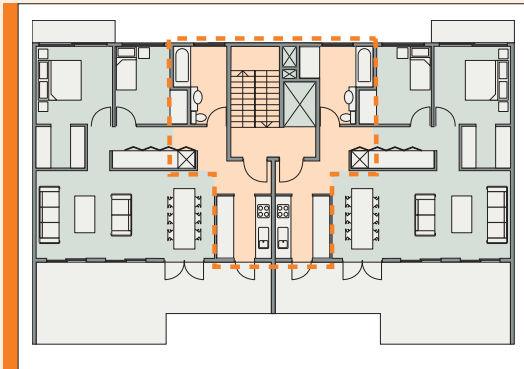


.Building Amenity

.Acoustic Privacy



Acoustic privacy is a measure of sound insulation between apartments and between external and internal spaces. Designing for acoustic privacy relates to the location and separation of buildings within a development and the arrangement of apartments and internal spaces within apartments.



03.33. This typical apartment floor plan locates living spaces away from noise sources, such as the lift and stairs. Quiet bedrooms are also located separate from main living areas.

Objectives

- To ensure a high level of amenity by protecting the privacy of residents within residential flat buildings both within the apartments and in private open spaces.

Better Design Practice

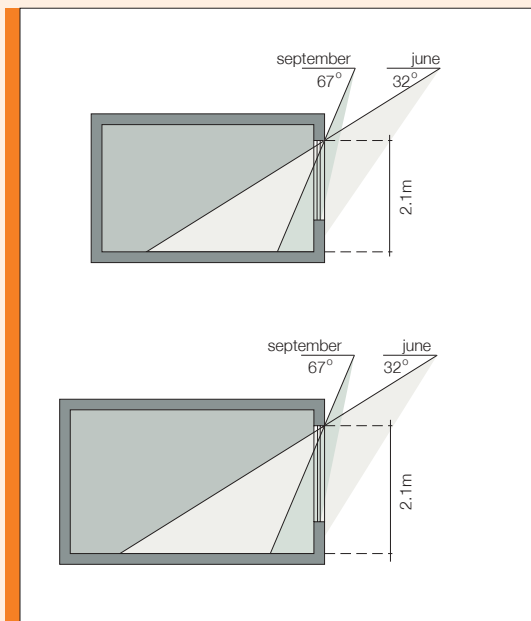
- Utilise the site and building layout to maximise the potential for acoustic privacy by providing adequate building separation within the development and from neighbouring buildings.
- Arrange apartments within a development to minimise noise transition between flats by:
 - locating busy, noisy areas next to each other and quieter areas next to other quiet areas, for example, living rooms with living rooms, bedrooms with bedrooms
 - using storage or circulation zones within an apartment to buffer noise from adjacent apartments, mechanical services or corridors and lobby areas
 - minimising the amount of party (shared) walls with other apartments.
- Design the internal apartment layout to separate noisier spaces from quieter spaces by:
 - grouping uses within an apartment—bedrooms with bedrooms and service areas like kitchen, bathroom, laundry together.
- Resolve conflicts between noise, outlook and views by using design measures including:
 - double glazing
 - operable screened balconies
 - continuous walls to ground level courtyards where they do not conflict with streetscape or other amenity requirements.
- Reduce noise transmission from common corridors or outside the building by providing seals at entry doors.

.Building Amenity

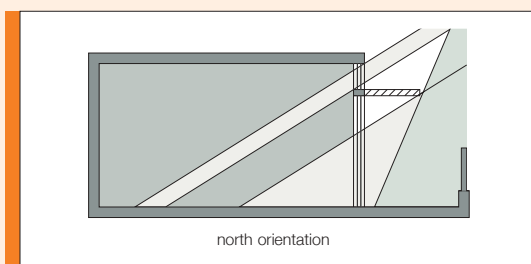
.Daylight Access



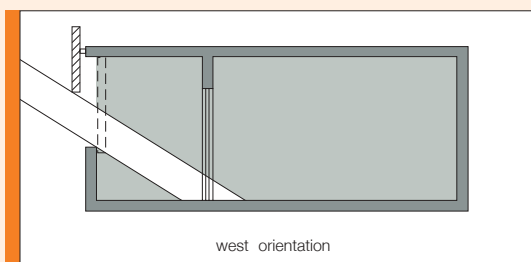
Daylight consists of skylight - diffuse light from the sky - and sunlight - direct beam radiation from the sun. It changes with the time of day, season, and weather conditions. This variability contributes to pleasant environments in which to live and work. Within an apartment, daylighting reduces reliance on artificial light, improving energy efficiency and residential amenity.



03.34. Higher ceilings and higher window heads allow deeper sunlight penetration.



03.35. On north facing windows, projecting horizontal louvers admit winter sun while shading summer sun.



03.36. On west facing windows, vertical louvre panels or sliding screens protect from glare and low afternoon sun.

Objectives

- To ensure that daylight access is provided to all habitable rooms and encouraged in all other areas of residential flat development.
- To provide adequate ambient lighting and minimise the need for artificial lighting during daylight hours.
- To provide residents with the ability to adjust the quantity of daylight to suit their needs.

Better Design Practice

- Plan the site so that new residential flat development is oriented to optimise northern aspect.
- Ensure direct daylight access to communal open space between March and September and provide appropriate shading in summer (see Open Space and Landscape Design).
- Optimise the number of apartments receiving daylight access to habitable rooms and principal windows:
 - ensure daylight access to habitable rooms and private open space, particularly in winter
 - use skylights, clerestory windows and fanlights to supplement daylight access
 - promote two-storey and mezzanine, ground floor apartments or locations where daylight is limited to facilitate daylight access to living rooms and private open spaces
 - limit the depth of single aspect apartments
 - ensure single aspect, single-storey apartments have a northerly or easterly aspect
 - locate living areas to the north and service areas to the south and west of the development
 - limit the number of south-facing apartments and increase their window area
 - use light shelves to reflect light into deeper apartments.
- Design for shading and glare control, particularly in summer:
 - using shading devices, such as eaves, awnings, colonnades, balconies, pergolas, external louvres and planting
 - optimising the number of north-facing living spaces
 - providing external horizontal shading to north-facing windows
 - providing vertical shading to east or west windows

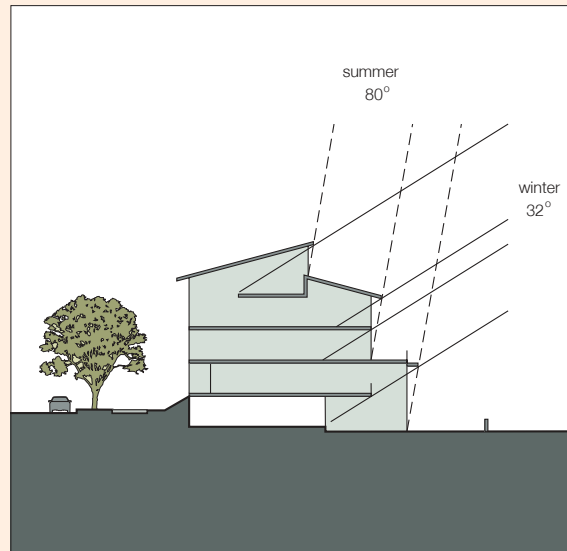


03.37. A combination of louvres provide shading for different times of the day.



03.38. Sun shading is an integral component of the building form and facade design.

- using high performance glass but minimising external glare off windows:
 - avoid reflective films
 - use a glass reflectance below 20 percent
 - consider reduced tint glass.
- Limit the use of lightwells as a source of daylight by prohibiting their use as the primary source of daylight in habitable rooms. Where they are used:
 - relate lightwell dimensions to building separation, for example, if non-habitable rooms face into a light well under 12 metres high, the lightwell should measure 6 x 6 metres. Where smaller dimensions are proposed, satisfactory acoustic privacy, visual privacy and daylight access must be demonstrated. (see Building Separation)
 - conceal building services and provide appropriate detail and materials to visible walls
 - ensure lightwells are fully open to the sky
 - allow exceptions for adaptive reuse buildings, if satisfactory performance is demonstrated.



03.39. Double height apartments on the ground floor and on the top floors facilitate better daylight access.

✓ Rules of Thumb

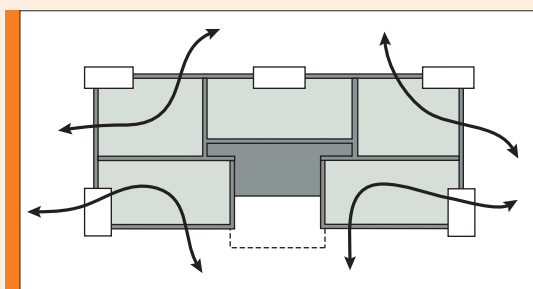
- Living rooms and private open spaces for at least 70 percent of apartments in a development should receive a minimum of three hours direct sunlight between 9 am and 3 pm in mid winter. In dense urban areas a minimum of two hours may be acceptable.
- Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10 percent of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed (see Orientation and Energy Efficiency).
- See Apartment Layout for additional rules of thumb.

.Building Amenity

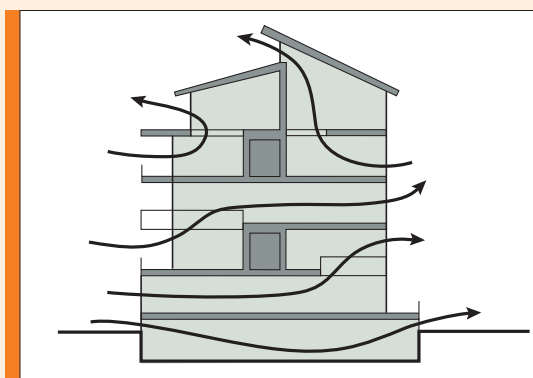
.Natural Ventilation



Natural ventilation is the circulation of sufficient volumes of fresh air through an apartment to create a comfortable indoor environment. Designing for natural ventilation exercises sustainable practice by responding to the local climate and by reducing or eliminating the need for mechanical ventilation. To achieve natural ventilation the design concept must address the building's orientation, the apartment's configuration and the external building envelope.



03.40. Corner apartments can achieve effective natural ventilation.



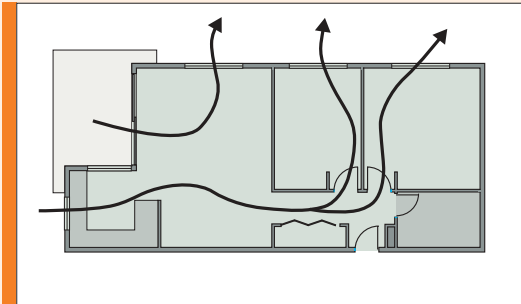
03.41. Good cross ventilation can be achieved with cross over apartments, maisonette apartments and semi-basement carparks.

Objectives

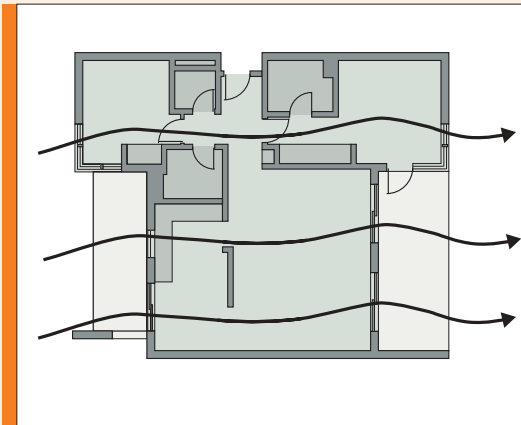
- To ensure that apartments are designed to provide all habitable rooms with direct access to fresh air and to assist in promoting thermal comfort for occupants.
- To provide natural ventilation in non-habitable rooms, where possible.
- To reduce energy consumption by minimising the use of mechanical ventilation, particularly air conditioning.

Better Design Practice

- Plan the site to promote and guide natural breezes by:
 - determining prevailing breezes and orient buildings to maximise use, where possible (see Orientation)
 - locating vegetation to direct breezes and cool air as it flows across the site and by selecting planting or trees that do not inhibit airflow.
- Utilise the building layout and section to increase the potential for natural ventilation. Design solutions may include:
 - facilitating cross ventilation by designing narrow building depths and providing dual aspect apartments, for example, cross through apartments and corner apartments.
 - facilitating convective currents by designing units which draw cool air in at lower levels and allow warm air to escape at higher levels, for example, maisonette apartments and two-storey apartments.
 - consider alternative solutions for cross ventilating single aspect apartments.
- Design the internal apartment layout to promote natural ventilation by:
 - minimising interruptions in air flow through an apartment. The more corners or rooms airflow must negotiate, the less effective the natural ventilation
 - grouping rooms with similar usage together, for example, keeping living spaces together and sleeping spaces together. This allows the apartment to be compartmentalised for efficient summer cooling or winter heating (see Energy Efficiency).
- Select doors and operable windows to maximise natural ventilation opportunities established by the apartment layout. Design solutions may include:
 - locating small windows on the windward side and larger windows on the leeward side of the building thereby utilising air pressure to draw air through the apartment



03.42. Natural ventilation in this corner apartment is drawn through windows having different orientation. This layout works well in upper floor apartments.



03.43. This optimal layout allows air flow directly from one side of the apartment to the other.

- using higher level casement or sash windows, clerestory windows or operable fanlight windows- including above internal doors - to facilitate convective currents. This is particularly important in apartments with only one aspect
- selecting windows which the occupants can reconfigure to funnel breezes into the apartment, such as vertical louvred, casement windows and externally opening doors.

- Coordinate design for natural ventilation with passive solar design techniques (see Energy Efficiency).
- Explore innovative technologies to naturally ventilate internal building areas or rooms - such as bathrooms, laundries and underground car parks - using stack effect ventilation or solar chimneys, for example.

✓ Rules of Thumb

- Building depths, which support natural ventilation typically range from 10 to 18 metres.
- Sixty percent (60%) of residential units should be naturally cross ventilated.
- Twenty five percent (25%) of kitchens within a development should have access to natural ventilation.
- Developments, which seek to vary from the minimum standards, must demonstrate how natural ventilation can be satisfactorily achieved, particularly in relation to habitable rooms.