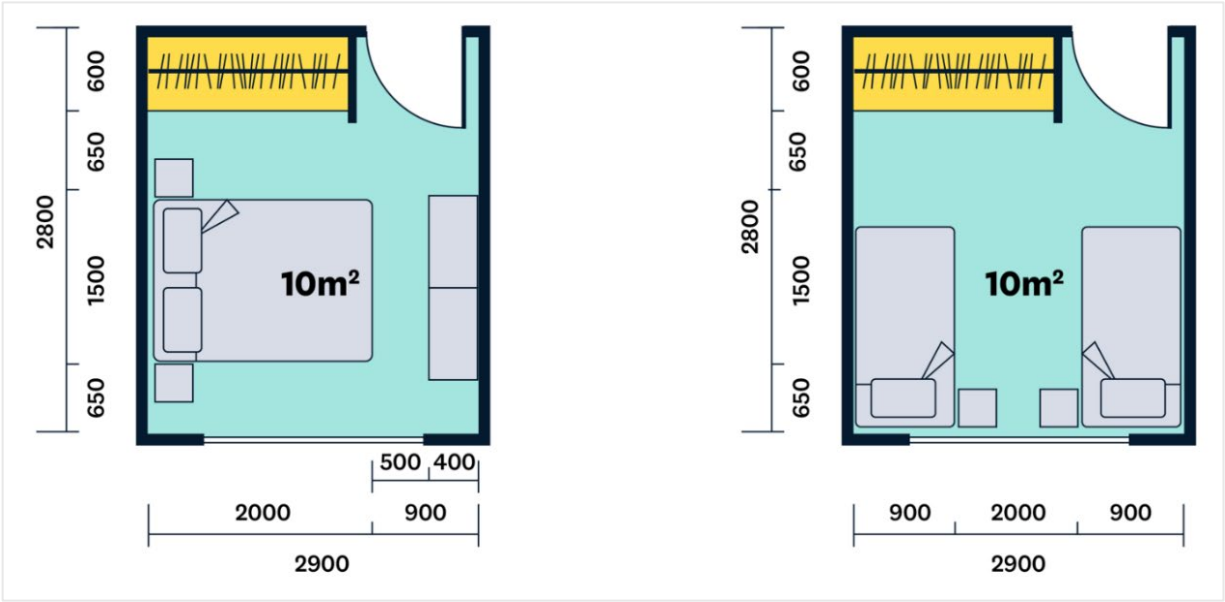
1. Design the size of bedrooms to accommodate standard NZ furniture dimensions.



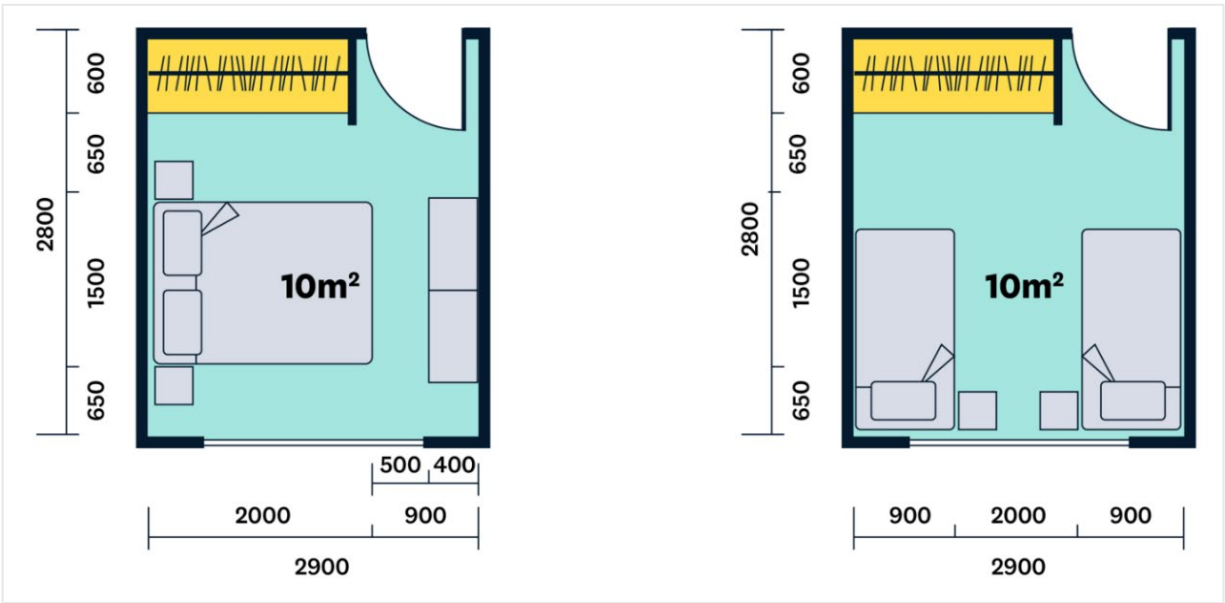
Standard bedroom furniture sizes (sizes vary slightly due to manufacturing tolerances, levels of padding and support / frame type).

2. Two-person bedrooms should allow for at least one queen-size bed with circulation space on both sides of the bed.

3. For a two-person bedroom a 2.8m minimum dimension gives little plan flexibility and no room for drawers or a desk as illustrated below:



4. A 3.2m minimum dimension allows space for secondary furniture, and allows more flexibility of furniture layouts as illustrated below:



5. Bedroom layout should provide the following minimums:

   a) A bed space 2m long by 1.6m wide, or two bed spaces side-by-side each 2m long by 900mm wide.

b) An 800mm wide access space free from obstruction at the foot of the bed or beds - a total of 1200mm of side access space. If split around the two sides of one bed, there should be 600mm per side.

c) A wardrobe 2m long and 0.6m deep, with adequate access space in front (e.g. taking clothes from a wardrobe drawer or chest of drawers requires a space of 710mm to 990mm).

d) A desk or dressing table space of at least 800mm wide by 500mm deep with a 500mm wide access space in front.

e) An access space from the entry door to the foot of the bed that is no less than 800mm wide. Note: Access space requirements for different elements in bedroom spaces may overlap.

7.4 Decks and balconies

Design outcome: Apartments have a balcony, deck or paved area (patio) directly accessible from the living or dining room.

Access between living rooms and outdoor spaces provides private access to the outdoors and an opportunity for outdoor passive recreation. This can also be a major source of daylight and natural ventilation for the unit via large opening glazed areas.

1. The deck or patio should be directly accessible from the living or dining area.

2. Balconies, decks or terraces may be accessible from any other habitable room.

3. A balcony, deck or patio space should be large enough so that the equivalent of two persons per bedroom can circulate, sit, eat or barbeque safely and comfortably.

4. For apartments of four bedrooms or more, these spaces should be able to accommodate six people.

5. Balconies or patios should provide an area that can be screened to allow for clothes drying.

   (See also Section 5: Outdoor space).

7.5 Storage and utility spaces

Design outcome: Adequate space is provided for storage of everyday household items and for utility activities such as washing and drying.

A lack of storage space is often cited as a major dislike of occupants in more compact residential units. Providing storage space for items ancillary to people's living needs, including everyday items such as cleaning equipment and occasional use items such as suitcases, is an important part of the design.

1. Suitable space for utilities (washing, drying, waste and recycling) should be designed into the apartment unit, and in a way that does not negatively impact on any habitable

rooms. Utility areas should be well ventilated or otherwise allow for drying clothes.

2. Readily accessible space inside the house should be provided for equipment associated with children, such as pushchairs and bicycles.

3. The size of the storage space should be proportional to the number of occupants intended for the apartment unit.

4. Ideally, storage spaces are built-in as this allows for the most efficient use of space. They should be easily accessible and located in entry ways, hallways or living spaces. Storage space must be considered in the early stages of the design process.

5. Owner-supplied freestanding storage units should be allowed for in the apartment plan.

6. Consider providing storage outside/remote to the unit. This space is particularly important for storing larger items (sporting equipment etc).

7. Dedicated storage rooms or spaces within basements, or otherwise located close to car parking, are convenient for sports equipment as this is usually transported by car and may be difficult to move upstairs.

8. Bedroom wardrobes should be at least 600mm deep internally and 1.8m wide.

9. Minimum dimensions for an audio-visual unit should be 450mm deep and 900mm wide.

Storage is integrated into the design of the unit

8 Building Performance

This section provides guidance on how the building configuration and orientation can provide good levels of amenity through optimising sunlight access and natural ventilation.

8.1 Heating and cooling

Design outcome: Apartments are designed to maximise the ability of the natural environment to heat and cool the house.

Employing passive solar design principles including the building orientation and configuration of the units can make buildings both less expensive to run and healthier to live in. This means designing the building to maximise the ability of the natural environment to heat and cool the building and individual apartment units.

Healthy and efficient apartment design will require balancing heating from the sun, making sure heat does not leak out, while also ensuring the inside of the dwelling is naturally ventilated.

There are a number of tools available that provide guidance on how to design and build more sustainably. One of these is New Zealand's own Homestar www.homestar.org.nz tool which has been developed by the New Zealand Green Building Council www.nzgbc.org.nz in collaboration with BRANZ www.branz.co.nz to enable homeowners and house builders to evaluate and benchmark the sustainable performance of their homes.

1. Locate living areas and bedrooms towards the north, east or west side of the house, to maximise the sun for heating and daylight.

2. Locate bathrooms and / or service areas internally or on the southern side of the dwelling as these spaces require less heat and daylight than living areas and bedrooms.

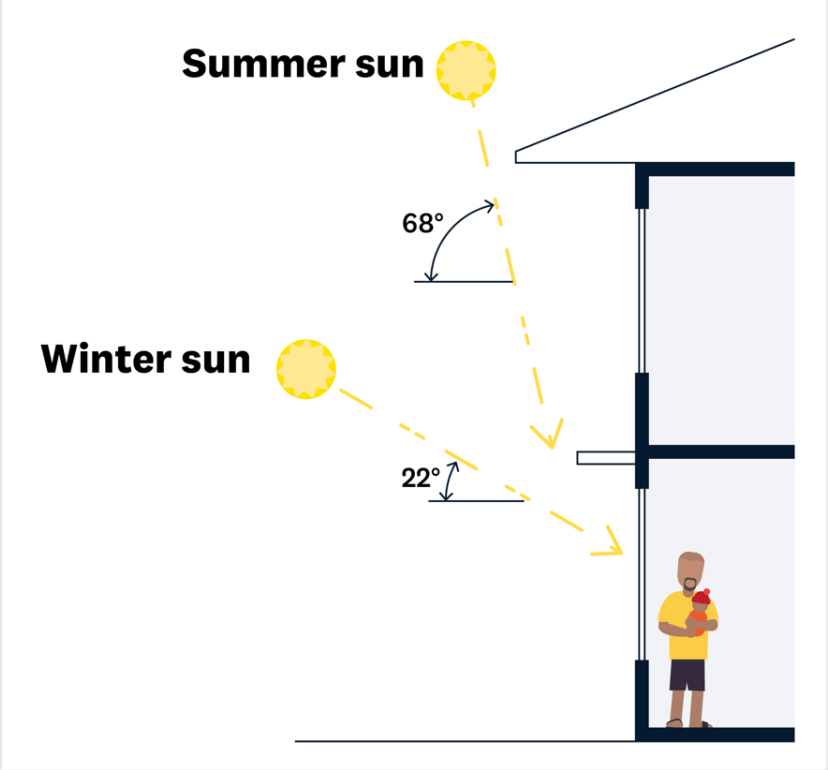
3. Provide eaves, louvres and screens on the outside of the building to reduce the direct sun during summer and allow sun during winter.

4. Add extra insulation to lower heating and cooling costs - insulation costs nothing to maintain or run.

5. Avoid recessed down lights that require large insulation clearances as these can compromise ceiling insulation. Use lighting or down lights that are designed to allow insulation.

6. Use double glazing to reduce heat loss through windows. This will also reduce condensation, mould growth and noise. Well fitted drapes are also effective at reducing heat loss.

Deep recessive eaves, mechanical louvers and planting prevent overheating



Design eaves for different sun angles.

Rotating vertical louvres allow residents to modify and reduce passive solar gain.

8.2 Natural ventilation and daylight

Design outcome: Sun, light and air move through the house through natural ventilation and solar movement.

Ventilation is important as many health issues are connected to damp conditions. As well as being environmentally advantageous, natural ventilation is free. The cost of artificial ventilation over the long term can be considerable.

1. The depth of dual aspect apartments should not exceed 14m to allow natural light and ventilation.

2. Dual aspect buildings that are greater than 14m in depth should be at least 4.5m wide to avoid deep, narrow layouts.

3. Dual aspect buildings greater than 14m should be able to demonstrate how internal daylighting and natural ventilation will be achieved. Artificial light and ventilation will be required.

4. The depth of single aspect apartments should not exceed 8m. The back wall of a primary living space (kitchen, living or dining) should be no more than 8m from a window.

5. Provide windows on external walls to make all habitable rooms, including studies, naturally lit and ventilated.

6. An enhanced ceiling height greater than 2.4m may provide superior daylighting and ventilation.

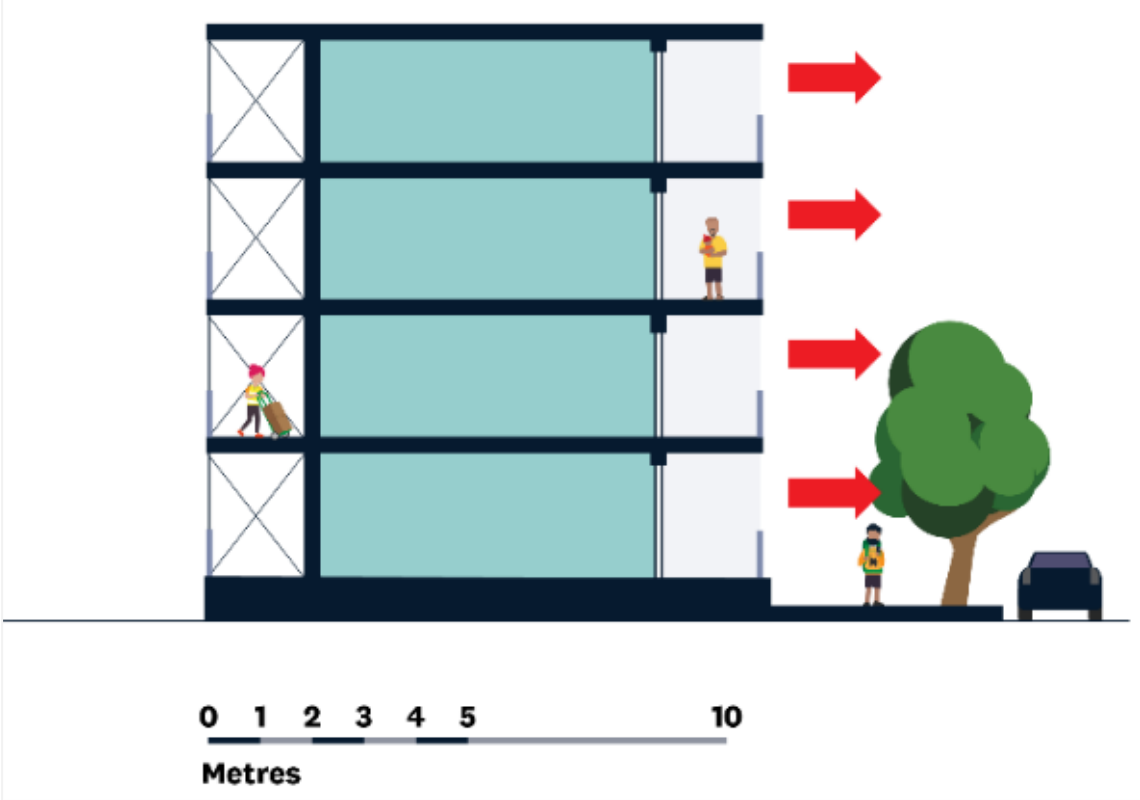
7. Stack-ventilation for double-level apartments moves air vertically up through the unit and ventilates it through a high window. Design the dwelling to utilise the 'stack effect' to optimise how natural air movement can cool the dwelling. It is also possible to use the action of hot air rising and cool air falling to redistribute heat through the double-storey apartment.

8. Providing windows on two walls of a room will allow for cross-ventilation.

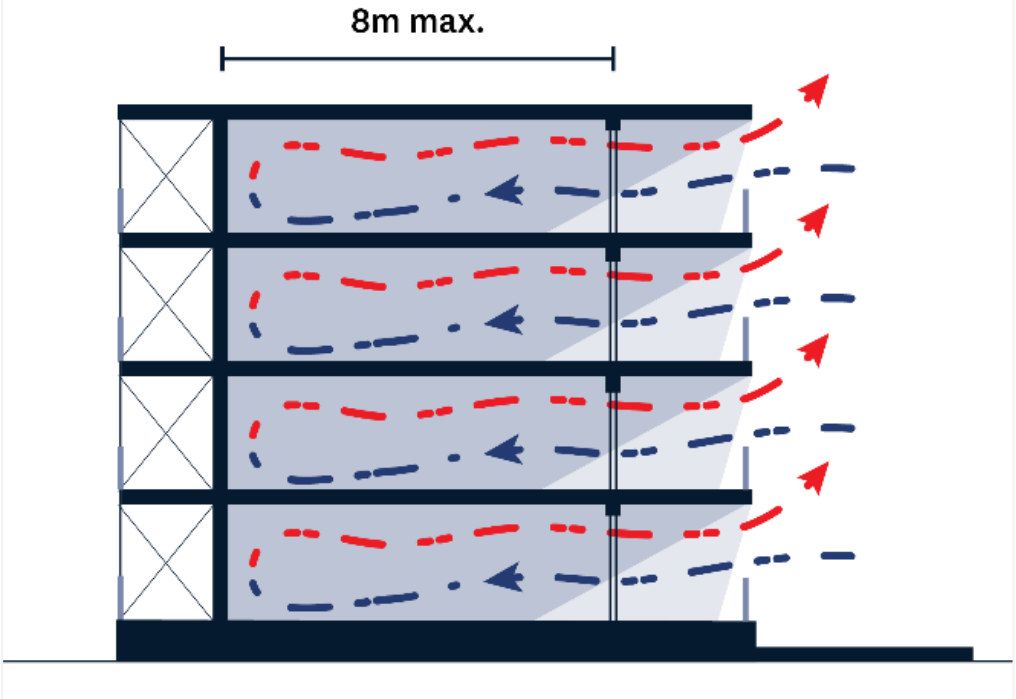
9. Use fans as a way of circulating cool air in summer, and warm air in winter.

10. Position windows and doors to take advantage of cooling summer breezes and avoiding winter winds. The dwelling should be protected against the cold south westerly wind and opened to the warmer north-easterlies. Consider enclosable balconies on upper levels of apartment buildings which are exposed to Auckland's prevailing winds.

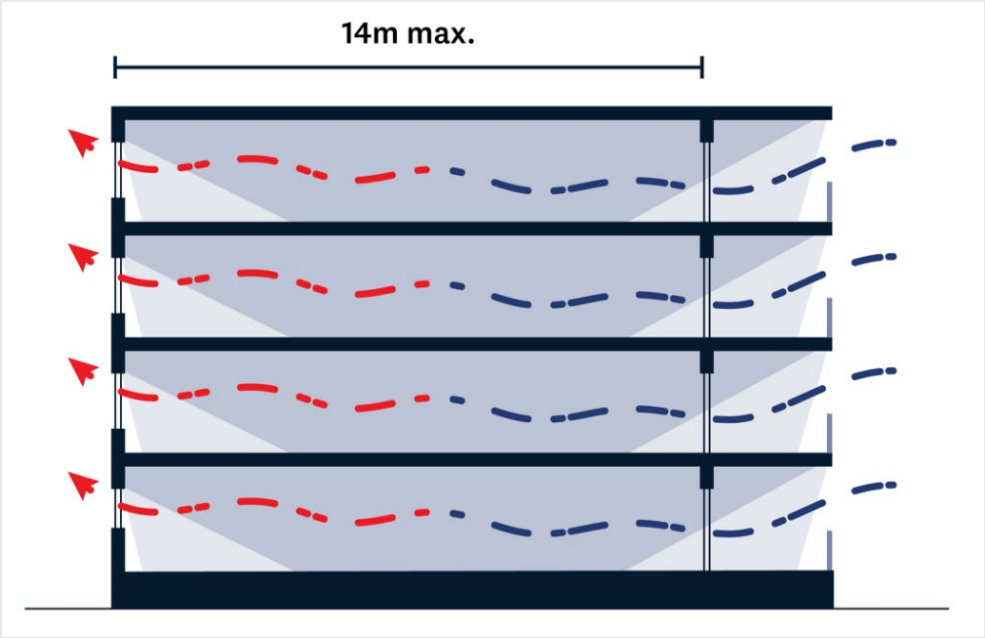
11. Ventilate all bathrooms and kitchens to the outside to prevent a build-up of moisture. Natural ventilation is preferred.



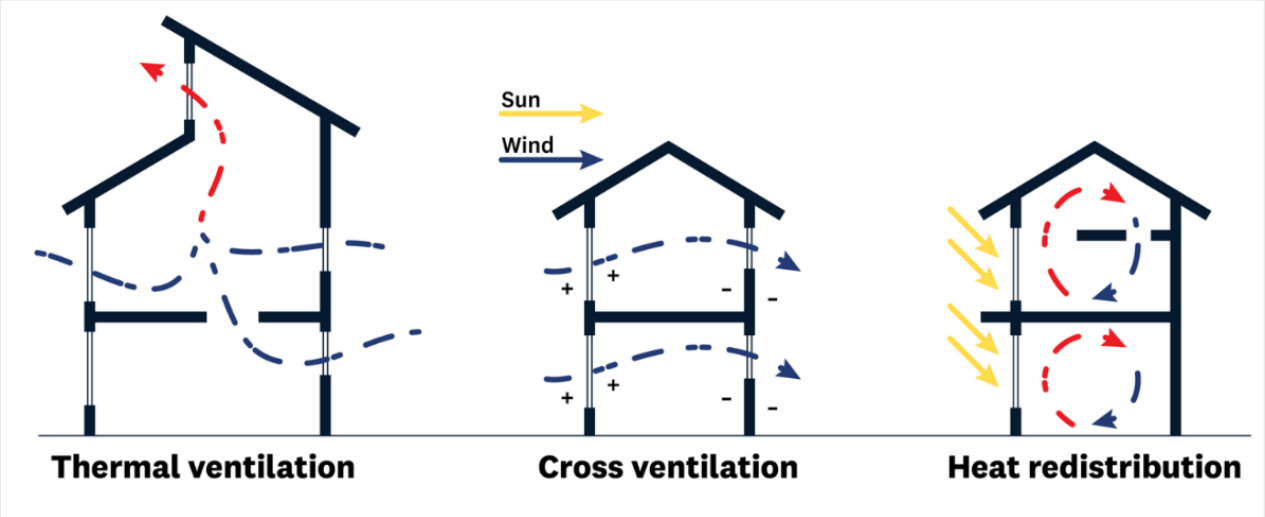
The preferred depth of rooms in single aspect apartments is less than 6-8 metres to achieve adequate natural light.



In single aspect apartments a maximum depth of 8m also allows natural ventilation to occur.



Dual aspect buildings should be no deeper than 14m to enable effective natural ventilation and daylight access.



Different types of ventilation can be combined to maximise energy efficiency and natural ventilation.

For any questions or feedback, please contact us through our email address:
AKDesignmanual@aklc.govt.nz

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