Auckland Design Manual

Auckland Council
Te Kaunihera o Tāmaki Makaurau

# Terraced House Design Guidance

Tāmaki Makaurau Design Ope 6/06/2025 Version 1.21

# 1 Introduction

Terraced housing refers to individual dwellings connected on two sides via a party wall. End-of-terrace and semi-detached houses are only connected on one side. Terraced housing enables greater density than detached housing and it is suitable for urban locations with good access to local facilities and public transport.

Due to their smaller site sizes, it is important terraced housing is well designed. When designed well, terraced housing can contribute to a vibrant, safe neighbourhood and be more affordable to live in than detached houses.

This document provides guidance on how to design terraced housing well.

Design statements are a helpful tool to assist with designing terraced houses and how to communicate the rationale behind the design.  Refer to guidance on Design statements in the ADM.

# 2 Site Design

The first step in developing a terraced house 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 the elements themselves.

## 2.1 Site ecology and habitats

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

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 ecosystem or habitat.

1. 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.

2. 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 local residents.

3. 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.

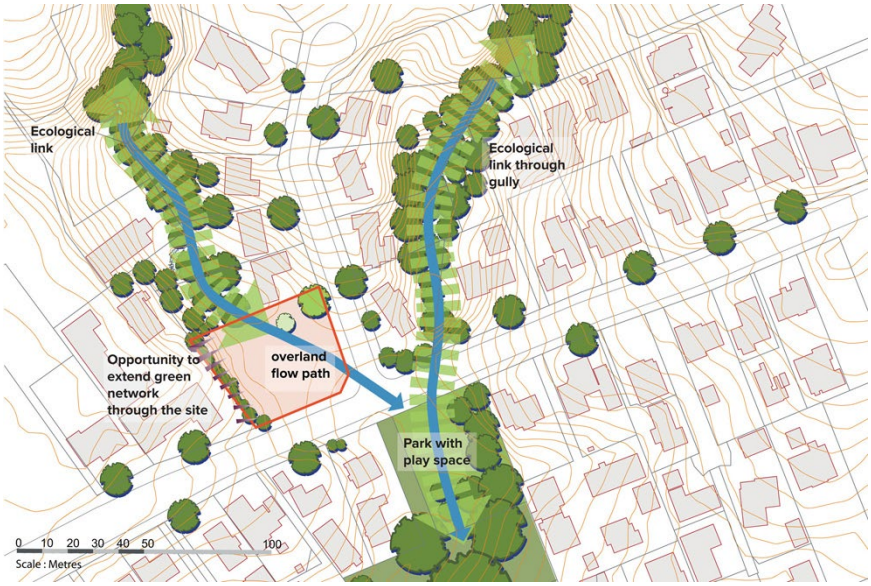
    d) Changing exotic plant cover to native plant cover (preferably eco- sourced).

    e) Pest and weed management.

    f) Retaining and enhancing existing gullies and riparian corridors.

4. 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.

*Development protecting and enhancing the ecology and habitat of the natural environment.*




*A sound understanding of the natural features and ecological systems.*


*Wetland networks that detain and treat stormwater are valuable ecological assets.*


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

## 2.2 Design for topography

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

It is important that any terraced housing development responds to the existing topography and maximises views, solar access and shelter from the wind. It is important to decide how the terraced 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. Battering (creating a consistent slope) across the whole site generally creates unusable spaces. Utilise the slope for undercroft (undercut) or basement car parking wherever possible.

3. 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 back edge of the footpath determines the extent of earthworks, the position of entry level building platform and the length or cut of any vehicular drive.

c) Aiming for level access to the front door wherever possible. However, where terraces are close to the road, setting terraced housing slightly higher can assist with privacy.

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

*The terraced house works with the existing topography to maximise views and privacy.*

*Retaining walls are stepped and landscaped, whilst permeable fences provide passive surveillance and level changes with the street offer privacy.*

*A well-designed circulation response to a moderate change in level, where the wide steps and interface treatments invite residents and visitors easily through the site.*

## 2.3 Integrating site and building

**Design outcome: The building and layout of the development responds to the context of the street and wider neighborhood 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 on the site should maximise solar aspect, views, access to and overlooking of trees and the natural environment, and protection from the wind.

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 existing 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 development needs to have clear visibility from the main street, and separated vehicle and pedestrian spaces. These should connect safely to existing paths and movement networks.

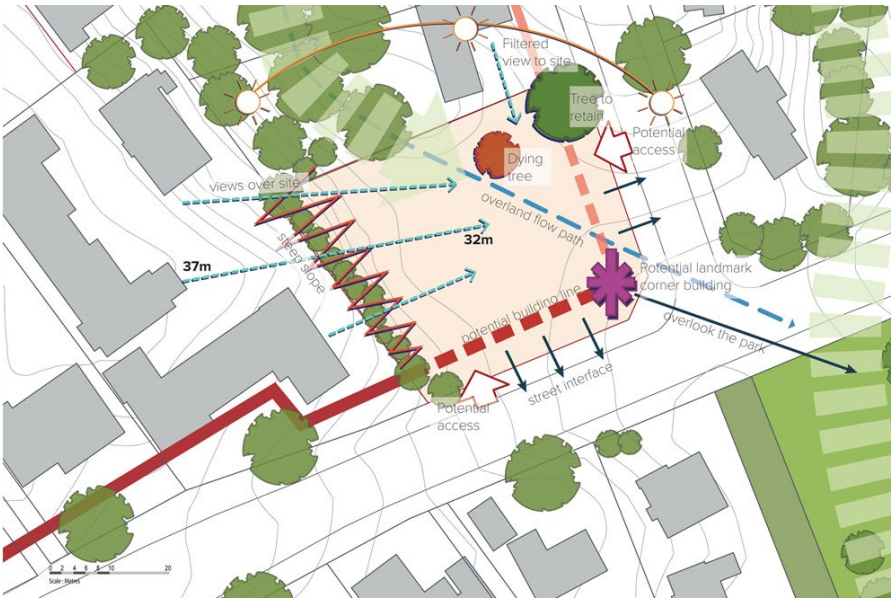
6. The design should explore opportunities to incorporate Māori cultural values into the function and design of the building and landscaping. Engage mana whenua at the beginning of the project for guidance on how to appropriately respond to Whakapapa (ancestral lineage) and Taiao (natural world).

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.

9. Design the development to capitalise on important views from the site, and also views or connections from the wider neighbourhood onto the site.


*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 5-10minute walk can help to identify activities, movement and open networks that the development can respond to and support.*

*The development supports and enhances existing routes, streets and open space connections.*

*Communal open space for play can enhance amenity for residents and create communal cohesion.*

# 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 neighbors, and designing for privacy and passive surveillance are worked through carefully.

## 3.1 Fronts and backs

**Design outcome: Terraced houses present a clearly defined 'front' to the public street to provide passive surveillance, and contain a private 'back' to the rear to provide private areas for residents.**

1. Terraced houses should have a clear public entrance, including a welcoming pathway to the front door, and a clear private back in the form of a garden, courtyard balcony or roof terrace.

2. Public fronts should face and addressing public fronts, and private backs should face and address private backs wherever possible.

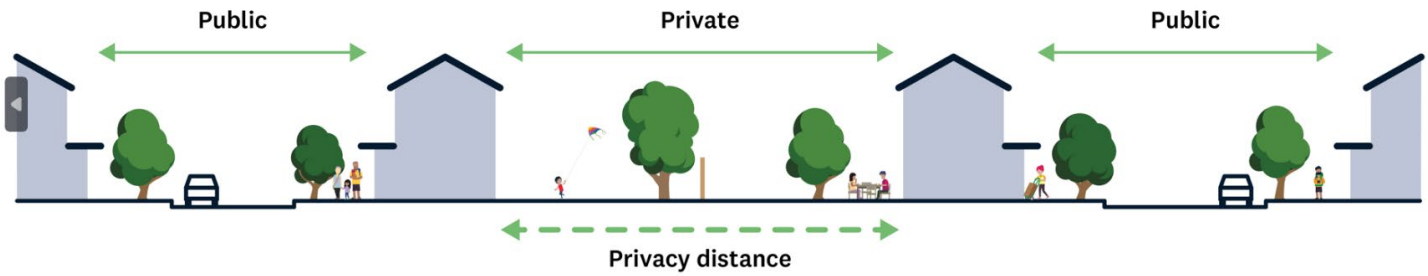



*Diagram illustrates a good interface pattern where fronts face fronts in the public realm, and backs face backs in the private realm.*

3. Fronts of houses should provide amenity and passive surveillance to the street, access lanes and driveways, or parking courts. Key qualities of 'fronts' should include:
    a) A clearly accessible and visible front door.
    b) Garage doors should be recessed from front doors and the main building line.
    c) A sheltered porch or threshold.
    d) Functional and attractive planting.
    e) A kitchen or other well-used habitable room windows adjacent to the front entrance.
    f) Windows should be waist height so that residents can look out onto the street, whilst maintaining privacy.

4. The ends of terraced houses, in particular on street or access lane corners, should address both the primary and secondary streets.

5. Terraced housing accessed via parking courts or access lanes/driveways should exhibit

the same front and back arrangements as houses that front on to streets, with the front and entrance opening directly onto the laneway. Design the façades including the ends of rows with as much attention as the front façade, particularly where they are visible from the street.

6. Provide larger windows and balconies at the first floor level to address the street and provide additional passive surveillance, particularly where there is less ground floor activation and passive surveillance.

*Terraced housing with clearly defined public front and private back pattern of development.*

*The ends of the terraced houses, in particular on street or access lane corners, successfully address both the primary and secondary streets.*


*Backs face one another to create defined and private back yards.*


*Facades to the communal accessway are well articulated and with quality soft and hard landscaping.*

## 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. For terraced housing the primary concern is the back-to-back distance, which influences a range of qualities including:

- Visual and acoustic privacy.

- The admittance of sunlight and daylight.
- 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 houses within a terraced housing development requires greater focus on achieving visual and acoustic privacy, and access to light and outlook in the design.

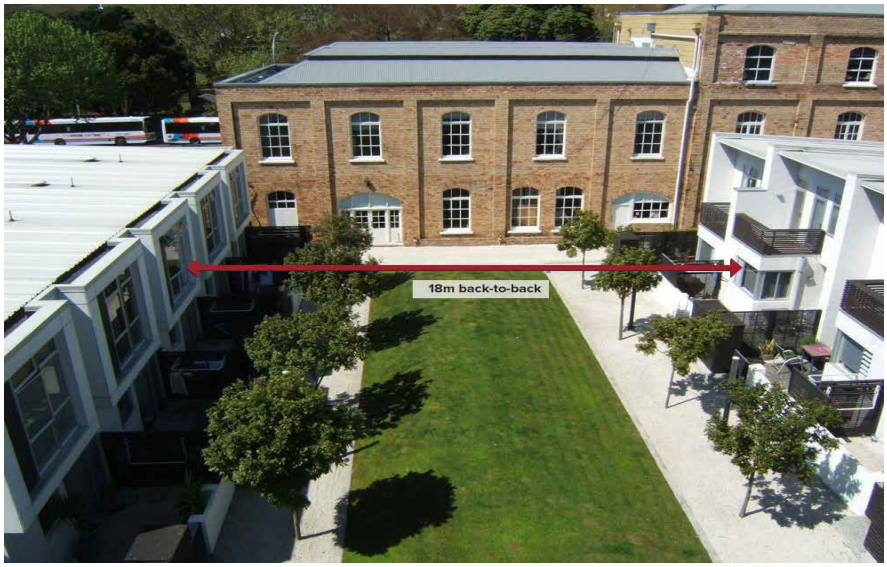
1. Ensure that back-to-back distances between terraced houses, measured from the edges of facades or balconies (whichever is greater), are separated greater than 12-metres to ensure privacy between habitable windows and balconies.

2. 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 of all terraced houses during the winter solstice. Where the separation distance is less than 15m, additional design measures should be used to ensure sunlight access.


*Buildings should be 15m apart. Where buildings are less than 15m apart, additional measures such as planting should be provided to ensure privacy.*

3. Design the terraced housing 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.

4. Consider breaks in rows of terraced houses where the fronts of terraced houses are located perpendicular to the street and accessed off a shared access-way. This will offer a third façade edge for sunlight access to the end of terrace houses. It can also provide the opportunity for onsite amenity, including mature landscaping which improves outlook.




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

*A reasonable separation distance provides outlook, privacy and sunlight to each dwelling.*

## 3.3 Designing for privacy

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

The occupants of any developments on neighbouring sites or adjacent terraced houses should be considered. 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 development, on the same or adjacent sites, and their private or communal open spaces. This can be achieved by staggering buildings and increasing separation distances.

2. Orientate proposed windows, 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.

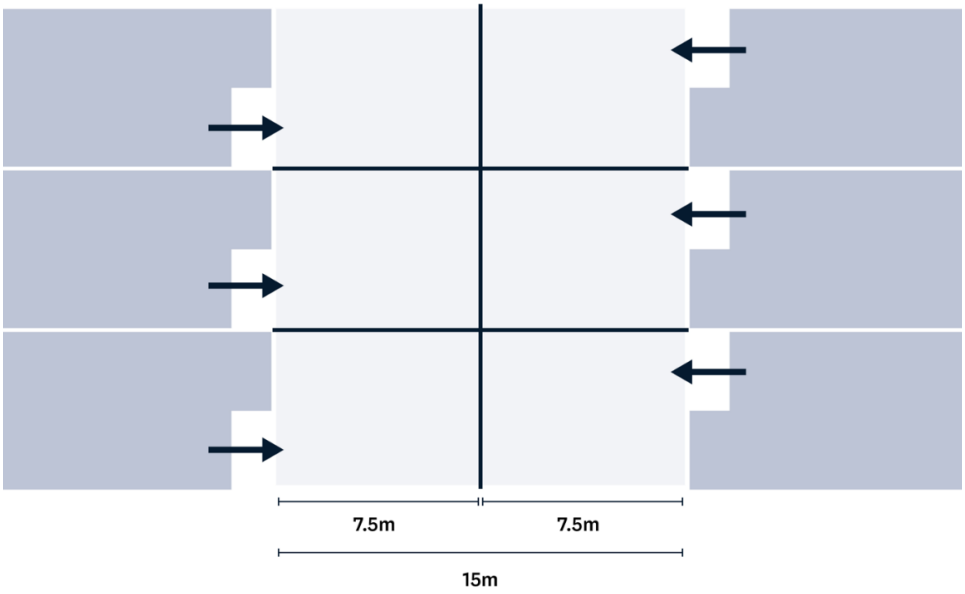
3. Balconies should be integrated within the building form to ensure privacy from dwellings adjoining either side, while extending outdoor living spaces. Wing walls on balconies can provide privacy for and from adjoining dwellings. Screens, fins, louvres on balustrades as well as pergolas and planter boxes can be used to improve the privacy of balconies.

4. Ground level private open 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.

5. Consider potential future 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.

*Integrated balconies and wing walls ensure privacy between dwellings.*

*Balconies face the street and away from dwellings opposite to increase privacy.*




*Plan view showing how to stagger the building lines adjacent to private gardens to create secluded areas when rows of terraced houses are parallel to each other.*

## 3.4 Designing for light and sun

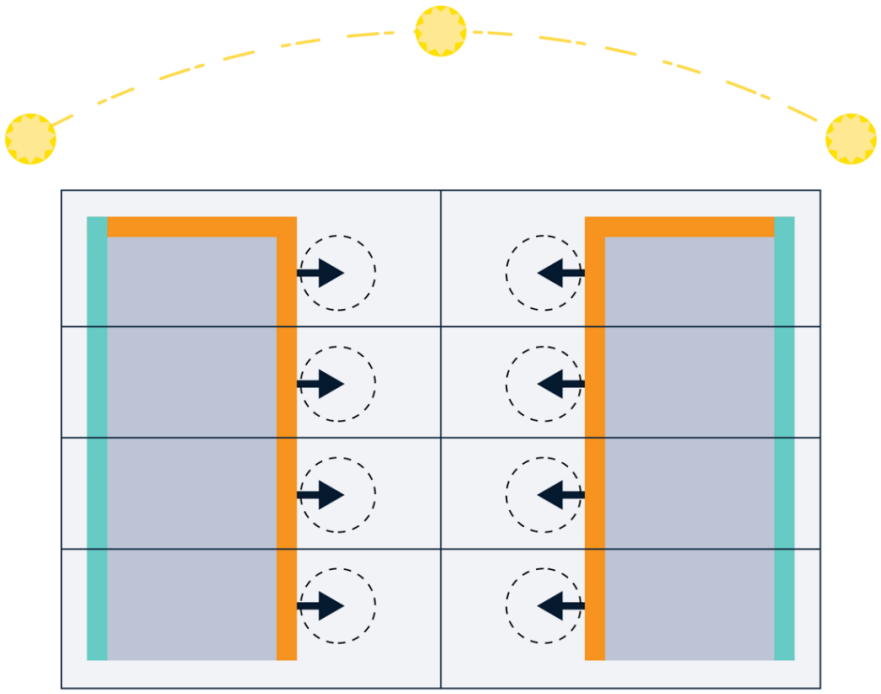
**Design outcome: Terraced houses are orientated to make the best use of sunlight to principal living areas and open spaces, and to provide for shading from summer sun.**

Designing for the sun is very important as terraced and semi-detached houses have fewer aspects than a detached house. '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 dealing with other design issues 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 separation between rows of terraces within the development, and from adjacent rows of terraced houses.
   b) Avoiding narrow north-south orientation terraced dwellings.
   c) Orientating terraced housing so that the long elevation faces east-west to maximise dual aspect sun into both 'ends'.



*East-west orientation affords best solar access to primary living spaces (orange line) and private outdoor spaces (circle) as well as secondary and utility spaces such as kitchens (blue line).*

3. All private open spaces should receive at least five hours of sunlight across at least half of the garden, 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 open spaces, and to receive maximum sunlight admission as measured at the equinox on 22 March / September.

5. Provide for shading through the summer months through the use of eaves, awnings, louvres, pergolas and tree planting.

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

*Terraced housing is orientated to make the best use of sunlight to principal living areas and private open spaces.*

*Pergolas and horizontal slats are used to provide shading in the summer.*

*Two-storey mezzanine arrangements are used to increase daylight access.*

*Increase daylight access through full height and clerestory windows.*

# 4 Street to front door

The quality of a terraced housing development is strongly influenced by the design of the frontage and front yard between the public street and private building. A well-designed frontage can enhance the safety of the street and the look and feel of the area. This section provides guidance on the elements of terraced housing that contribute to creating a successful frontage, including:

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

## 4.1 Interface with the street

**Design outcome: Terraced housing is located to face and engage with the street, and parking and access is located and arranged to maximise passive surveillance.**

Good terraced housing must relate well to the street and have a front facade that positively addresses the street, pedestrian accessways and parking areas. The terraced house should be located on the site so that a strong identity and street presence is established.

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

3. Low fencing and landscaping between the street and front door and windows allow visual interaction between the dwelling and the street.

4. A front yard and berm provide a sense of privacy and separation from the street and allow 'greening' of the street environment.

5. Level changes offer privacy to the internal rooms on the ground floor from the street.

6. Terraced and planted retaining walls provide amenity to the street and allow space for personalization, whilst providing a degree of separation and privacy.

7. Maintain good visual contact and passive surveillance between the house and the street, pedestrian accessway and parking areas to help create a safe and friendly neighbourhood.

8. Design and locate the massing of the building to reinforce the street edge. The building frontage facing the street should be well composed with careful attention to the arrangement of components such as entrances, windows and canopies, to support an attractive pedestrian experience.

9. All access points to the site should be located and designed to integrate with the street. Rear sites should be combined with front sites to integrate long driveways into a comprehensive redevelopment.

10. When designing the street to the front door, make sure:

    a) Front doors are sheltered from the wind and rain, and are clearly visible from the street, shared driveway or laneway.

    b) An accessible path from the street is provided.

    c) Avoid the dominance of garages along the street frontage.

    d) Locate frequently used rooms such as kitchens and dining rooms on the street side.

e) The entrance to the dwelling is physically separated from the vehicle access improving child safety and legibility of the front door.

*Terraced housing is located so that it faces and engages with the street.*

*Terraced front gardens create an attractive street environment, whilst offering privacy and a sense of separation for the residents.*

*Kitchen and dining room windows provide passive surveillance over accessways and parking areas.*


*A ramp to the front door allows universal access, the recessed door provides.*

*A pergola emphasises the front door.*

*Garages dominate the accessway.*

*Form and colour make the active parts of the facade more prominent.*

## 4.2 Boundary treatment

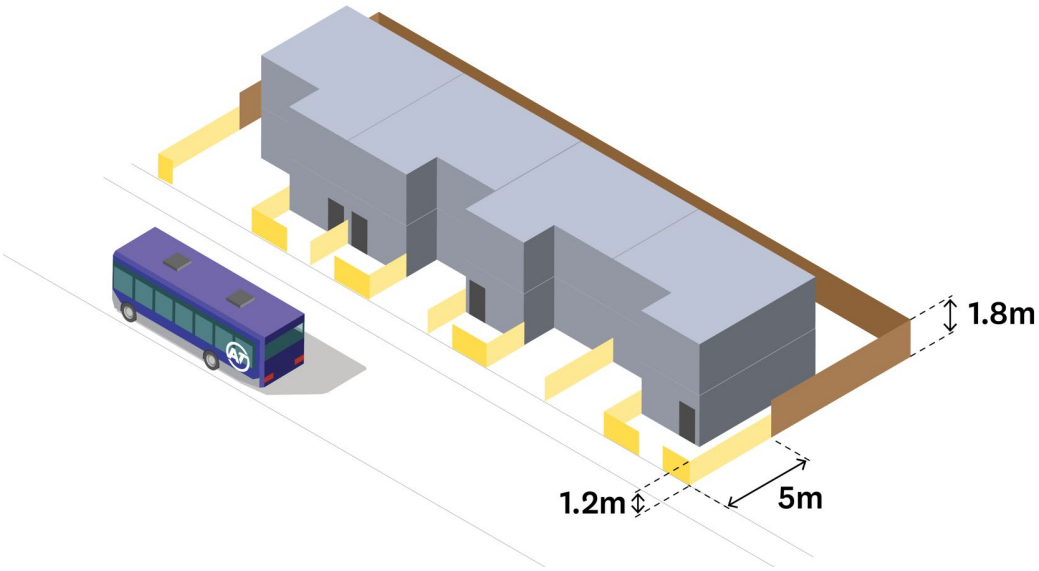
**Design outcome: Boundary treatments balance views and passive surveillance of the street with creating separation and a degree of privacy.**

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 need 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 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.




*Lower fences for the first 5m to allow reversing vehicles to see pedestrians on the footpath*

3. Where private open space is located 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.

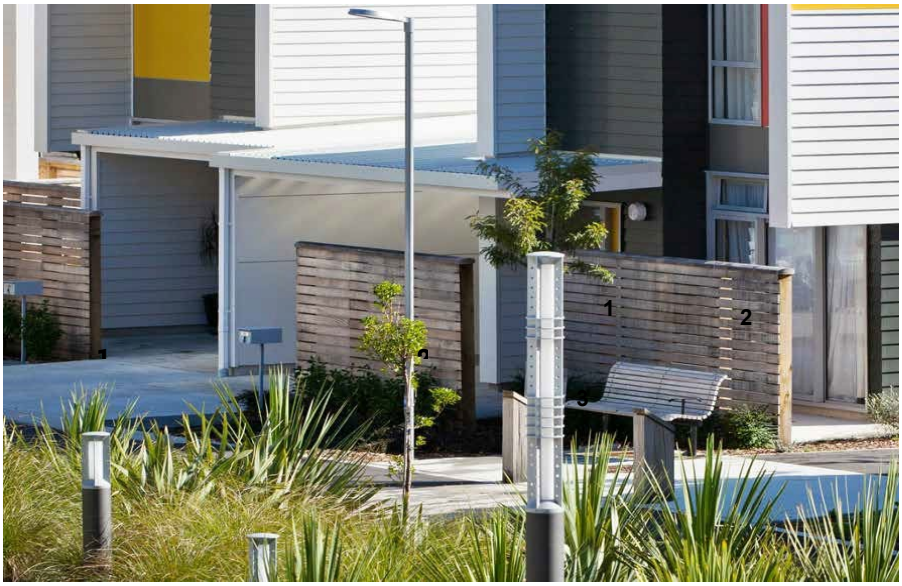
4. Use planting to reduce the scale of any street-facing raised terraces, e.g. those over sub-basement car parking, and to soften their edge. Select durable materials that are easily cleaned and graffiti-resistant.


*The boundary treatment balances views to the street while maintaining privacy for residents.*

*Low walls provide passive surveillance and planting softens the edge.*

*Screens provide privacy and passive surveillance of the pedestrian environment.*

*Hedging screens basement parking, a retaining wall provides separation and permeable fencing provides passive surveillance.*



*Front boundary fencing encloses the communal open space with seats at the edge, providing privacy and some passive surveillance.*

## 4.3 Safety, activity and overlooking

**Design outcome: Safe and secure public and communal 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 of the streets or public/communal environments.


*The building has many windows and front doors facing the laneway to provide passive surveillance, whilst managing privacy with narrow window sizes.*


*Windows and balconies are provided on both sides of the corner to ensure passive surveillance on both streets.*

*Large balconies provide a sense of overlooking and safety in the laneway and communal space. Lighting provides safety at night.*

*Windows above garage at the end of the lane provide good sightlines over the lane.*

*Building set back from the corner and close boarded fence with solid retaining wall prevent views of the lane.*

# 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 identity amongst residents.

## 5.1 Private outdoor space

**Design outcome: Private outdoor spaces are well designed, maximizing spaciousness and are fit for purpose for the size of the house.**

1. The location and design of the primary outdoor space should take advantage of the sun and be protected from the prevailing wind. All private open spaces should receive at least five hours of sunlight on the equinox (22 March or 22 September) on at least half of 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. Open spaces should be designed to optimise the topography creating terraced spaces where possible.

3. Ground level outdoor spaces are preferred for terraces as they typically offer greater spaciousness and privacy than upper level balconies. They can also offer more landscape garden qualities for mature tree planting, food production and outdoor dining.

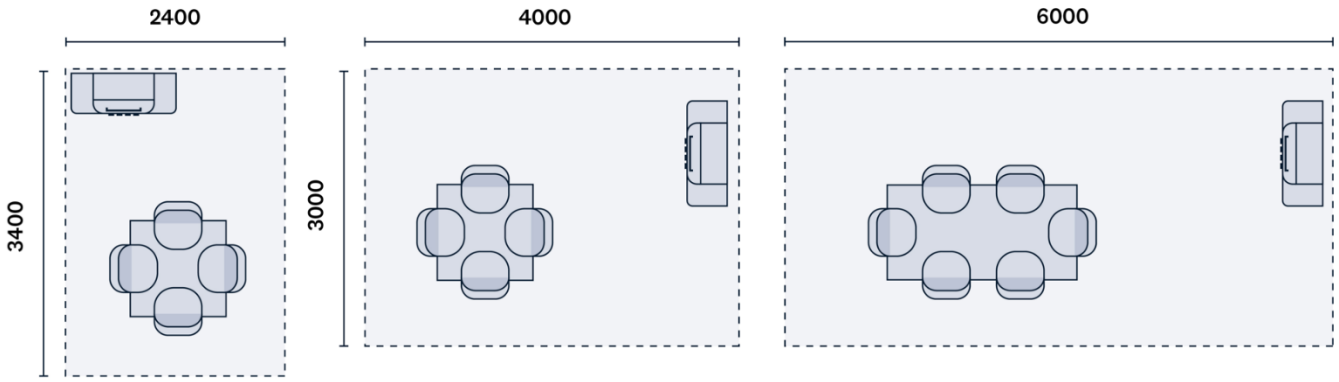
4. Above ground balconies should be orientated to maximise views over public and communal spaces, and natural areas, and away from neighbouring windows and private outdoor spaces.

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

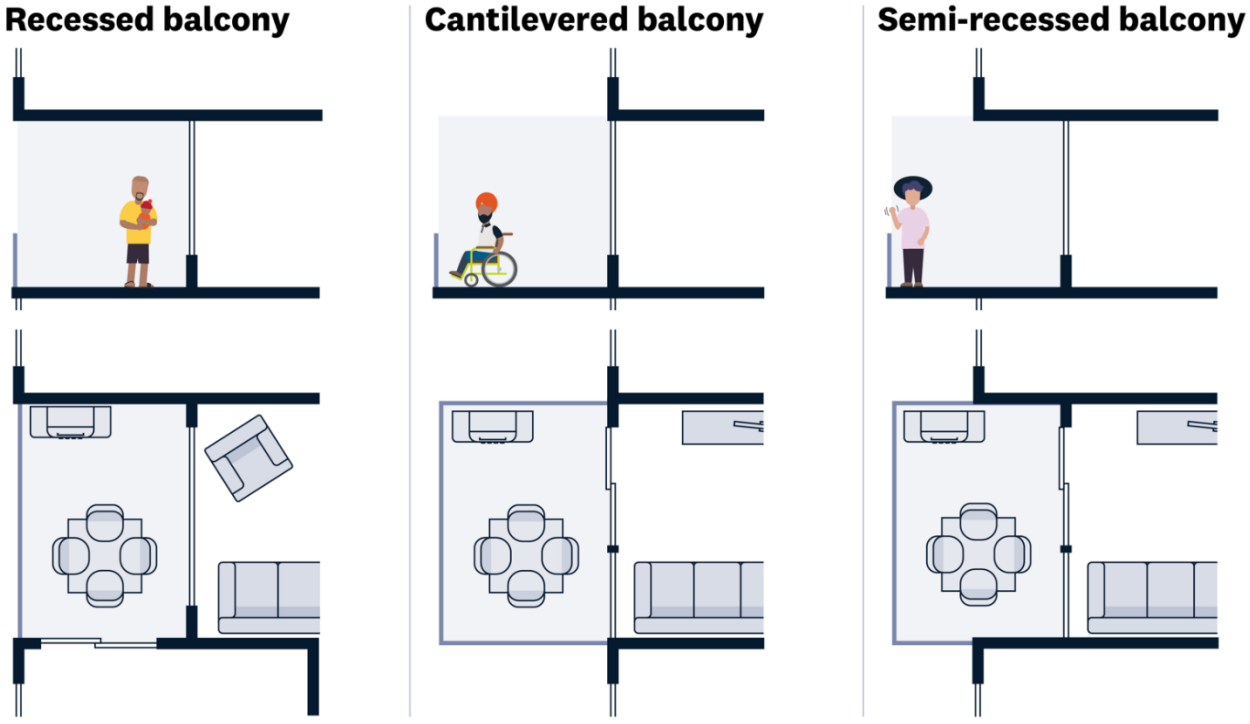
6. Private outdoor spaces should allow for a range of different uses including outdoor dining in reasonable privacy, as well as clothes drying, bin storage and other service functions. Balconies or patios should provide an area which can be screened to allow for clothes drying.

7. A balcony, deck or terrace space should be large enough so that the equivalent of two people per bedroom can circulate, sit, eat or barbeque safely and comfortably. For houses of four bedrooms or more, these spaces should be able to accommodate six people. This can be indicated on the plans by showing a table and chairs suitable for the occupants of the house plus guests.

## Balcony proportions



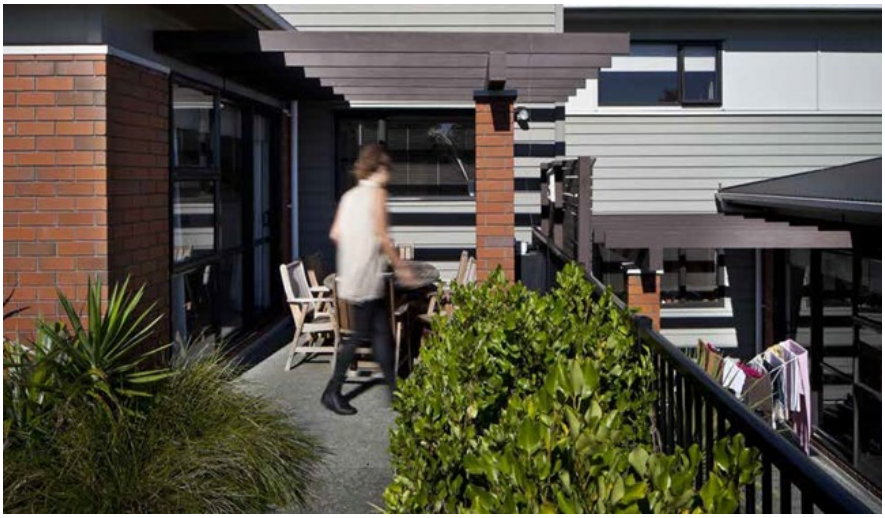

*Balconies should be proportioned to the number of people and for their intended purpose.*




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

*Balconies are orientated towards views and public open spaces.*

*Directly accessible connection between the principal living area and the outdoor space.*



*Outdoor spaces accommodating a range of uses including outdoor dining and clothes drying.*

*Ground floor outdoor spaces provide space for families and trees.*

*Ground floor outdoor spaces have room for planting and a secluded environment.*

*Balconies can provide additional open space with more sun.*

## 5.2 Communal outdoor space

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

Communal outdoor space refers to the spaces that can be shared by more than one house within the terraced development. It can be shared by specific clusters of houses, or by residents in the whole development. When private outdoor spaces are small minimum, additional communal spaces should be provided for residents to cater for their outdoor and recreational needs.

1. The size, design and facilities provided within the communal space should reflect the number and ages of the residents who will live there. More than one communal space can be provided offering different activities, both passive and active.

2. Design the communal open space to maximise sunlight at the Spring and Autumn Equinox of (22 March and 22 September), and to be sheltered from the prevailing wind.

3. The design of the edge interfaces to communal outdoor spaces, including fences, should provide a good balance of natural surveillance over the space, and privacy for residents within their dwelling. Houses should front and overlook communal spaces wherever possible.

4. The space should provide for day and night-time uses. Good lighting should be provided to help ensure that the space is attractive, safe and aid surveillance after sundown.

5. Communal space should be easily accessible to residents and visitors of all ages and mobility levels. Communal space should be located on relatively flat gradients or usable terraces. Design pathways to be continuous and at least 1500mm wide, use very shallow-pitched ramps if these are required, and minimise steps.

6. Use both soft landscaping (trees, shrubs, grass, planted beds, vege gardens etc.) and hard landscaping (paving, furniture, fixtures etc.) to provide amenity and define areas. Locate around existing mature trees to provide visual amenity and shade.

7. Ensure a clear distinction between any areas designated for servicing (rubbish collection, outdoor washing-drying spaces) and communal amenity spaces.

8. A maintenance plan should be provided to ensure communal outdoor spaces become a long term asset to the development.

9. Areas of existing trees, overland flow paths and areas of steep gradient should be integrated into the design of communal open space as a positive feature

*Dwellings front and address the communal space.*

*Design and activities in the park reflect the number and ages of future residents.*

*Different types of spaces can provide for different activities.*

## 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 the storage of waste, garden sheds and clothes lines.

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

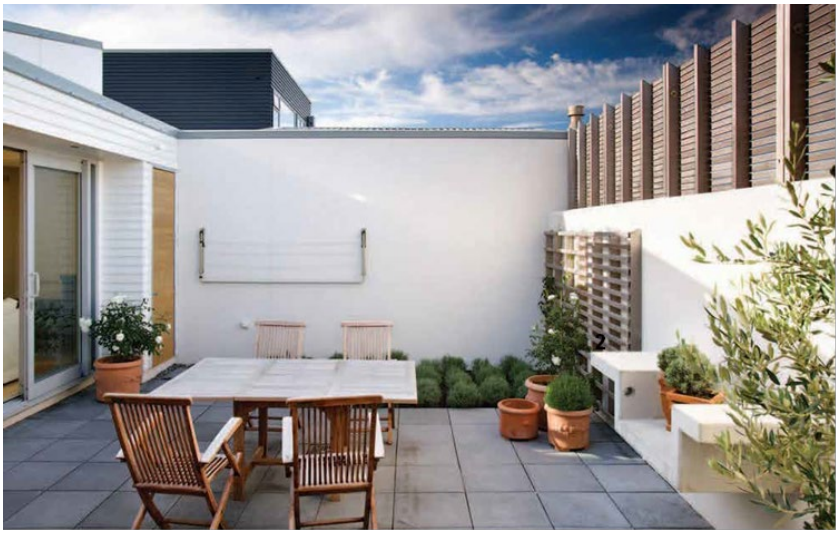
2. Where waste bins are visible from the street, communal areas or building entrances, they should be screened in an integrated way with the boundary treatment and/or house design.

3. Consider integrating rubbish areas into a communal refuse area for efficient collection and to reduce clutter across the development.

4. Provide a service area for outdoor clothes drying, and storage of gardening equipment.

*Bin storage areas are screened and integrated into the design of the fences.*

*Compact bin store and utility area enclosed in the side yard.*



*The wall-mounted washing line can be discretely folded away when not in use.*

## 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.**

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

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

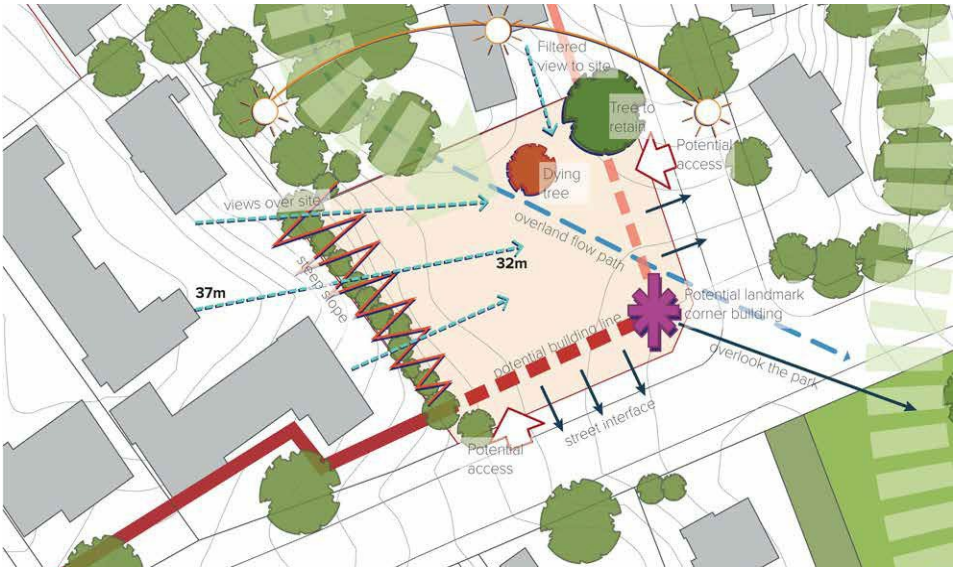
Retain existing mature trees and incorporate them into the overall development. Locate private and communal spaces and entranceways to take advantage of existing trees. Trees reduce sun and heat in summer, provide an essential rainwater soakage function, and contribute to

landscape amenity both onsite and for the wider neighbourhood.

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

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

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




*Site analysis plan identifies trees for retention and possible future ecological linkages.*

*An existing mature tree has informed the location and design of the communal open space.*

# 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.**

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

1. 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.

2. The massing of larger terraced blocks should maximize access to daylight and sunlight – for internal spaces, outdoor spaces and for the adjacent street(s).

    a) Subdividing the overall mass of a terraced block into a rhythm of individual houses and smaller forms that results in a hierarchy of elements to avoid, or break up, overly large forms.

    b) Avoiding significant and visually jarring contrasts in scale between the proposed terraced building and adjacent buildings / sites. Consider set-backs, steps in façades or variations in roof form to create a softer transition.

    c) Introducing set-backs at upper levels to achieve a human scale form at street level and encourage sunlight into the street.

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

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

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

3. The mass of a terraced block can be further broken down by:

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

b) Expressing the entry points.

c) Expressing the individual houses to achieve identity.

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

e) Varying roof form to create visual interest.

*Expressing individual houses breaks down the larger form.*

*Timber decks provide delineation between the first and ground floor.*

*Varied roof forms create differentiation between the houses and reduce the massing of the block.*

*Strong vertical and horizontal lines using colour and projecting and receding building elements. Building mass is also reduced through staggering the building line and emphasising vertical elements.*

*Repetitive façade design increases the scale and massing of the development and presents a poor-quality building to the street.*

## 6.2 Design and appearance

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

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.

1. 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.

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

3. Each house in the row should be well defined and expressed as a separate entity from the neighbouring adjoining house.

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

5. 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.

6. 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 and sky dishes in the early design stages.

7. Incorporate elements such as sun shades, screens, fins and blades to control the admittance of sunlight where required. Consider façade arrangements that use a hierarchy, or layers, of elements. Display a simple rhythm and coherent logic in the design and materials of all façades.

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

9. 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.

10. The roof should be integrated into the overall design of the terrace house and create interesting rhythms to reduce any visually dominant massing.

11. Terraced housing 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.


*Vertical rhythm of façade responds to existing buildings.*

*Mirroring the central units and 'handing' the outer units create a variety in building form, reducing the appearance of repetition.*

*The position of windows and the downpipe of a contrasting colour establish vertical and horizontal lines, defining each dwelling within the larger building.*

*The rear elevation expresses individual aspects of individual houses / internal spaces by recessing façade elements, and using different materials and colour.*

*Bin stores, utility boxes, and weather protection at the entrance are integrated into the overall design.*

## 6.3 Detailed building elements

**Design outcome: The detailed parts of the house 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 Porches and entries

1. Design porches and entries as an integral part of each house and ensure the entry is clearly visible, addresses the street or driveway/accessway and provides shelter for people entering the house.

2. Make front porches 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.

*Entry porches are clearly visible from the street and the first floor extends over the ground floor entry point to provide weather protection.*

### 6.3.2 Doors and windows

1. Align doors and windows on the façades to develop a coherent pattern and rhythm. For coherence, these should be considered as a 'suite' of related shapes and sizes that are used throughout the development.

2. Relate the size, location and number of windows to the overall scale and proportions of the house, as well as providing daylight and controlling solar access to internal rooms.

### 6.3.3 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 house.

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

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

*A varied but co-ordinated palette of materials establishes a sense of place.*


*Cedar balconies create a horizontal band of contrasting colour, and add richness and texture to the street scene.*

# 7 Internal spaces

This section provides guidance on internal space requirements of terraced houses, 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. Therefore, where relevant, this section also incorporates Universal Design principles. Universal Design refers to designs and spaces which are accessible to all.

In particular 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.**

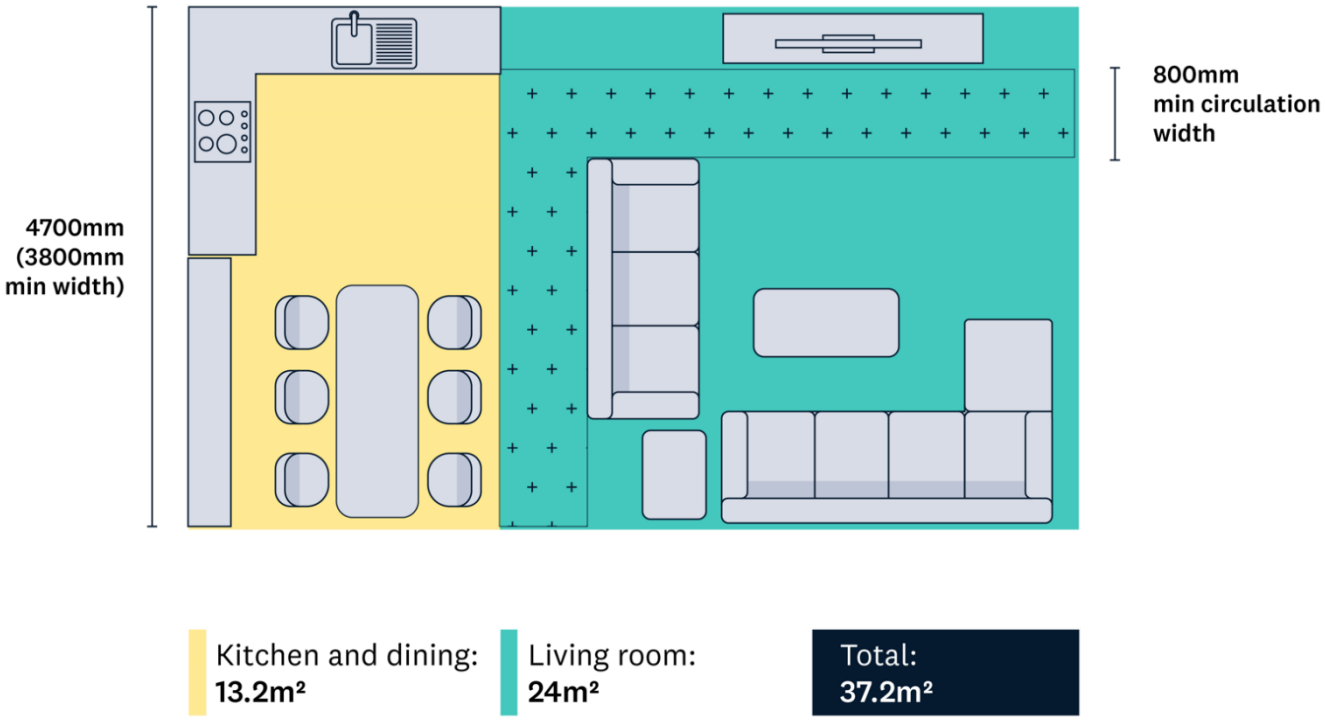
Terraced houses tend to combine dining, kitchen and living areas into open plan layouts and this is often considered desirable by occupants. However, where terraces are being designed for specific cultural needs it may be preferable to separate the kitchen from living and dining or other combinations.

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.

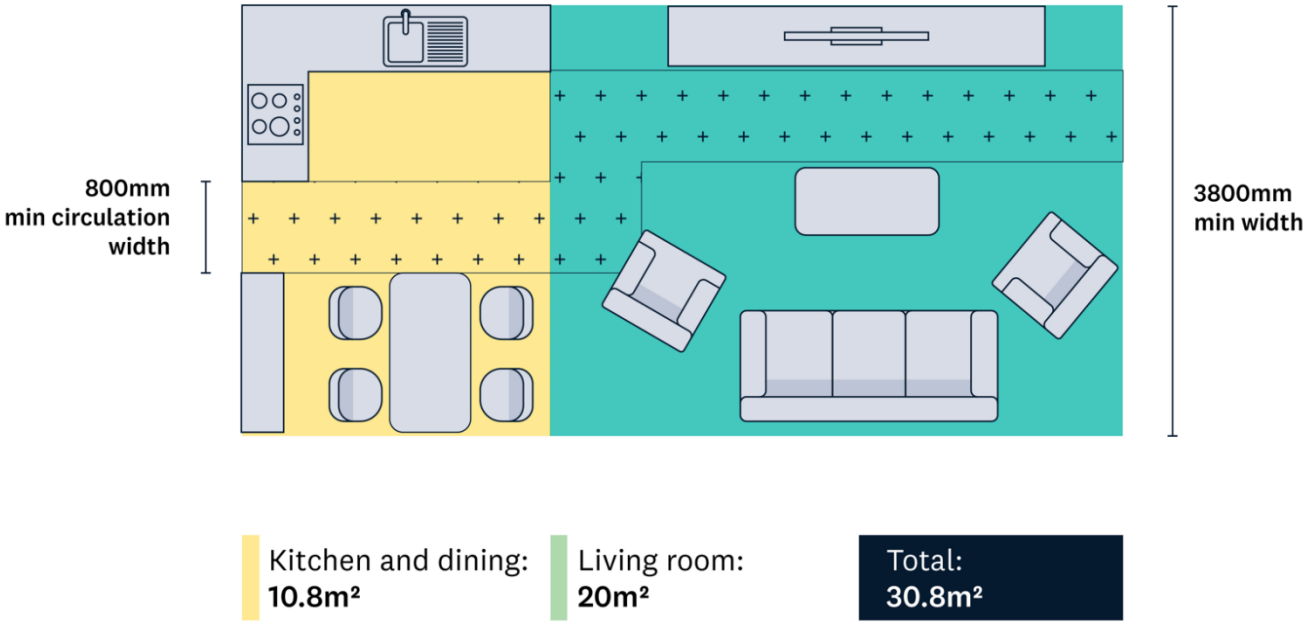
2. When designing living and designing rooms consider how the space will function. Floor plans should show a proposed furniture layout. The arrangement of furniture should create spaces that are practical and pleasant to use. This includes:

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

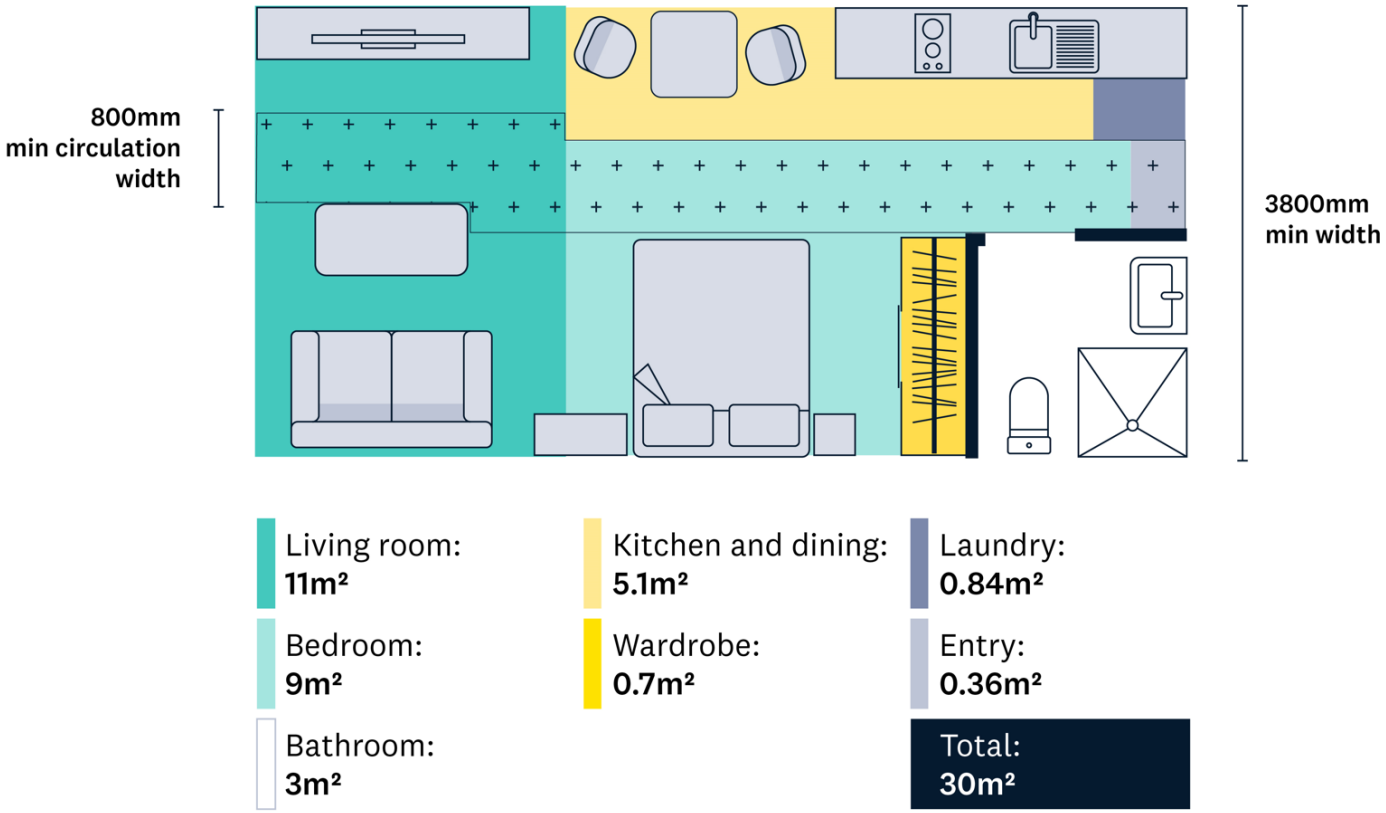
    b) Access to bedrooms and bathrooms that avoids crossing through the middle of living spaces. Movement should be directed around the edges of these rooms.




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

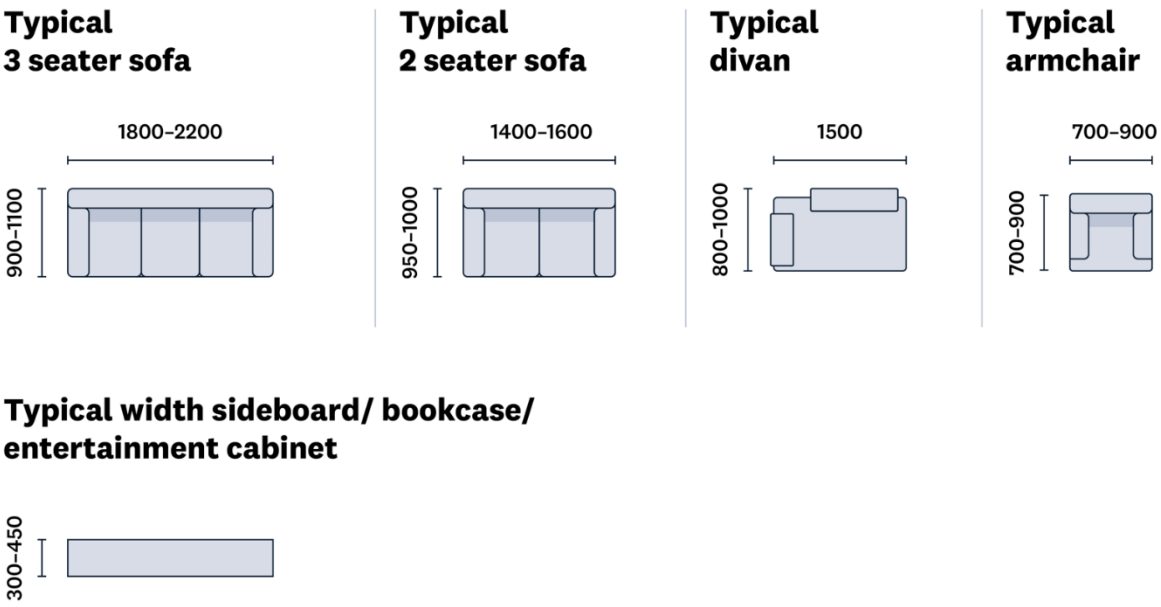



*Minimum living /dining/kitchen room dimensions for a 1-bedroom dwelling.*

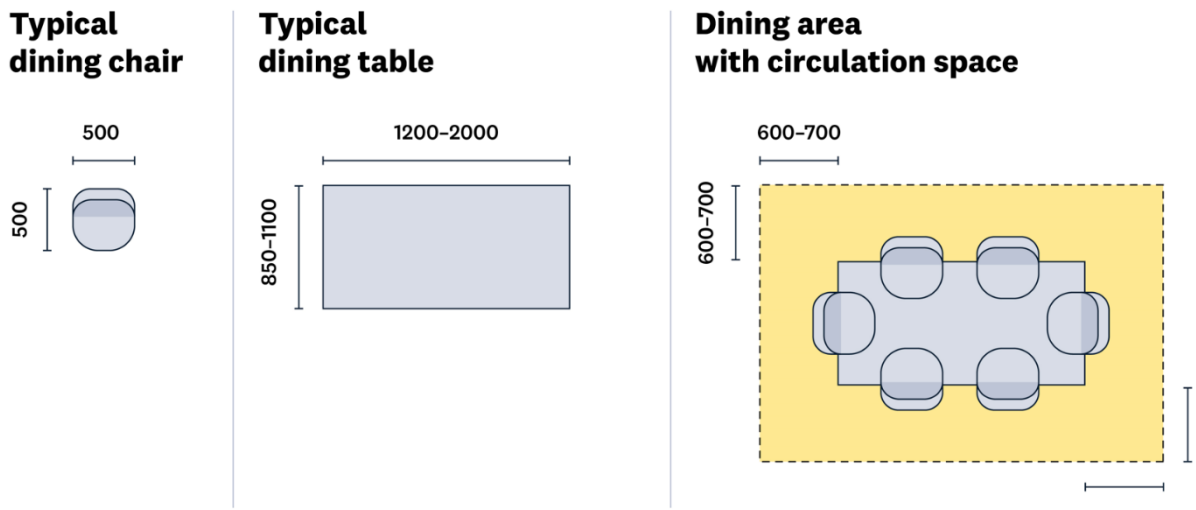



*Minimum room dimensions for a studio dwelling.*

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 living room furniture.*




*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. Terraces should conform to New Zealand Standard 4121 (Design for Access and Mobility) for wheelchair user access. A living space should also be provided at the entry level of a terrace house.

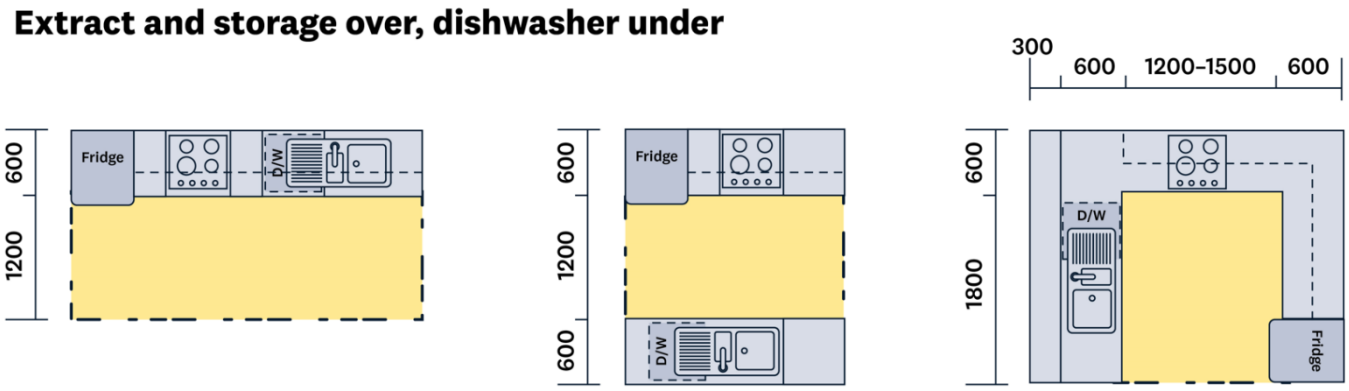
*Adequate space is provided around the dining table.*

*Kitchen, living and dining spaces are often provided in open plan rooms in terraced houses.*

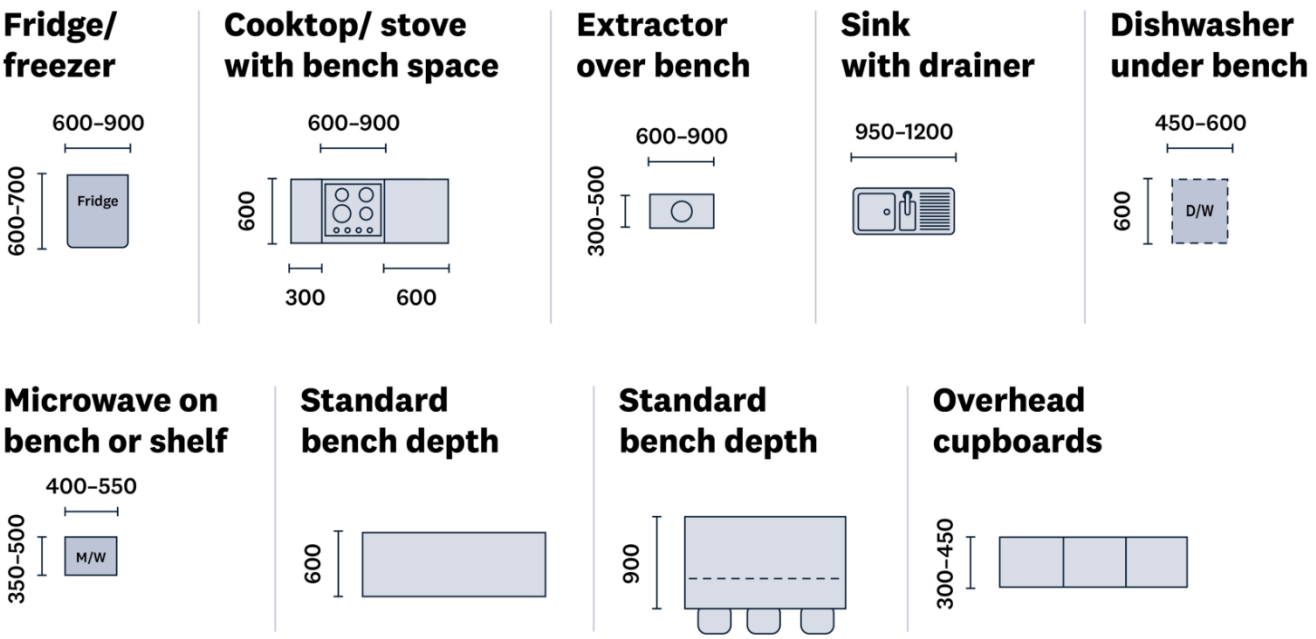
## 7.2 Kitchens

**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 terraced unit. A large, family unit has different requirements to a more compact terraced house. However there are some basic space requirements to be incorporated in a kitchen area, as illustrated below:

3. The standard bench depth should be 600mm.

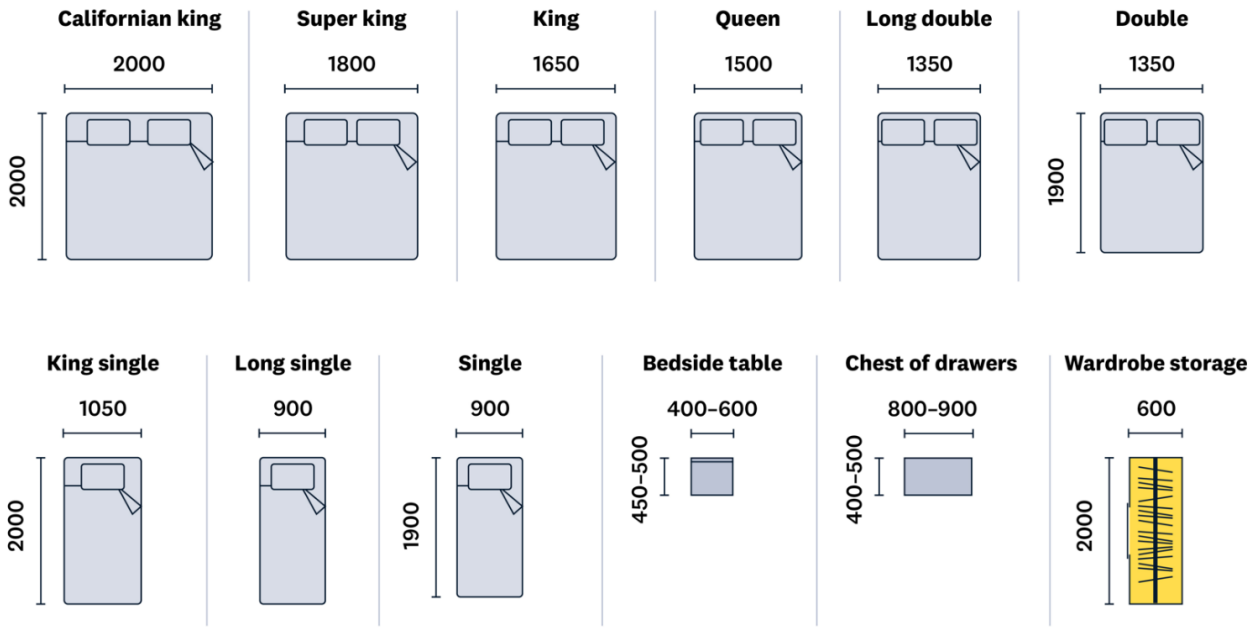
4. Storage should be provided for:
    - food
    - crockery
    - cutlery
    - miscellaneous kitchen appliances
    - bowls, baking and roasting dishes
    - baking papers, wraps etc.

## 7.3 Bedrooms

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

1. 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.

2. 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).*

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

4. 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: Terraced houses have a balcony, deck or paved area (patio) directly accessible from the living or dining room.**

Access between living rooms and outdoor space provide 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. Additional balconies, decks or terraces may be accessible from any other habitable room.

2. 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.

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

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

*(See also Section 4: 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 terrace, 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. Storage space should be provided inside the unit (or the garage) for large items such as sporting and garden equipment or bicycles.

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

4. The size of the storage space should be proportional to the number of occupants intended for the terrace.

5. 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.

6. Owner-supplied freestanding storage units should be allowed for in the terrace plan, including units for audio-visual equipment and personal effects.

7. Consider providing storage outside/remote to the unit. This space is particularly important for storing larger items (sporting equipment etc.) when a garage is not included as a part of the terrace.

8. Dedicated storage rooms or spaces within garages or 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.

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

10. 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 to provide good levels of amenity for building occupants including heating and cooling and ventilation.

## 8.1 Heating and cooling

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

Employing passive solar design principles will save money over the life of the house, making it both less expensive to run and more healthy to live in. This means designing the house to maximise the ability of the natural environment to heat and cool the house. Healthy and efficient house design will require balancing heating from the sun, making sure heat does not leak out, while also ensuring the inside of the house is naturally ventilated.

How occupants use the house will determine how much energy they use. It is just as important that they understand how to make the heating, cooling and ventilation systems work efficiently, as it is to provide energy saving features.

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 garages, bathrooms and service areas internally or on the southern side of the house 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.

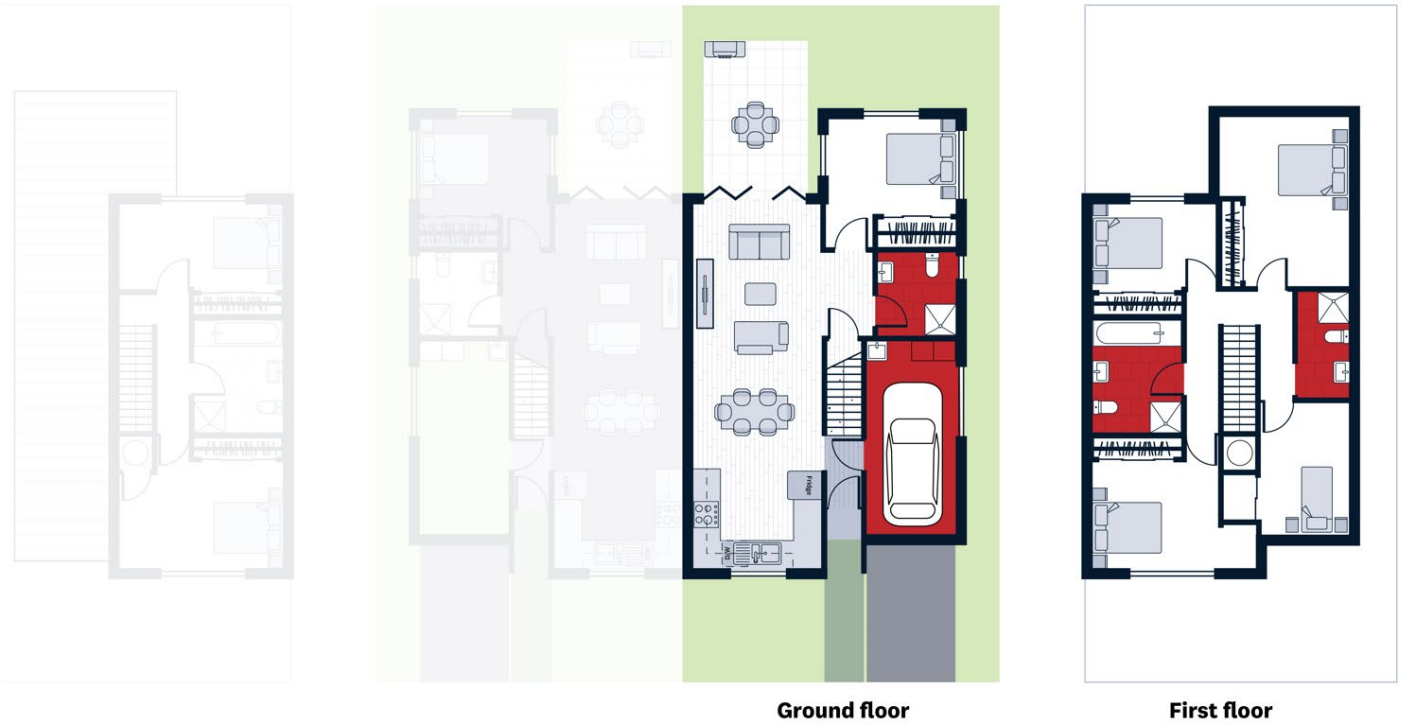
4. Add extra insulation to lower heating and cooling costs - insulation costs nothing to maintain or run.

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 joinery types and systems that do not allow thermal bridging.

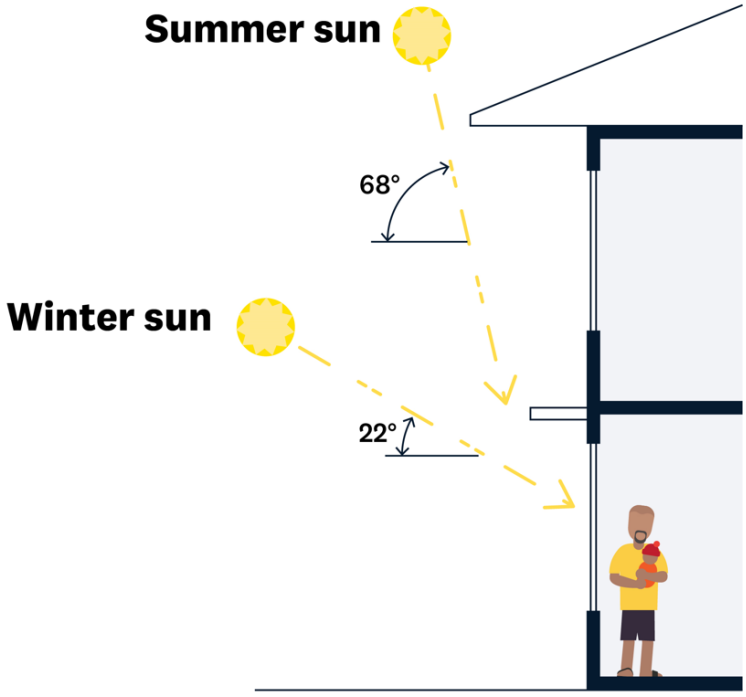
7. Use double glazing to reduce heat loss through windows. This will also reduce condensation, mould growth and noise. Well fitted drapes are also effective at reducing heat loss.

8. North facing spaces should be designed with a layout and material finishes that support passive solar design using floor and wall areas to store heat.


*Living spaces and bedrooms face externally, whilst bathrooms are internal, and garages are located on the south side.*

*Deep recessive eaves, mechanical louvers and planting prevent overheating from the high summer sun.*




*Design eaves for different sun angles.*

## 8.2 Ventilation

**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 buildings should not exceed 14m in order 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 buildings 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. Stack-ventilation moves air vertically up through the house and ventilates it through a high window. Design the house to utilise the 'stack effect' to optimise how natural air movement can cool the house.

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

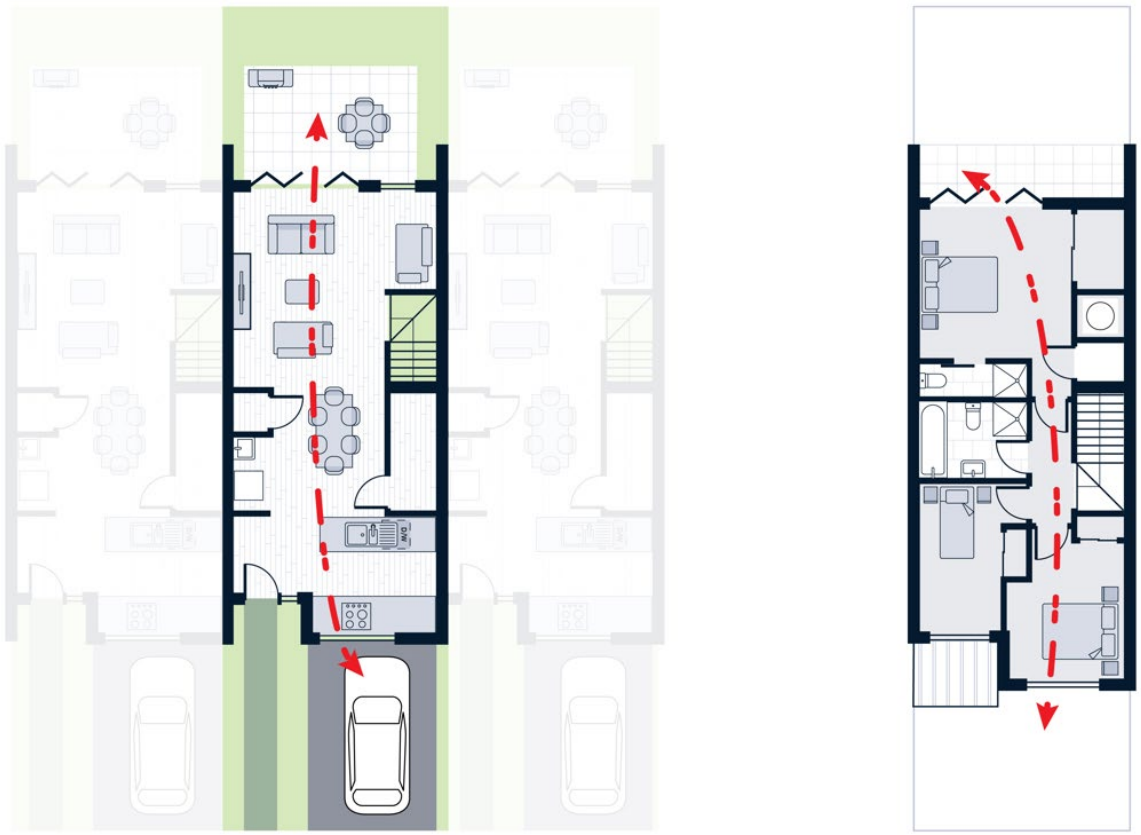
8. It is also possible to use the action of hot air rising and cool air falling to redistribute heat through the house.

9. Use fans as a way of circulating cool air in summer, and warm air in winter. Warmer air in the upper rooms including the roof space can be mechanically ducted back into colder lower levels of the house.

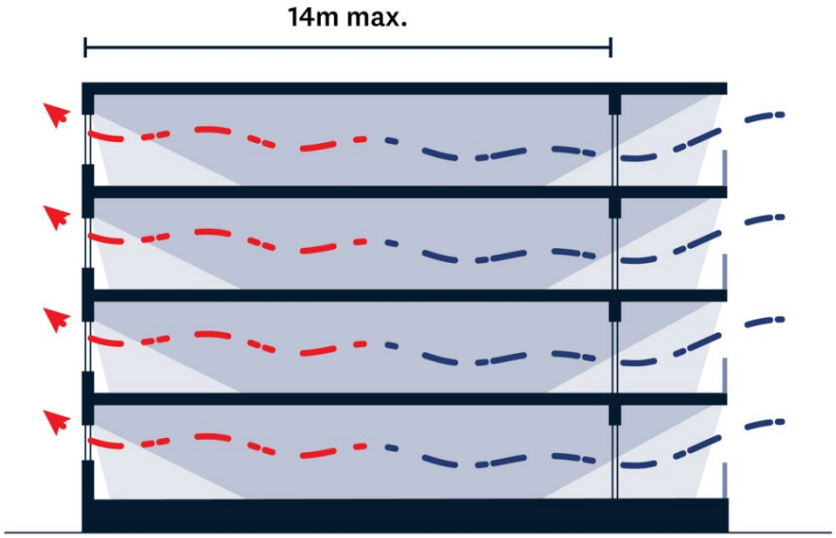
10. Position windows and doors to take advantage of cooling summer breezes and avoiding winter winds. The house should be protected against the cold south westerly wind and opened up to the warmer north-easterlies, which are Auckland's prevailing winds.

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

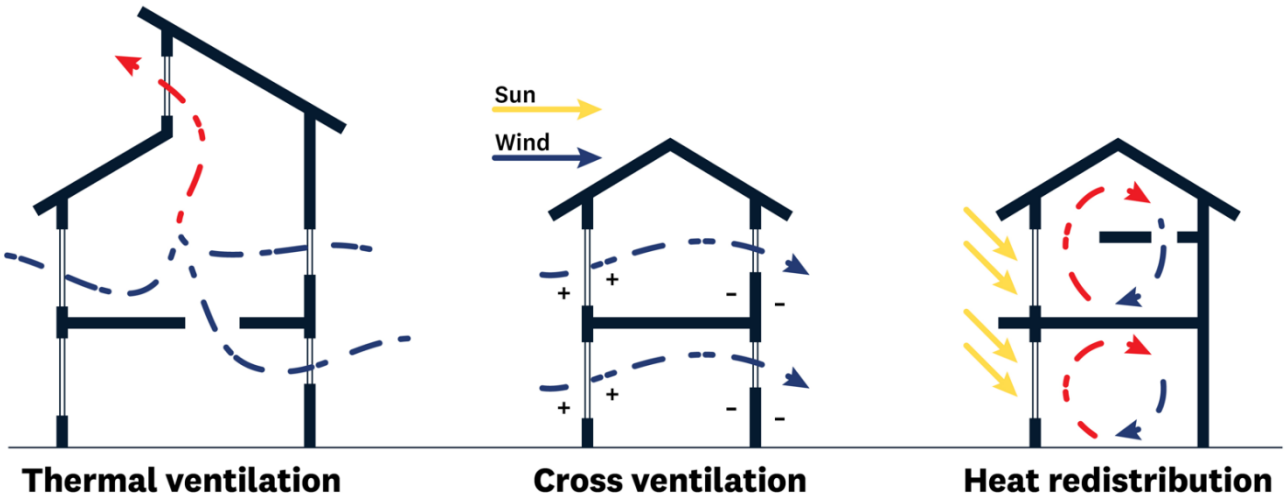
12. Light tubes (solar tubes) can be fitted with double glazing and ventilation and can be an effective means of lighting and ventilating internal spaces.




*Dual aspect dwellings allow for cross ventilation through the house.*




*Dual aspect dwellings should be no deeper than 14m to enable effective natural ventilation, and natural light into habitable rooms.*




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

*Stack ventilation occurs by providing openable windows from ground floor upwards.*

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

Document updated: October 2024