

# FORM OF HOUSING

# 1

SECTION 1

## 1.3 APARTMENT DESIGN BCA CLASS 2 CONSTRUCTION



**RenewalSA**

people partnerships progress

on behalf of the *South Australian Housing Trust*



Government  
of South Australia

## DESIGN GUIDELINES

FOR SUSTAINABLE HOUSING & LIVEABLE NEIGHBOURHOODS

Valid until July 2016

## 1.3 APARTMENT DESIGN

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### Acronyms

BCA	Building Code of Australia, which is Volume 1 and Volume 2 of National Construction Code Series (NCC) and managed by the Australian Building Codes Board (ABCB)
TOD	Transport Orientated Development
BRAC	Building Rules Advisory Commission
NRAS	National Rental Affordability Scheme
NBESP	Nation Building Economic Stimulus Plan
SRO	Single Room Occupancy
CBD	Central Business District
UHI	Urban Heat Island
dw/ha	Dwellings per Hectare
CFC	Compressed Fibre Cement

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## 1.3 APARTMENT DESIGN

# INTRODUCTION

## Background

The Urban Renewal Authority now trading as Renewal SA was established by the state government by regulation on the 1 March 2012 to present a fully integrated approach to urban development. In addition, in December 2014 responsibility for the provision of housing, asset and policy services to the South Australian Housing Trust (SAHT) transferred from Housing SA to Renewal SA.

The responsibility for the provision of maintenance and tenancy services continue to be provided by Housing SA. With these new administrative arrangements the SAHT remains the legal owner of the property.

The SAHT is committed to providing housing that is both affordable and sustainable (socially and environmentally). To help achieve this a suite of design guidelines for sustainable housing and liveable neighbourhoods that are applicable to all types of new residential construction, both rental and affordable have been developed. These guidelines represent more than seventy years of SAHT, Housing SA and Renewal SA experience in providing affordable and rental housing to South Australians.

The suite of design guidelines comprise the following:

- 1.1 House Design Guide
- 1.2 Amenity Targets
- 1.3 Apartment Design BCA Class 2 Construction
- 1.4 Housing Accommodation Schedules
- 1.5 Affordable and Market Housing
- 2.1 Land Titling and Service Infrastructure
- 2.2 Design Guidelines for Site Layouts
- 2.3 SAHT Universal Housing Design Criteria
- 2.4 Environmental Sustainability
- 3.2 Row and Terrace House Design
- 4.1 Housing Modifications
- 4.2 Generic Design Guidelines for House Renovations



Designers must understand and incorporate the requirements of these guidelines on all residential projects that involve land and properties owned by the SAHT. These guidelines assist designers to interpret current policies and practices and include applicable features of the Good Design Guide SA prepared by Planning SA.

Some design compromise is acceptable to take into account site constraints and local planning conditions. All designs will be considered by Renewal SA on merit. However, the minimum spatial dimensions needed to meet universal housing living requirements are generally not negotiable.

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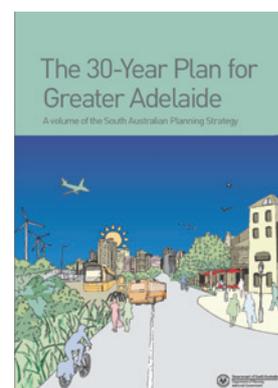
### This Design Guideline

Historically the bulk of housing built by the SAHT has been single storey detached or semi detached family dwellings. Nevertheless in the early 1950s the first walk-up flats were built and eventually over 2000 two and three storey groups were developed, comprising mainly one and two bedroom units. Other alternative housing types have included two-storey town houses, group developments comprising 2-bedroom units and small cottage flats.

In recent times, and in support of new initiatives created by the South Australian Government 30 Year Plan for Greater Adelaide, new forms of apartment housing are being developed. These projects assist in recognition of population pressures that lead to increases in residential densities.

In this guideline the technical detail is visually separated by the use of text boxes to help the flow of the document. The text boxes also identify particular requirements of the SAHT and the Building Code of Australia (BCA).

Historical background is provided, as looking at past experience in rental housing from a user and management point of view is important for external designers and developers.



### Medium Rise Building Form

This form is principally aimed at the design and development of robust and affordable apartment complexes of two, three and four storey construction. These buildings are relatively simple to construct, with stair access to all levels and a passenger lift can be provided to supplement vertical circulation. Dwellings can also be designed to allow for natural light and ventilation throughout all living areas avoiding the requirements for mechanical ventilation or air-conditioning. These principles were used historically for the construction of a large number of 2 and 3 storey flats, and while some amenity upgrades are needed to meet modern living requirements these buildings have proved to have low running costs.

### High Rise Building Form

For taller residential buildings, towers over four stories in height, design and construction is more complex.

Lifts are required for all vertical circulation and stairs become required fire exits. Fire separation requirements between floors and individual dwelling units increase with up to three hours separation required, consequently adding to construction costs. Mechanical services are crucial and more complicated to provide, manage and maintain. Fire fighting and emergency requirements are also more complex and required water pressures can require special provisions. Above around seven stories (25 metres height) internal fire sprinkler systems are required throughout the building.

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### Healthy Living and Community Connectivity

To encourage healthy living and ensure that there are opportunities for community connectivity, stair access and foyers can and should be designed as open access. Open access also gives opportunities for individual dwellings to have a screened entry door without the need to address fire separation issues.

Enclosure of these areas creates additional security and fire construction requirements, but crucially compromises access in such a way that residents do not have opportunities for casual social interaction.

### Scope

The building types included in this Design Guideline include walk up flats and apartments of Building Code of Australia Construction Classification Class 2.

### Complementary Design Guidelines

This design guideline forms part of a suite of documents that are all interrelated. Complementary Renewal SA design guidelines include:

- 1.4 Housing Accommodation Schedules
- 2.1 Land Titling & Service Infrastructure
- 2.2 Design Guidelines for Site Layouts
- 2.3 SAHT Universal Housing Design Criteria
- 2.4 Environmental Sustainability.

For persons with a disability there is a Housing Modification guideline *4.1 Housing Modifications* that articulates additional changes that can be applied, in accordance with relevant policies, to existing dwellings or new construction. These include design changes or enhancements which are additional to the universal design features articulated in the 2.3 *SAHT Universal Housing Design Criteria* guideline.

There are also further detailed architect briefing documents for specialised housing, which are not included in the guideline suite, but are essential information for designers. These are usually included as part of a detailed project brief tailored to particular user or client needs.

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### Building Code of Australia (BCA)

The BCA is a uniform set of technical provisions for the design and construction of buildings throughout Australia. It covers such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity.

This design guideline document provides design information to those buildings that are designed for use as residential apartments constructed in accordance with BCA classifications 2.

#### **BCA Class 2 Construction**

Includes buildings of more than one floor containing two or more sole-occupancy dwelling units, usually described as flats or apartments.

For definitions of the principles of classification refer to BCA, Section A, General Provisions.

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### BACKGROUND AND HISTORY

Renewal SA and/or Housing SA has ongoing experience with management of walk up flats and other multi occupancy residential buildings.

This includes the management and ownership of over 2000 independent multi-storey units on large group sites.

Currently Renewal SA and/or Housing SA provide and coordinate special needs housing services for people with high and complex needs. Particular development has been identified for the use of particular client groups including homeless and aged persons.

The design guidelines have been used as a benchmark for the design and construction requirements.



*Anne Close, Christie Downs*



*Walk up flats built in 1995. Portrush Road, Kensington*

#### Building Form for Walk-Up Flats

Generally SAHT apartment development between 1955 and 1980 comprised walk-up-flats of two or three storeys. These projects were set out on large landscaped sites varying from around 32 units up to 160 units at Marion Road, Lockleys.

A range of bedsits and 1 & 2-bedroom flats were provided, some with balconies. Flats were accessed by means of stairways in enclosed shared foyers with up to 9 flats accessed in a 3-storey 'T' plan form. A limited number of two-bedroom two storey town house units were also built and integrated into larger sites. Flats were always configured so that they had front and rear windows to allow some cross ventilation.



*Dr Kent's Paddock, Kent Town*

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Laundries were located separately from the main building with around 4 flats sharing a laundry room and drying line. Carparking has varied from separate lockable garages, open-sided carports through to unsecured open lot carparks.

Issues with older walk up flats including:

- Lack of definition of security in shared spaces (grounds and security);
- Open lot carpark security concern and petty vandalism;
- Sharing of foyers creates management issues; and
- Shared laundry arrangements are a cause for concern and are not popular.

### Recent Developments

In more recent times other options have been developed including:

- Laundry facilities included within bathroom areas;
- Open stair tower and deck access in small developments;
- Two level units accessed from the uppermost floor level;
- Direct access ground floor units with upper levels provided with a paired (shared) access stair;
- Logan St, Adelaide: 16 units - various 1 & 2 bed walk-up and townhouse units;
- An eight storey city building with a lift - Ifould Street, Adelaide; and
- Uno Apartments - Waymouth Street, Adelaide.

All recent apartments have been provided with individual balconies with ground floor units provided with a private open space - Hallett Street and Logan Street developments both in the City of Adelaide.

### Future Occupation and Use

The guideline is written for medium rise buildings, generally in the range of 2 to 4 storeys, and it is recognised that higher buildings may call up additional considerations. This guideline does not comprehensively address issues for high rise buildings.

Occupancy of new development may not necessarily be for SAHT rental. Projects may include other social housing rental with a mixture of private and public ownership occurring.

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### Refurbishment

Renewal SA and/or Housing SA has also revisited existing older sites with refurbishment schemes to address deficiencies and upgrade ageing infrastructure. An example is a 106 unit development at Stow Court Fullarton, where ground floor units have been provided with separate stepless entrances to meet the needs of ageing residents.

Additionally Housing SA has proactively arranged to harvest and store stormwater in underground tanks at Stow Court, for reuse for landscape watering.



*Upgraded 1950s walk up flats with new separate ground floor entrances at Stow Court, Fullarton*

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### GUIDING PRINCIPLES

Housing should be designed to meet the needs of a diverse range of households, incorporating a mix of dwelling unit sizes and tenures catering for families, couples, youth and children, with some dwellings designed to accommodate older and residents with a disability all with appropriate levels of storage space, external and internal fittings.

The provision of adaptable or universal dwelling designs should:

- enable residents to age in place; and
- enable housing designs to be integrated with and responsive to adjoining land uses and amenity.

Affordable housing should be designed to promote equity and fairness in the distribution of facilities and ongoing maintenance. Housing should be designed in a manner that invites residents to be involved in the maintenance of public/communal and semi-private open spaces. All housing should be managed in a way that does not preclude normal household or family living and functioning such as by the inclusion of non-family provisions in Body Corporate By-Laws.

Larger developments should be easily accessed with several points of entry and exit available. The relationship between built form and the landscape can enhance the quality of living environment for residents on the site and encourage visitor use and pedestrian movement through the site, thereby providing casual surveillance for safety and security.

Aspects of building design, such as location of windows, design of lift lobbies, staircases and circulation space can maximise the benefit of the landscape amenity by providing views, cooling of the building and ground level in summer and solar access in winter.

Apartment housing developments should be designed to be welcoming:

- On large sites the provision of well-located commercial and retail uses (offices, deli, small supermarket, café) on-site to support residents and adjoining residents/workers in the locality for the vitality of mixed uses;
- Incorporate spaces that are memorable and which promote a sense of place;
- Located close to transport, services and employment opportunities to enable residents to fully participate in social and economic life;
- Foster community development and encourage residents to participate in community life;
- Safe and secure places in which to live and visit;
- Encourage active and healthy lifestyles; and
- Maximise acoustic privacy for all residents and prevent disturbances from external noise sources.

Public open spaces accessible to the population they serve and on-site provisions should vary in area and function according to the quality and extent of public open space in the vicinity.



Figure 1 Renewal SA sketch proposal for Bowden Village showing mix of dwelling types and sizes and well distributed open space

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### QUALITIES OF WELL DESIGNED APARTMENT LIVING

#### Diversity

Housing should be designed to ensure it is tenure blind so as not to distinguish between tenures. The density and residential mix of housing sizes and tenures should aim to meet the strategic and local targets of the area.

Internal distribution of dwelling types across the site and within buildings will facilitate integration and social mix while ensuring that particular households are appropriately located (e.g. residents with a disability located close to entrances and facilities). Tenures are to be distributed across the site in small groups and where appropriate no more than 3 dwellings for social or public housing tenants in one group or no more than 4 dwellings for families in social or public housing. Particular care should be taken to ensure that rental and social housing for families is not co-located with smaller (non-family) apartments for sale.

Affordable and rental housing should provide low maintenance internal and external fittings and fixtures, self finishing materials and avoid the use of imported items that are difficult to maintain, such as light fittings with non-standard globes. Window coverings and furnishings, where and if provided, should be robust and easy to maintain.

Where possible all dwellings should:

- Comply with the design guideline *2.3 SAHT Universal Housing Design Criteria*;
- Adapt a range of dwelling sizes to suit a diverse range of households including provision for units with three and more bedrooms, with larger units located for families at the ground level; and
- Adopt the spatial guidelines in the design guideline *1.4 Housing Accommodation Schedules*.

There should be a sufficient number of dwellings suitable for families in order to give children and others to play with and to support provision of adequate outdoor spaces and amenities for families and children. Dwellings of size to attract families should be provided and located where they overlook communal outdoor spaces such as play areas and away from non-residential uses where a mixed use development is proposed and heavily used traffic routes.

#### Liveability

Housing should provide adequate private and communal storage facilities of a minimum size of 2.3m<sup>2</sup> internal space in addition to clothes and linen storage.

Recommended standards for room sizes are contained in the design guideline *1.4 Housing Accommodation Schedules* and Adelaide City Council Development Plan, and should vary according to the estimated number of people accommodated as well as the number of bedrooms.

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### Context and Connecting with the Surroundings and Wider Community

Prior to the design stage undertake a contextual assessment to show how the design responds to its physical and natural context including:

- the value of existing vegetation;
- local pattern of building and streets;
- location of other land uses;
- traffic and pedestrian/cycle routes and bus stops;
- proximity to local open space and facilities;
- key views;
- barriers to natural surveillance in the vicinity;
- maximising connectivity with surrounding areas;
- public space;
- landscape and topography; and
- identified character and local vision or strategy.

In addition prepare a site opportunities map to summarise an assessment of on-site:

- Surveillance;
- Street edges;
- Retention of vegetation; and
- Linkages to surrounding areas.

High density housing development is to be encouraged where access to public transport, services and facilities is adequate. The design should:

- demonstrate how the development complements the local network of public spaces, existing streets and paths;
- limit overlooking and overshadowing of private open space and windows of living areas where practicable;
- vary building heights to avoid limiting views from balconies of adjoining dwellings; and
- provide legible routes within the site for navigable ways through the use of signs, waymarkers and maps, landmarks and focal points, views, lighting, and works of art.

### Structure Plan

Provide a structure of buildings and spaces within the development to relate to others in the surrounding area in terms of:

- site layout
- movement routes within site
- existing street patterns in surrounding area, and
- provide networks of public spaces.

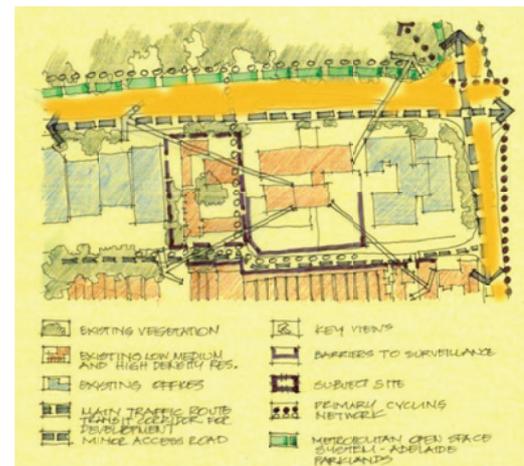


Figure 2 Housing SA Sustainable Housing Guidelines report, Contextual Assessment

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### Continuity and Enclosure

Streets and other public/communal and semi-public spaces should be enclosed with buildings and trees of a scale appropriate to the space. Public streets, footpaths and open spaces are to be overlooked by buildings providing casual surveillance.

Active ground level frontages can be achieved by the siting of ground level dwellings with entrances facing internal and external streets. Continuous frontages to open space and streets should be incorporated. Ground level dwellings must be set back from streets and footpaths to provide for ground level private open space, with permeable fences up to 2 metres for privacy where facing internal roads and a maximum of 1.5 metres where facing external roads.

Permeable fencing with lockable gates are to be used enclosing semi-private open spaces within the development for use by residents and guests. No fencing should restrict the movement of public and residents in communal areas.

Gated communities to be avoided with the exception of high density CBD sites where all communal areas are semi-private and accessible only by residents and guests.

### Community By-Laws

To achieve Socially Inclusive Management the Body Corporate must provide a resident/tenant/owner education program on waste minimisation and energy efficiency.

By-Laws for Community Title development are to be prepared by Renewal SA in consultation with Community Housing bodies involved to ensure that there are no anti-family provisions, or anti-sustainability provisions which:

- restrict the use of balconies;
- limit the use of open space;
- minimise common property areas of communal space;
- restrict the type of households to non-family households;
- limit resident/tenant involvement in the maintenance and design of open spaces particularly at entrances to individual dwellings at ground level and entrances to groups of units in high-rise buildings and entering into high cost landscape maintenance contracts;
- exclude normal activities by 'gated' communities signage;
- limit normal behaviour of children;
- provide for negative signage;
- discourage households to individualise their dwellings and entrances with planter boxes and decorative elements;
- discourage clothes drying in private open spaces; and
- exclude small pets particularly for older residents.

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### Connecting Pathways and Entrances

Developments are encouraged to facilitate pedestrian and cyclist movement across and through the site for residents of all ages and abilities through provision of lit pathways with a minimum width of 1200mm connecting buildings, facilities and services at grade and minimum 2.5 metres wide where adjacent to high-rise building entrances or at intersections.

Entrances to buildings and ground level individual dwellings should remain visible from the public realm, close to car parking, illuminated, with weather protection and allowing for personalisation of approaches by landscaping, window boxes etc where they serve a separate dwelling at ground level.

Vehicular and pedestrian movement where practicable should be separate at entries to the site and ground level entrances to dwellings and/or apartment buildings. Pathways should be integrated with landscaping and provide lighting to the appropriate Australian Standard for priority pedestrian routes.

### Car Parking and Transport

In suburban areas car ownership is high and for house renters a car is often the resident's most valuable asset, so both shelter and security for the cars is crucial. However the provision of secure parking on larger residential sites has proved both problematic and expensive to provide.

It is anticipated that in inner city areas and where public transport and community facilities are readily available, car parking requirements can be reduced.

In the State 30 Year Plan for Greater Adelaide proposals for Transit Orientated Developments (TODS) reinforce a strong relationship between the availability of good public transport and increased density of residential development and reduce the need for car parking requirements.

### Internal Circulation

Allow for generous, well designed staircases with views of (or open to) access corridors and the external environment to encourage increased activity as a desirable and pleasant alternative to using lifts.

Corridors, stairs and lifts should be wide enough to move large furniture items to apartments.

Core circulation spaces to serve groups of dwellings on each floor with a maximum of 8-12 units on each level.



*Active Frontages, high density housing, Canberra*  
Source: Wendy Bell



*Cycle parking in urban renewal, Tubingen, Germany*  
Source: Wendy Bell



*High density housing, Canberra*  
Source: Wendy Bell

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### Character and Sense of Place

Provide for frequent encounters amongst residents by widening of pathways, corridors and lobbies at entrances to units and where paths intersect or approach units at ground level.

All buildings to maximise active frontages at ground level, with regularly spaced entrances to groups of units in high-rise buildings and for all dwellings at ground level facing pedestrian routes and internal roads and external streets.

### Features

Provide attractive community focal points such as semi-private central open space focusing on existing character trees or new tree(s) on the site.

Facilitate arts, cultural and education projects that bring residents together and provide opportunities for artistic and cultural expression.

### Consistency and Variety

Housing is to be designed with:

- active frontages that include windows, doorways, balconies and the like;
- varied building forms and colours; and
- varied and visually interesting spaces, with landscape opportunities.

### Quality of Public Realm

Create a sense of wellbeing and amenity:

- incorporate furniture (tables and chairs for all age and mobility groups) and facilities (barbeques, drink fountains, waste bins, water and power outlets etc) that encourage social interaction in communal and semi-private open spaces; and
- create a community focal point oriented around existing natural features such as mature trees.



*Active frontages high density housing, Canberra  
Source: Wendy Bell*

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### Landscape

The use of a Landscape Architect at the context assessment and design stages will ensure that all ground level facilities, movement routes, planting, lighting and furniture are well located and designed and that sufficient areas and spaces are provided for personalisation of landscape by residents:

- roof gardens should be considered for their ability to insulate buildings and for plants to cool and improve the quality of the surrounding air;
- existing vegetation should where possible be retained to contribute to the amelioration of the micro-climatic conditions as deciduous trees in particular will provide summer shade and winter solar access;
- grassed areas should be provided to encourage casual use of the open space and for children's play;
- the retention of existing landscaping and designing for future landscaping should value the:
  - amenity provided by existing trees;
  - green infrastructure in mitigating climate change impacts;
  - interface between built form and landscape; and
  - ground level open space including grassed areas.
- the economic value of landscape aspects of sustainability such as tree retention and green spaces and their role in reducing Urban Heat Island (UHI) effects should be taken into account when assessing the financial feasibility of developments;
- aspects of building design, such as location and size of windows, design of lift wells and staircases and circulation space should maximise the benefit of the landscape amenity by providing views, cooling of the building and ground level in summer and solar access in winter; and
- generous, well designed staircases should be provided to encourage increased activity as a desirable and pleasant alternative to using lifts, the interior visible from the associated ground and upper floor entrances, glazed doors or open structures.

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### Safety and Security

The amount of semi-public areas should be minimised, especially in higher-density development:

- ensure security by providing well-defined entrances to clearly demarcate public and private space;
- enable casual surveillance of ground-level open spaces and play areas from ground level residential, commercial and retail uses and upper level dwellings;
- provide ‘residents only’ semi-private open spaces (including play areas) with secure access from public space;
- activate all building frontages along adjoining streets and along internal roads whether publicly or privately owned by locating entrances to groups of units;
- provide ground level access to lifts with visibility of the lift doors from the entrance; and
- ensure appropriate levels of lighting (including solar lighting) throughout the site

### Open Spaces and Meeting Places

Provide a variety of on-site internal and external community meeting spaces (including storage spaces) that are accessible to all residents regardless of age and ability:

- in large mixed tenure developments provide community liaison staff on-site or serving a number of sites to support residents and develop activity programs to facilitate resident interaction and include a multi-purpose room with toilet and kitchenette to allow at any one time for 40% of the estimated adult population;
- provide communal gathering spaces on every other floor in high-rise buildings near lifts and stairs with seating and storage;
- locate places for children’s play away from car parking areas and main streets and with visibility from windows of dwellings, but avoid designated playgrounds but provide facilities and equipment or spaces which children can use between buildings;
- provide areas for play for children of all ages focussing on experiential elements rather than play equipment, located close to larger dwellings at ground level;
- provide meaningful, age appropriate play and recreational open space by the location of public/communal and semi-public spaces close to entrances at ground level, children’s play areas and general open space for semi-private use;
- meaningful communal/public open space may be at ground level, roof top or on terraces for the use of residents and guests and include playgrounds, shaded seating adjacent to widened walkways, and central courtyards and small parks, but excludes hard landscaping at entrances, and should be in addition to the 12.5% public open space provision or levy payment;



*High density housing and pathways Freiburg Germany  
Source: Wendy Bell*



*A shared space, Stuttgart, Germany  
Source: Wendy Bell*

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- rates of communal open space provision should be calculated having regard to the wider context and varying in size and type according to availability of open space within 300 metres walking distance of the site;
- meaningful communal open space may range in proportion of the site; from 0% when the development is in a central city location, or of a smaller scale, has substantial ground level private open space and is located adjacent to substantial public open space; to 50% for higher density development (>45 dw/ha) situated more than 300 metres from substantial areas of public open space:
  - in developments of 45 dw/ha or more (high density apartment development), communal open space should be provided at the rate of 1.8 ha/1000 people, or a reduced amount where there is public open space comprising more than 3 ha/1000 people in the surrounding residential areas and where such open space is within 300 metres of the site or is part of a school within 800 metres of the site; and
  - for medium density developments of 23-45 dw/ha an area comprising 5-25% of the site is required for communal open space depending on the proximity to local open space within 300 metres walking distance.
- all high density development with more than 75 dwelling units should provide open space at or above ground level for children's play on the basis that between 5-7% of such developments is likely to attract families;
- play areas for children should be provided on each site at ground or above ground level or be accessible to the site as follows:
  - outdoor play areas in one or more locations in size from 130m<sup>2</sup> to 280m<sup>2</sup>;
  - minimum of 1.0m<sup>2</sup> per bedroom (excluding main bedroom) allocated for pre-school play areas with a minimum size of 50m<sup>2</sup> with seating and including 'doorstep' play;
  - minimum of 1.5m<sup>2</sup> per bedroom (excluding main bedroom) for play areas for primary school aged and older children with a minimum of 85m<sup>2</sup>; although
  - the size and extent of these areas may be reduced if the site is within 300 metres of nearby playgrounds, sports fields and community facilities designed for these age groups.
- private open space in the form of balconies or roof gardens and ground level gardens with a min. of 2 metres deep by 2.7 metres wide for balconies and a min. of 2.5 metres wide at ground level, designed to maximise sunlight access, safety and adaptability, with larger balconies for family units;



*A shared space, Stuttgart, Germany*  
Source: Wendy Bell



*Children playing in Freiburg urban renewal housing*  
Source: Wendy Bell



*High density housing courtyard in Canberra*  
Source: Wendy Bell

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- access to communal outdoor open space should be limited to residents and their guests by gating and locking these spaces;
- small communal spaces for use by adults only to be provided in developments where children are likely to live (consider roof top and terrace location) and located close to non-family dwellings; and
- semi-public open space should be limited to small areas of landscaping along public walkway and should be designed to deter intruders.



*Open space in Housing SA high density housing in Woodville West*

***The following definitions are relevant to the provision of open space in apartment development:***

‘public or communal spaces’ are spaces that, whilst privately owned and typically managed by a body corporate, are intended for use by residents and their visitors (and in some instances the general public (i.e. for mixed use developments)) and allow for public access, free of any rules of normal behaviour. Such spaces may comprise internal and external communal areas and circulation spaces including driveways, visitor parking areas, footpaths, garden areas, building entrances, lobbies, stairs, lifts, bin storage, etc, which are not subject to security measures such as gates, locks, access cards, etc.

‘semi-public spaces’ refers to spaces that, whilst privately owned and typically managed by a body corporate, are intended for use by residents and their visitors and typically allow for public access, free of any rules of normal behaviour. Such semi public spaces may comprise internal and external communal areas and circulation spaces that are typically subject to security measures such as locks, access cards and other technologies that allow for restricted entry into buildings and spaces or part thereof. Such spaces may include building entrances, mail collection areas, bin storage areas, lobbies, stairs, lifts, etc, which are subject to some form of security measure.

‘semi-private spaces’ refers to spaces that, whilst privately owned and typically managed by a body corporate, are intended for use by residents only and typically allow for private access only, often subject to rules of normal behaviour. Such semi-private spaces may comprise internal and external communal areas that are subject to security measures such as locks, access cards and other technologies that allow for restricted entry into buildings and spaces or part thereof. Such spaces may include driveways, bike and car parking areas, lobbies, stairs, lifts, laundries, bin storage areas, central courtyards, common rooms, storage areas, etc, which are subject to some form of security measure.

‘private spaces’ are those spaces owned by individual tenants, such as dwellings, balconies, ground level gardens, dedicated car parking areas, dedicated storage areas, etc that are subject to security measures. While the internal areas of such spaces are typically free from body corporate rules, it is not uncommon for body corporate rules to be placed on external spaces such as balconies & parking areas.

## 1.3 APARTMENT DESIGN

### Community Infrastructure

- in larger developments provide for community gardens within communal or semi-private open spaces with structure providing garden tool storage and toilet;
- provide for communal garden space including facilities for recycling and composting of organic waste;
- separate mail boxes to be provided for all dwellings with a ground level entrance and grouped close to or within communal entrances for groups of dwellings accessed by a common entrance;
- street furniture such as seating, benches, bins, lighting located in semi-private central open spaces and seating and lighting on all pedestrian routes in communal areas;
- separate refuse and recycling containers rather than communal bin enclosures in high density developments, located no more than 30 metres from any dwelling or building entrance and located on a hard, level surface close to bin collection points but screened from view of dwelling interiors and gardens or if communal, located close to well-used pedestrian routes; and
- where dwellings are located at ground level and include an area of private open space, space accessible to the kitchen or laundry should be provided within this space for the storage of refuse containers.



*Communal garden at Lochiel Park*



*Generous communal open space & pathways, medium density apartments at Melrose Park*

### Community Activities/Cultural Infrastructure

- provide space close to site entrance for a concierge, maintenance staff or community worker in development comprising over 75 units;
- provide opportunities for public art installations that also function as useful facilities (such as bicycle racks);
- provide outdoor space with good solar access and visible from streets and dwellings for the establishment of an on-site community garden to grow food and encourage social interaction amongst residents;
- design spaces and facilities to encourage walking and cycling within the site and to and from the site; and
- reduce potential maintenance costs by designing for resident involvement in the maintenance of landscaped open space particularly at or close to entrances of ground level dwellings and to groups of units.



*Value of retaining existing tree, high density housing courtyard in Canberra  
Source: Wendy Bell*

## 1.3 APARTMENT DESIGN

### Noise Attenuation

Incorporate noise attenuation measures such as:

- double-glazed windows;
- sealed doorways;
- under-balcony sound-absorbing materials; and
- wall and ceiling insulation which exceeds BCA requirements where there is a risk of nuisance from noise.

### Environmental, Social and Economic Sustainability

Retain existing large or character trees and include vegetation cover in communal open spaces to provide shade for ground level open space and apartments from the summer sun, while allowing access to winter sun if they are deciduous trees:

- consider roof gardens for their ability to insulate buildings and for plants to cool and improve the quality of the surrounding air, without interfering with provision of solar panels;
- use self-finishing materials such as bricks or other masonry materials, compressed fibre cement (CFC) and other sheet materials that do not require painting;
- adopt a low maintenance internal fit-out;
- where the development comprises affordable rental housing funded through NRAS or other forms of social housing, the provision of a communal laundry should be considered on a case by case basis;
- if comprising the above mentioned rental housing and where the development site is not located within 400 metres walking distance of a centre of a size likely to contain a Laundromat, a small laundry will be provided within the apartment building for tenants only, with swipe card access, provision and maintenance of coin operated washing machines by external contractor with cost of use equivalent to local Laundromats;
- in each unit/dwelling, space and connections should be provided for washing machines as an essential requirement whereas clothes driers and dishwashers are non-essential but adequate space and fittings are to be provided; and
- whether or not clothes dryers are installed or space provided, clothes lines are to be installed on balconies or where available, in other private open space at ground level.

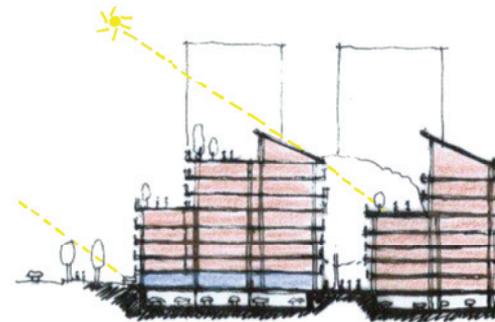


Figure 3 Maximise solar access for all levels  
Source: Wendy Bell



BedZed development, UK  
Source: Flickr



Affordable Housing at Lochiel Park

## 1.3 APARTMENT DESIGN

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### Water Efficiency

Designs should comply with the Department of Planning Transport and Infrastructure's water sensitive urban design principles as follows:

- use water-efficient fixtures and appliances;
- provide green spaces to receive and utilise stormwater run-off;
- use permeable paving (incorporating water storage where possible);
- rain water storage and re-use;
- water features utilising stormwater; and
- recovery and recycling of stormwater on site for irrigation of landscaping and use within units where appropriate.

### Energy Efficiency

Apartments must be designed and set out with dual aspect with openable external windows, and doors to balconies to facilitate cross-ventilation of indoor environments.

- provide standard sizes, materials and components and avoid imported fittings such as lights for which globes are difficult to source or have high energy use; and
- passive design of dwellings by orientation of living areas to the north for winter sun and shading of northern and western windows in summer; and sufficient thermal mass in external walls to limit use of air-conditioners and mechanical heating.

## 1.3 APARTMENT DESIGN

### BUILDING FORMS FOR SAHT APARTMENTS

Newbuild SAHT apartments are likely to range from two level developments with access with stairs, to more complex buildings with three or more levels of accommodation accessed by a lift. For buildings up to four storeys, stairs should remain the primary form of access with a lift provided as a supplementary service to assist residents with physical impairments or heavy shopping loads. The introduction of a lift is also likely to make development of less than 24 dwellings unviable for construction.

Options for access to individual units can include open deck arrangements or enclosed foyers.

#### Commentary

This commentary applies to new build apartment units built for the SAHT. These new developments may be mixed in any one project for rental use, community providers or for private sale. Design solutions must allow for community strata titling.

Although these provisions are focused on new build units there are implications for the upgrade of existing units managed by Renewal SA and/or Housing SA.

Particular projects, as advised, may require additional features in respect of energy efficiency ratings, roof water collection and accessibility requirements.

#### External Spaces

SAHT flat and apartment development has been notable in the past for its high quality landscape features. Many sites feature fine stands of now mature native plantings and in some circumstances rare exotic specimens. The amenity of the open space surrounding these developments contributes to both the quality of apartment living and assists in offsetting the inherent density of apartment living.

All open space within a development must be designed in such a way as to contribute to the overall amenity of the project, taking into consideration maintenance requirements and public safety. Included within these areas may be driveway access and both resident and visitor carparking.

Site issues to be considered by designers and developers are set out in the guideline *2.2 Design Guidelines for Site Layouts*.

Where possible new development should be located adjacent to existing public open space in order to give residents opportunities for self recreation, and to compensate for the limited open space available within the project.

## 1.3 APARTMENT DESIGN

### On-Site Car Parking Requirements

Particular car accommodation needs will be advised by Renewal SA. Car parking requirements must be clearly articulated and agreed with approval authorities prior to commencement of a project.

Where undercroft car parking is to be used, the exterior design should form a positive and interesting relationship with the street frontage. Allocated car parking spaces should ideally have flexibility to include storage lockers or similar. Individually secured and covered carparking is preferred.

As a guide in master planning a development, off street parking levels should be no more than one space per dwelling, and where it can be demonstrated, this requirement can be reduced as follows:

- minimise on-site car parking (less than 1 space for 1-2 bedrooms and 1-1.5 spaces for 3 bedrooms, and consider alternative off-site car parking within 150 metres of the development in the form of multi-deck, above ground parking and shared parking within mixed use developments for those who can afford it;
- car parking spaces can be varied according to proximity of site to frequent public transport routes, CBD or inner city areas, with equal access for renters to car parking where distant from such facilities;
- cycle parking to be provided within units or in communal cycle storage areas in secure, sheltered and well-lit facilities at the rate of 1 per 1 or 2 bedroom units and 2 per 3 or more bedroom units;
- tenant and owner car parking is secure and separate from visitor parking and where possible associate visitor parking with the street network; and
- power and water to be provided within car park areas for car washing and maintenance.

For particular CBD developments consider on and off-site parking options within 150 metres, such as:

- shared parking with mixed uses; and
- car-share scheme membership included in purchase of apartment.

### Bicycles and Electric Scooters (Gophers)

Secure lockable well ventilated storage capable of sheltering an electric 3 or 4 wheel scooter may need to be provided. An external electrical outlet must also be provided for battery charging.

Provision should be made for secure bicycle parking or storage. The demand for these spaces in particular projects will be advised by Renewal SA, or as follows:

- cycle parking to be provided within units or in communal cycle storage areas in secure, sheltered and well-lit facilities at the rate of 1 per 1 or 2 bedroom units and 2 per 3 or more bedroom units.

Where practical these storage or parking spaces should be co-located adjacent to dwelling units.

## 1.3 APARTMENT DESIGN

### Common Area Access for Apartments and Walk Up Flats

Foyers are a publicly accessible space and must be designed to meet BCA access requirements, including access and mobility requirements. Within these access areas avoid enclosure and doors to simplify fire separation and BCA requirements of enclosed space.

Historically in walk up flats the primary security of individual tenancies was established at the dwelling unit front door. Unless otherwise directed for buildings of up to four storeys, the primary security is to be at the front door of the unit.

### Building Rules and Construction

The use of enclosed foyers will require the use of fire rated construction and doors within access and foyer areas. Individual apartments are not able to be fitted with safety screen doors. The provision of a lift should not mandate an enclosed foyer but security arrangements for access and operation of the lift will need to be considered. Stairs for low rise towers, three or four storeys must be designed as the primary means of access and not be separated for emergency and fire egress only, in order to provide a user friendly environment.

An alternative option is provision of an open balustraded stair tower with no entry door at ground level could simplify construction, fire rating and smoke venting. Open access from a loggia or deck will also make it clear that individual security is achieved at the front door. The entry doorway to individual units can also be provided with an openable highlight or sidelight to offer flow through ventilation without violating fire separation.

#### *SAHT Safety Doors*

Screen doors and security doors are referred to by the SAHT as safety doors. These doors comprise a lightweight open frame with a fine mesh insert to prevent the passage of insects, maximise ventilation, and allow for transmission of light and provide visual transparency. Typically they are keyed externally and fitted with a snib only internally. The SAHT will not permit the provision of a keyed internal lock for safety (of egress) and duty of care reasons.

## 1.3 APARTMENT DESIGN

### Access and Accessibility

All apartments will be built to the guideline 2.3 *SAHT Universal Housing Design Criteria* that includes stepless entries and appropriate bathroom and kitchen arrangements. An 820mm door leaf may be acceptable for use in apartment projects.

For ground level units a proactive solution is to have a separate entry (not off foyer) associated with a small private yard.

### Stairs and Vertical Circulation

The building design should encourage use of stairs by residents in accordance with healthy living principles and should therefore be attractive well lit and safe. Stairs must also meet requirements for fire egress.

Where lifts are provided, stairs should not be regarded as fire exits only, but designed to offer an attractive alternative means of access.

### Public Lighting

Public lighting in the foyers and stairwells of buildings, other than class 1 buildings, is to be to the current Australian Standards (ie BCA and AS/NZS 2293.1). Refer to the boxed text opposite for details.

In locating these lights, consideration is to be given to the future changing of lamps, the testing of any emergency lighting and maintenance of the same.

For external and site lighting requirements refer to guideline 2.2 *Design Guidelines for Site Layouts*.

Site lighting standards apply to all publically accessible areas on group housing sites to ensure safety and security for all users. All site lighting is to be designed in accordance with AS 1158.3.1.

### Security Management

The provision of a lift will create additional security requirements. Where the lift is associated with an enclosed foyer residents may be required to use a swipe card or separate key to enter the foyer and use the lift. Visitors may need to gain entry by first contacting residents by means of an intercom system.

These systems will need to be agreed and designed into each project and backed up by appropriate maintenance contracts, for regular servicing, warranty and repair.

#### Lift Requirements

The lift shall meet the disability access requirements as given in AS 1735.12

The car shall be large enough for a stretcher.

The lift shall meet the requirements of AS 1735.1 and either AS1735.2 or AS 1735.3

A facility shall be included to allow for mechanical or electronic access to be set up for individual floors.

The interior finishes shall be easily maintained.

#### Lighting in Foyers

To ensure that there is always lighting in the stairwells and foyers in the case of an emergency, where it is not possible to interconnect the lighting with the fire alarm system, the lighting is to be controlled by the photo electric cell that controls the site lighting.

To enable tenants to turn on the lights while they use the stairs on a dull day a push button timer type over ride system is to be provided.

Wherever possible natural lighting is to be provided for day time use.

## 1.3 APARTMENT DESIGN

### **BCA COMMENTARY**

#### ***Front Doors - Entry to Unit***

Some people living in flats or apartments have historically wanted to hold open their solid front doors and have a screen/safety/security door so that they could gain both extra ventilation in hot weather and additional social contact with neighbours using the foyer and stair.

#### ***Fire Separation Requirements***

In general the front door of a flat or apartment that provided access from a corridor or a stairway needs to have a fire rating. Balcony access does not have the same requirement. There is a requirement in the BCA that there be no impedence to someone exiting in the case of a fire other than the fire rated door(s). Recently the SAHT sought a BRAC (Building Rules Advisory Commission) opinion relating to screen doors associated with those front doors. The commissioners held the view that such doors were a fire hazard. They reasoned that once they had a screen door people would lock the screen door and chock open the fire door. They considered that was an unacceptable risk as smoke and fire could escape the unit and prevent others leaving via the stair or corridor or it could enable any smoke and fire from in the stair or corridor entering the unit.

The SAHT subsequently determined that these issues could be overcome by providing the fire rated door with a magnetic holder which would release the door in the case of smoke being detected in any unit associated with the stair or within the foyer. After several attempts a working system was installed as a trial in a stairwell in Barwell Flats on Portrush Road. This system has continued to operate successfully.

#### ***Current Requirements and Retrofitting Options***

Current policy is to not provide screen, safety or security doors on these doors. Doors are to be provided with a peep hole. However, it is proposed to move forward and have the magnetic holders used as the general design requirement and possibly looking at some retrofitting. The retrofitting is expensive because while the control system and magnetic holders are not a large cost, a lot of the older flats were not required to have fire rated or solid core doors with a reliable door closer. Having to replace the door and door closer adds significantly to the retrofitting cost.

#### ***Natural Ventilation and Social Issues***

SAHT clients tend to be people of limited means and so public housing has always been designed to minimize the running costs. Hence the use of natural ventilation is very important during the warmer months. The traditional walk up flat design ensured that all flats have front and back windows which gave an ability to provide cross ventilation. However, the foyer and stair does offer a natural chimney for moving air, particularly as the doors at ground level were deliberately not secure and so could be left open. The foyers also had a number of openable windows at upper levels.

## 1.3 APARTMENT DESIGN

### Balconies and Private Open Space

For apartments and walk up flats, balconies may enhance amenity or comprise the only available private open space. The balcony represents the only external usable space for upper level units.

Balconies are not normally provided off sleeping accommodation. Exceptions may be required to include particular outlooks, cross flow breezes and other environmental or locality circumstances and in bedsit accommodation.

Balcony areas can be included in private open space in accordance with planning locality guidelines.

Minimum balcony space for apartment projects are:

Dwelling Type	Minimum Total Area	Minimum Width
1 bedroom or studio	8m <sup>2</sup> area	2.00m
2 bedroom	11m <sup>2</sup> area	2.40m
3 bedroom	15m <sup>2</sup> area	2.40m

#### Notes:

- The Minimum Width allows for a component of outdoor furniture.
- For ground floor units 20m<sup>2</sup> private open space is an acceptable minimum for all 1 and 2 bedroom units.
- Family housing (3 bedrooms and larger) would not be normally included in above ground level group housing projects.

### Solar Clothes Drying

Larger balconies will allow for discrete use of solar clothes drying by residents using portable frames. A technique for providing balcony privacy is to include a portion of closed (solid) balustrade. A ground level shared drying yard will be required for larger items. Ground level units may have individual fold down or retractable clothes line.

### Environmental Sustainability

The SAHT generally does not provide air-conditioning and prefers to promote passive heating and natural ventilation.

Operation and management practices must be considered to keep costs down over life of project. Security lighting should be reviewed for ongoing operation. Large housing groups such as these offer opportunities for innovative sharing and management of energy use. Solar orientation of individual units must be addressed. Refer to the guideline *2.4 Environmental Sustainability* for more information.

Where called up, units are to be rated for Energy Efficiency at 6 stars by FirstRate 5 or AccuRate or BERS, or in accordance with applicable BCA requirements.

Maintenance and sound transmission requirements given in the BCA are to be met.

#### External Floor Finishes

For external walkways in public areas and balconies the use of trowelled concrete is acceptable. For stepless entries the concrete finish leads to simpler detailing of the concrete floor slab.

Alternative finishes including non slip paving paints. May be considered.

Internal corridors, foyers, stair treads and landings consider the use of an acoustic backed vinyl or equivalent product in order to reduce noise.



*Balconies at Portrush Road, Kensington 1995*

## 1.3 APARTMENT DESIGN

### Cross Flow Ventilation

Double sided buildings are not encouraged as the presence of an enclosed corridor or foyer will inhibit both through ventilation and access to natural daylight to inner rooms. Acceptable design techniques can include allowance for a diagonal cross-flow in corner units at the ends of buildings.

Within apartments it is important that ordinary openable windows are used to allow for natural ventilation. It is not acceptable to rely on balcony doorways, often a full height glazed sliding window, to provide natural ventilation in living rooms. At the ground level full height “sliders” can be perceived as a security issue, and at higher upper levels there can be problems with sealing for draughts.

#### *Natural Ventilation , Healthy Living and Affordability*

SAHT clients tend to be people of limited means and so public housing has always been designed to minimize maintenance and the running costs.

Natural ventilation is also very important for the control of mould to ensure healthy living conditions. To ensure moist or foul air does not build up, additional mechanical ventilation is to be provided to bathrooms and kitchens in the flats generally. It is important that for all new apartments mechanical ventilation in addition to natural ventilation be installed in all bathrooms, laundries and kitchens.

In addition energy efficiency requirements have been legislated and are included in BCA requirements. The requirements are continually being upgraded. Natural ventilation can be of significant benefit in reducing energy use in summer months.

### Heating and Cooling Requirements

Allowance for future provision of mechanical heating and cooling is to be made.

Typically a resident may wish to install a split system air-conditioning unit. Provision is to be made for equipment to be located on an external balcony with an appropriate weather proof electrical outlet and access opening for pipe work. Locations of outdoor plant must be screened from view and must not compromise balcony rail height.

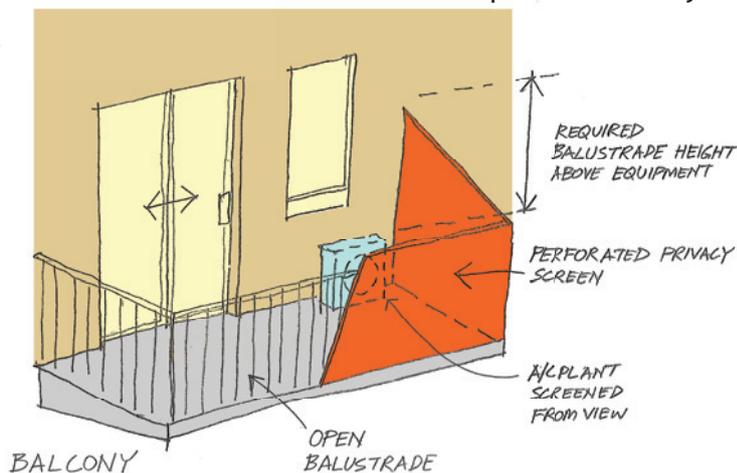


Figure 4 - Sketch of a typical balcony



Balcony with high balustrade screen at one end, Winona St., Findon 2011

#### *Future Installation of Mechanical Equipment*

Allow for the future installation by tenant or occupant of split-system outdoor equipment. Provide 20 amp weatherproof electrical outlet in suitable location.

Balcony balustrade must be designed in such a way that equipment is hidden from view and does not compromise BCA requirements for balustrade height when equipment is installed.

## 1.3 APARTMENT DESIGN

### Sound Transmission Between Units

Effective acoustic separation between units is crucial to the success of apartment living.

Sound transmission requirements given in the BCA are to be met, but there are also design techniques that should be implemented to maximise acoustic privacy.

A design technique is to plan dwelling layouts to limit noise transmission between adjacent dwellings by arranging bedrooms of adjacent dwellings next to, and above, one another, rather than living rooms above bedrooms. Wet areas should be coincident and water closets located to avoid transmission of sound to adjacent units and sleeping areas within units. Provide resilient floor coverings to reduce impact noise on floors.

Ensure acoustic covering to all services passing through floors. Acoustic ducts surrounding plumbing risers passing through units. Provide acoustic insulation to ceiling below floor plumbing relating to the unit above. Avoid services in party or common walls and ensure services that pass through those walls are properly acoustically sealed

Units can be staggered on plan to reduce external noise transmission between dwellings. Care should be taken with balcony placement. Baffle and nib walls and screens can assist in both providing visual and acoustic privacy. Care should be taken with window placement to minimise accidental sound transfer between open windows. Windows should be offset to avoid direct facing.

Noises from communal areas also must to be considered. Attention should be given to location of lifts and stairs and reverberation time in enclosed spaces such as foyers and passages.

### Rain Water

Where called up only (in NBESP projects), tanks totalling a minimum of 2000 litre per unit are to be used to collect roof water from at least 80% of the roof and used to flush toilets. A pumped system will be needed, with a mains water back up.

It should be noted that as buildings get more compact the roof catchment area per dwelling unit reduces disproportionately so the quantity available for capture may be equivalent to the roof area of a single storey family house distributed over four apartments.

### Utility Metering

All services entering a unit are to be individually metered, easily accessible and be able to be isolated at the unit. Where possible these are to be supplier's meters, but where that is not possible local meters may be used and read by the "strata manager". Landlord metering is required for services to public areas.

#### **Pump Systems**

Applicable where called up only. As the pump systems run the toilets, the system needs to be designed for ease of maintenance and replacement, and is to be sized to allow for filling of multiple toilets at the same time. In addition the use of more than one pump to provide a back up is preferred. A system to advise that one or all the pumps has failed is required.

## 1.3 APARTMENT DESIGN

### Hot Water

So that the tenants only use one energy form, individual electrically boosted hot water is to be used. Shared hot water units will give greater efficiency and either heat pump or solar units may be used. If shared hot water is installed metering to allow the costs to be distributed based on use must be included. Units to be used are those available through the SAHT supply contract.

However, in larger or taller complexes this may not be a logical solution and a bulk hot water reticulated system may be the best solution. In those cases the energy source can be either and will be metered by the landlord. Each apartment will have a hot water meter.

For Nation Building projects solar or heat pump units must be used.

### Bins

Bin collection arrangements will require negotiation with local authorities to ensure domestic waste can be removed at no additional operating cost.

Enclosed bin stores in publicly accessible areas are not to be provided. In the past these areas have been the source of management complaint in respect of security issues (CPTED) and vermin problems.

### Facilities for Employees and Maintenance

The requirements of Table F2.1 of the BCA are to be met in respect of provision of maintenance workers toilets.

Particular attention shall be paid to maintenance and access to carry out maintenance, particularly for items on roofs and at height.

Provision should be made for storage of cleaning items and other required on-site maintenance equipment.

### Operation and Management

The following matters should be determined prior to design development as these matters can influence building form:

- Landlord management including cleaning of internal shared access spaces; foyers, stairs and lifts;
- Upper level window cleaning arrangements;
- Security and access to internal shared spaces; foyers, stairs and lifts;
- Security and keying requirements for individual residential units; and
- Rubbish; on-site management arrangements and local council collection requirements.

#### *Hot Water Isolation*

All hot water systems are to have an easily accessible isolator that isolates each occupancy unit from the main hot water supply located immediately prior to the meter for that unit.

#### *Utility Supply Charges*

Apartment dwellers tend to be low users of energy and most households in apartments are small.

Energy bills have two components. There is a fixed charge for being connected and then a charge for the energy actually used. For low energy users the fixed charges are a significant part of the account and hence connection to a second energy source, even if that energy source is more efficient, adds to the total household running costs. Since electricity is needed for light in most situations electricity should be the only energy source supplied to the individual units.

## 1.3 APARTMENT DESIGN

# APARTMENT LIVING UNITS ACCOMMODATION REQUIREMENTS

### General Requirements

Two bedroom units are generally preferred and most popular in suburban development. In inner city developments there may be limited demand for one bedroom and bed-sit accommodation units. Also where appropriate larger 3-bed dwellings suitable for family accommodation should be provided. Particular project requirements will be advised by Renewal SA.

### Living Unit Accommodation Requirements

For schedules of floor areas and amenity in accommodation units for SAHT rental use refer to the guideline *1.4 Housing Accommodation Schedules*. These schedules can also be applied to dwellings intended for affordable or market sales.

### Kitchen Design

Set out of kitchens refer to the guideline *1.1 House Design Guide*. Options for apartment design can include L shaped layouts. However straight line bench solutions are discouraged, as they can lead to excessive travel and unnecessarily inefficient work practices. Overhead storage units can be considered.

In some narrow building types the kitchen or meals preparation area will not be on an external wall. Nevertheless requirements for mechanical ventilation in the vicinity of the cooktop will need to be addressed. The design solutions will need to take into account extract fan unit capacity and duct length and space provision for horizontal or vertical locations for ducting to outside. For apartment buildings options for locating servicing conduits may be limited due to forms of construction, and the fire separation and acoustic requirements of class 2 building classification.

An alternative to the provision of a ceiling mounted extract fan may be the use of an over cook top range hood, subject to Renewal SA approval. Ductwork to the outside is essential. In smaller dwelling units the type and location of the ceiling mounted fire alarm

Recirculating range hoods will not be acceptable in any circumstances.

#### **Kitchen Floor Finishes**

Sheet vinyl is to be provided. This decision has been developed to meet customer expectations for ease of cleaning and appearance, and performance criteria in respect of slip resistance.

The kitchen floor coverings are to continue into any alcoves provided including fridge spaces and dishwasher alcove (if provided). There are particular requirements for upright cookers, refer to separate note.

The SAHT has a supply contract for floor coverings, further information is available on request.

## 1.3 APARTMENT DESIGN

### Appliances

Electric upright cookers are available through the SAHT supply contract and are therefore not included in building contracts for rental projects.

For sales units alternative appliance options, such as cook tops and wall ovens, may be considered.

A dishwasher space must be allowed for in all units, and where provided, kitchen joinery must be finished at sides and an appropriate power outlet provided. Alternatively a removable cupboard, appropriately serviced, should be designated as the dishwasher location.

### Bedrooms

All bedrooms must have direct access to both natural light and ventilation. The use of borrowed light options are not acceptable for rental, affordable or marketable accommodation. Viewing to outside is important to avoid claustrophobic spaces and ensure that apartment living promotes healthy and satisfying lifestyle for all. High level windows and obscure glazing are to be avoided and rigorously rejected at all stages of development submission.

Built-in wardrobes must be provided in all bedrooms for apartments. Refer to the guideline *1.1 House Design Guide* for details.

### Floor Coverings

For retained rental projects the SAHT has a supply contract for floor coverings. These include a range of vinyl and carpet products that are normally installed after construction and prior to tenants moving into the units. To maintain acoustic separation acoustic backed vinyl is to be specified in kitchen areas and carpet or acoustic backed vinyl in living and sleeping areas.

For the wet area floors the SAHT has a limited range of approved slip resistant tiles.

### Bathrooms

Bathrooms in one and two bed apartments should be combined to include all wet area facilities. This has design and construction advantages including the efficiency at combining plumbing services and wet-area construction within the one location.

Refer to the guideline *1.4 Housing Accommodation Schedules* for details. All apartments at ground floor or accessed by a lift should be set out in accordance with the guideline *2.3 SAHT Universal Housing Design Criteria*.

#### *Upright Cooker Alcoves*

For upright cookers the wall behind the cooker is to be tiled with wall tiles and the floor under the cooker is to be tiled with the non slip tiles specified for wet areas.

If permission is granted by Renewal SA to use the kitchen floor covering under the cooker, it is to be installed to cover the whole area under the cooker prior to the cooker installation.

**Note:** *The cooker comes with an anti tilt device which needs to be fixed through the covering into the floor.*

#### *Wet Area Floor Tiles*

SAHT approved floor tiles must be used in units retained for rental housing. A range of approved floor tiles is available as scheduled in the SAHT Approved Products Register. The register is available separately on request.

This range of floor tiles was developed to meet both customer criteria for ease of cleaning and appearance, and performance criteria in respect of slip resistance. For public liability reasons no other products will be acceptable.

For similar reasons sheet vinyl and other alternative floor finishes are **NOT** acceptable in wet areas.

## 1.3 APARTMENT DESIGN

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### Laundry Facilities

Laundry facilities are to be included in all one and two bed flats and apartment units within bathroom areas only, where the entire wet area can be suitably water-proofed. Laundry facilities in passage areas and kitchens are not permitted in new SAHT construction. Dedicated laundry rooms must be appropriately ventilated to the outside.

Historically walk-up flats were provided with shared facilities located in common areas, however these have proved unpopular, and difficult to both manage and maintain. In inner city areas there may be some demand for commercial Laundromat facilities. Project specific requirements must be confirmed.

### Ceiling Heights

Where ceiling mounted sweep fans are to be provided a minimum floor to ceiling height shall be 2550mm.

For non habitable rooms such as bathrooms and wet areas generally minimum floor to ceiling height shall be 2250mm.

## 1.3 APARTMENT DESIGN

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### OTHER DESIGN GUIDES FOR REFERENCE

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Housing NSW Design Requirements, Version 6.2.5ip, issued July 2009

NSW Sepp65 Residential Flat Design Code available at [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

Guidelines for Higher Density Residential Development, Department for Sustainability and Environment, [http://www.dpcd.vic.gov.au/\\_\\_data/assets/pdf\\_file/0008/33929/Guidelines\\_for\\_Higher\\_Density\\_Residential\\_Development\\_1.pdf](http://www.dpcd.vic.gov.au/__data/assets/pdf_file/0008/33929/Guidelines_for_Higher_Density_Residential_Development_1.pdf)

London Housing Design Guide, interim edition, Pub. London Development Agency August 2010, [http://www.designforlondon.gov.uk/uploads/media/Interim\\_London\\_Housing\\_Design\\_Guide.pdf](http://www.designforlondon.gov.uk/uploads/media/Interim_London_Housing_Design_Guide.pdf)

Housing New Zealand design guidelines:

Architecture

Urban

Housing at Higher Densities

<http://www.hnzc.co.nz/about-us/our-publications/design-guidelines>

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