Form of Housing

1.1 House Design Guide

BCA CLASS 1
CONSTRUCTION ONLY
1.1 HOUSE DESIGN GUIDE

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ACRONYMS

SAHT    South Australian Housing Trust
LHA     Livable Housing Australia
NDIS    National Disability Insurance Scheme
NCC     National Construction Code (AKA BCA – Building Code of Australia)
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)
DPTI    Department for Planning Transport & Infrastructure
DCSI    Department for Communities & Social Inclusion
BRAC    Building Rules Assessment Commission
CPTED   Crime Prevention through Environmental Design
EPA     Environmental Protection Authority
HWS     Hot Water Service
KESAB   Keep Australia Beautiful
WC      Water Closet

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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 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, Renewal 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 in the interpretation of current policies and practices and include applicable features of the Good Design Guide SA historically published 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

This guideline both interprets and brings the minimum requirements of the SAHT 1.2 Amenity Targets guideline up to meet 21st century community expectations.

It is applicable to all house types ranging from single lot detached dwellings through to group developments and multi storey townhouses. These types of buildings are all built in accordance with the Australian Building Code Class 1 construction category. They are generally within the construction capabilities of the cottage building industry.

Excluded from this design guideline is apartment development. This form of residential development is constructed in accordance with the Australian Building Code Class 2 construction category and will be generally designed by more experienced architects and design specialists (refer to guideline 1.3 Apartment Design for further information).

The principle requirements remain constant for all housing types. The important attributes include:

- SAHT Universal Housing design spatial requirements;
- Requirement for outlooks and appropriate orientation;
- Provision of access to adequate natural light and ventilation;
- Open space requirements relative to household size determined by bedroom accommodation.
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PARAMETERS

Sustainability
We are committed to developing sustainable communities with environmental sustainability a major issue. By targeting this important issue we will reduce the impact of urban development on the environment through specific initiatives in the key areas of energy efficiency, water conservation and reducing waste. The key features are:

**Energy Efficiency**
- Optimising housing designs and features to maximise energy efficiency through the adoption of passive energy design principles. Where housing is required for family accommodation, house designs to also incorporate zoning of living areas to minimise heating and cooling costs;
- Providing appropriate levels of insulation to ceilings and walls;
- All new housing to achieve a 6 star house energy rating.

**Water Conservation**
- Fitting dual flush toilets and low flow shower roses;
- Incorporating low water demand landscaping;
- Incorporating low maintenance, water efficient irrigation systems to landscaped areas within grouped housing sites;
- Managing stormwater as a valuable resource and recycling for toilet flushing;
- Improving the quality of stormwater discharged from building sites by implementing the Environment Protection Authority's (EPA) Code of Practice and measures for sedimentation control during the construction phase.

**Reducing Waste**
- Minimising the amount of building waste deposited to landfill, particularly in relation to demolition work;
- Identifying opportunities for recycling and reusing building materials and waste;
- Adoption of KESAB’s Clean Sites program for the effective management of construction sites;
- Low maintenance, environmentally sustainable fixtures, fittings, materials and finishes are the preferred option within the overriding parameter of value for money.

For further details refer to the design guideline 2.4 Environmental Sustainability.
Neighbourhood Amenity and Appearance

New housing development should contribute to an overall improvement in the character and amenity of the neighbourhood in which it is located. Public housing should not be readily distinguishable from new private sector housing particularly with regard to:

- building setbacks from street alignment;
- treatment for elements of front elevations;
- roof pitches and materials; and
- colour schemes.

Where a development of two or more houses are adjacent or in close proximity, designs shall offer a mix of elevation treatments and finishes to provide noticeable variation. For attached housing development linking themes may be appropriate.

To maintain appearance natural finishes such as face brickwork or factory applied colour finishes are preferred.

Privacy

All external private open space be designed to achieve a high level of privacy, avoiding overlooking where possible.

Sense of Address

All housing must have a sense of address from the street or from the access point of a group site. The main entry, street number and letter box must be clearly visible.

Outdoor and Indoor Spaces

There should be a strong relationship between outdoor and indoor living spaces which will create easy surveillance, access opportunities and a sense of space.

Locate clotheslines to avoid overshadowing from dwellings.

Universal Housing

Generally, all new build housing must comply with the SAHT’s Universal Housing Design Criteria. These criteria are set out in such a way that designers can easily accommodate the required features in a pleasing fashion. The house design should feel both spacious and marketable. These design features ensure that rental housing can be accessible or visitable to ageing persons and most persons with a disability.

The principal features include:

- Stepless entry and enhanced design of doorways;
- Wider circulation at doorways;
- Power points, fixtures, doors and circulation at universal heights;
- Door hardware generally 900 mm to 1100 mm above floor level;
- Wall power outlets 450 mm to 600 mm above floor level.

Bathroom designed to include:

- Roof Colour
  - Lighter roof colours should be selected. Black, charcoal, and dark greys must be avoided.
  - International research is suggesting that lighter coloured roofs can be solar-reflective “cool” roofs and are an effective way to reduce energy costs. Dark roofs may also have the potential to contribute to documented “urban heat island” effects whereby roads and hard surfaces are known to contribute to an increase in temperature in built-up areas.

- Roof Pitch
  - Roof forms should be kept simple with returns and hips and valleys minimised. Gable ends are encouraged. Single pitch skillion roofs may be appropriate in certain locations. For safety reasons the Roof pitch must not exceed 20º.
  - All roof designs need to take into account rain water collection; refer Roof and Gutters section on page 23 of this guideline.
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- Stepless shower;
- WC with accessible circulation;
- Reinforced wall construction so that grab rails can be fitted later as an adaption.

External features include:
- Generous circulation at front door porches;
- Carport with widening at side and extended paving;
- Wider circulation between kitchen benches (1500 mm);
- 1000 mm wide external paving.

In some circumstances site topography, multi-level construction or other issues may limit these requirements. Nevertheless the SAHT has committed to build a minimum of 75% of all new construction in accordance with this criteria. Refer to design guideline 2.3 SAHT Universal Housing Design Criteria for further information.

Shape of Housing and Sites

The shape and configuration of the house will often be determined by the maximum allowable site density established by local government planning requirements, which will impact on size of allotments, size of house footprint and number of levels, and the demand profile of the prospective occupants.

On higher density sites, eg, group housing sites, designers are encouraged to utilise a range of house designs in refining their solutions to maximise site yields and accommodate particular site constraints, eg, incorporating significant trees, rear corner lots, servicing issues, orientation issues, street frontage, etc.

Higher density developments may require specific design briefs for diverse client groups.

Single Lot House Siting and Orientation

When siting a house consideration must be given to proper orientation, ie, north facing living spaces and overshadowing issues, site topography, servicing issues, significant natural features, cross ventilation and prevailing weather conditions.

Ensure the house design fits the allotment and is within the building envelope (where applicable) with regard to easements and required setbacks.

Maximise the street frontage without compromising orientation.

Consider all existing infrastructure including servicing points, crossovers and traffic calming devices.

External to the site consider the location of street trees, service poles and pits, neighbours’ trees, and the like. In particular buildings or trees that may have a future impact on solar access to living spaces or on any solar appliances to be installed at the property.
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Group Housing Sites
Optimise surveillance of the street and other external open spaces (maximise ‘eyes on the street’) for crime prevention.

Public street accessibility and maximised view of potential delivery services, eg, meals on wheels, medical and personal access cabs, are essential.

Provide good levels of external lighting for common access areas.

Good site signage and clearly numbered units are essential.

Incorporate Crime Prevention through Environmental Design (CPTED) principles.

City and Higher Density Living
It is recognised that the amenity level offered by inner suburban and city locations compensates for the slightly reduced housing amenity in these areas, eg, reduced floor areas, reduced car parking.

Refer to commentary on page 24 for further details on multi-storey housing.

Housing Sites for the Aged
Housing form may be the same as any single person housing, ie, not family accommodation. Single storey housing is preferred.

All housing for aged persons is to comply with the SAHT’s Universal Housing Design Criteria. Refer to design guideline 2.3 SAHT Universal Housing Design Criteria for further information.

Sites should be located close to neighbourhood facilities and amenities.

May incorporate a reduction in secured car parking. Parking space for emergency vehicles should be located in close proximity to each unit.

The front entrance to each unit must be located to minimise distance from a driveway for the convenience of assistance workers, taxis, meals on wheels, and the like.

Common landscaped spaces are generally managed by the housing agency and should be kept to minimum workable areas.

External private open spaces may be reduced. Consult with relevant local council.
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INTERNAL LAYOUT

General
Internal layouts must meet the needs of the occupants and provide adequate levels of amenity (refer to design guideline 1.2 Amenity Targets).

Living and sleeping areas should be separated to provide privacy and heating/cooling efficiencies.

Refer design guidelines 1.3 Housing Accommodation Schedules for actual room sizes and 1.2 Amenity Targets for fixtures and fittings.

Internal Living Spaces
Ready access from the dining space to the kitchen is essential. This area may form part of the kitchen or be a separate room. Where combined, a clear definition of spaces is required.

A combined living/dining space is preferred for 2 bedroom housing.

Separate living/dining rooms are preferred for 3 bedroom housing. Combined spaces may be provided to suit a particular allotment or orientation.

A separate living room must be provided for 4 or more bedroom housing, together with an additional family room. May be separate or combined with the dining space.

Avoid thoroughfares through living rooms. Diagonal traffic through living rooms is not acceptable.

Avoid direct vision into the living room from the front door.

Direct sliding door access to outdoor living spaces from the living or dining rooms is essential.

All separate or combined living spaces must be isolated from passageways via a door, creating efficiently heated/cooled rooms.

Bedrooms
Bedrooms should be located close to each other, creating a sleeping zone. Where possible they should be separated with wardrobes, alcoves or wet areas to provide aural privacy.

Adequate wardrobes must be provided in the main bedroom of single storey housing, and to all upper level bedrooms of 2 storey housing. Refer to the SAHT Minimum Design & Construction Specification for details on sizes and technical specifications.

Avoid opening bedroom doors directly onto living spaces.

Wardrobe Requirements
Allow clearance for floor coverings of room to run into the wardrobe. Build the wardrobes up to the ceiling. Refer to the SAHT Minimum Design & Construction Specification for details on sizes and technical specification.
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Kitchen

- Surveillance of the primary outdoor space from the kitchen or living areas should be easily achievable.
- The layout of the kitchen must be efficient and allow for easy movement between refrigerator, cooking space and the sink.
- Ready access to dining space from the kitchen is essential.

*Kitchen Design*

Kitchens should be set out in a simple L or U shape located in a discrete but not necessarily separate area adjacent to dining or meals space. Straight line and galley type kitchens are generally not acceptable. The kitchen work area should not be part of a shared circulation area or thoroughfare.

Where the kitchen is part of a shared dining and living space, as in smaller houses and apartments, care should be taken to screen scullery functions from view. Ways of achieving this include the use of alcove or nook arrangements. Alternatively open kitchen benches may be screened using a high level servery or breakfast bar arrangement.

Exceptions to these general requirements may be in smaller apartment units in medium and high density projects.

For safety reasons cook tops and upright stoves require a minimum of 400 mm of adjacent bench space on both sides. Wall ovens require 400 mm of bench space on at least one side.

A fridge space of 900 mm is to be allowed for the residents' own refrigerator. This space should be located at the end of the joinery run so as to allow for varying unit sizes. Alcoves are to be avoided as they restrict refrigerator sizes.

**Figure 1 - Kitchen Benches and Stove**
Overhead cupboards may be used to supplement storage space in apartments and larger houses. Full height pantries must be provided with construction up to ceiling height (refer Housing Accommodation Schedules for appropriate widths).

Further details of kitchen requirements for construction are set out in SAHT Minimum Design & Construction Specification.

### Figure 2 - Kitchen Benches with Overhead Cupboards

#### Kitchen Design Dimensions

<table>
<thead>
<tr>
<th>House Type</th>
<th>Useable 600 mm wide bench space including sink unit *</th>
<th>Sink Unit minimum size</th>
<th>Pantry cupboard face dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bedroom</td>
<td>Range from 2.50 m to 3.90 m</td>
<td>single bowl single drainer</td>
<td>450 to 600 mm</td>
</tr>
<tr>
<td>2 Bedroom</td>
<td>Range from 2.80 m to 4.20 m</td>
<td>single bowl two drainers</td>
<td>450 to 600 mm</td>
</tr>
<tr>
<td>3 Bedroom</td>
<td>Range from 3.20 m to 4.80 m</td>
<td>1½ bowl two drainers</td>
<td>600 to 750 mm</td>
</tr>
<tr>
<td>4 Bedroom and larger</td>
<td>Minimum 4.00 m</td>
<td>1¾ bowl two drainers</td>
<td>minimum 750 mm preferred</td>
</tr>
</tbody>
</table>

* measured along centre line of bench.

**Note:** the longer dimension assumes a U shape kitchen.
Laundry

Laundries facilities must be provided in separate rooms for family housing with 2 or more bedrooms.

Laundry facilities can be incorporated within the bathrooms as a combined wet area for non family housing with 1 or 2 bedrooms usually in apartment or row housing developments.

Laundries should be graded to a floor trap, well lit and naturally ventilated, usually by means of a window or a fan that leads direct to the outside. Direct access to outside is most desirable, however a full height sliding door is not acceptable as natural ventilation cannot be achieved without compromising security. A traditional dogleg door frame is acceptable. The laundry room may also provide a rear entry door to the dwelling.

For novel or innovative town housing where the laundry may be annexed off a garage area the natural ventilation principles in the previous paragraph must apply. The garage door opening cannot be used for provision of natural ventilation.

Figure 3 - Laundry Facilities
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Bathroom and WC

Generally, bathrooms and WC’s should be located away from living spaces, close to bedrooms and on an external wall.

WC’s can be incorporated within the combined wet areas for housing with 1 and 2 bedrooms. Room sized to comply with adaptability requirements.

A separate, second WC must be provided for housing with 3 or more bedrooms and on the ground floor of 2 storey housing so that there is a facility at each level. The separate WC compartment must include a small hand basin. A second usually smaller bathroom, typically with a shower, handbasin and toilet, must be provided for housing with 4 or more bedrooms. For the larger houses the second bathroom can more readily be designed to meet the SAHT universal housing design requirements.

Bathrooms and WC’s must be well lit and naturally ventilated spaces where possible.

Location of WC

It is desirable to locate toilet pans on outside walls for ease of construction and to reduce sound transmission to other rooms. An alternative location is on an adjoining wall protected by a built-in robe unit.

Stormwater Supply to WC

External rainwater storage tanks must be located as close as practical to the toilet area, to reduce distance of gravity supply to cistern. Refer to SAHT Minimum Design & Construction Specification for technical details.

Figure 4 - Bathroom Facilities
Figure 5 - Vanity Basin and Towel Rails

Wet area wall and floor tiling is to be provided and set out in accordance with the SAHT Minimum Design & Construction Specification.

Floor tiling will be a mosaic type as listed in the SAHT Minimum Design & Construction Specification.

Figure 6 - Semi-recessed Basin

Option for wall hung semi-recessed basin used for adaptability requirements.

Tile Grouting
The colour of the grout for the floor tiling shall be medium grey or colour matched to the tiles. White grout is not to be used for floor tiling as it is likely to discolor.
Circulation
The layout of internal areas must provide direct and adequate circulation space with regard to the SAHT universal design requirements.
All housing, including 2 or more storeys, must accommodate easy furniture movements.

Entrances, Verandahs and Porches
All front entries should be protected from the weather. Eaves protection only over entries is not acceptable.
The front door should be clearly visible from the street. Where this is not possible, use screens or paving to help identify the front entrance. Sidelights should be provided to allow for natural lighting in the front hall or passage area.
Shelter from the prevailing weather must be considered to rear entries. Porches are preferred.
Where a carport is not provided a rear porch is mandatory.

Provision of Natural Light to Non-Habitable Rooms
For internal bathrooms and long passages where external windows are not practical designers should provide an appropriate roof light.
For long passages adjacent to open sided carports a small or high-level window can be used to “borrow” light.
Roof lights can also be considered where natural lighting levels are reduced or compromised, such as where bathroom windows look out into carports.
A 500x500 mm minimum skylight or a tube-light is acceptable.
CAR PARKING AND SHELTER

Garages and Carports

Provide secure parking where required by councils. This may be reduced for aged housing sites, single bedroom units and transit orientated development.

Generally, a minimum clear covered area of 3000 mm width x 6000 mm depth is required for single car place, with an additional 600 mm in width where possible to allow for persons with physical disabilities to exit or enter their vehicle. Where site conditions dictate, the 600 mm space can be against the side fence provided there is no central carport post and no set-down to perimeter paving. For garages, a minimum clear covered space is 3600 mm width x 6000 mm depth (measured to behind roller door). The width of 3600 mm is required to meet access requirements determined for adaptable housing, refer to design guideline 2.3 SAHT Universal Housing Design Criteria. For other housing (non-adaptable) a minimum clear width of 3000 mm is to be used, in accordance with AS 2890 (Parking Facilities Set).

It is preferable that carports and garages are constructed under the main roof of the house or at least linked to the main roof.

A free standing carport or garage may be acceptable for corner allotments or other special circumstances. The carport or garage shall be generally sited behind the house front alignment and include masonry front piers and steel posts to the rear. Open sided carports are to be a minimum of 600 mm off the boundary. Garages must be located on the side boundary (zero lot line) or 1000 mm off the boundary with full perimeter paving.

Allow the following for additional off street visitor car parking in addition to the provision of the sheltered secure space. It may be necessary to verify with relevant councils particular planning requirements:

• For 1 and 2 bedroom group housing sites: One additional car park for every two dwellings anywhere on the site. The total number of places, including secure sheltered spaces may be reduced on housing sites for the aged

• 2 and 3 bedroom housing: One additional car park usually located in front of the secured car park to provide a total of two places,

• 4 or more bedrooms: Subject to particular planning authority requirements an additional car park may be required to provide three off-street places. End to end parking of more than two vehicles is to be avoided.

For larger family housing of five bedrooms or more a double garage or carport is required. Refer to the SAHT Minimum Design & Construction Specification for details on sizes and technical specifications.

When provided double carports or garages should be a minimum of width of 6.00 m. Universal vehicle access requirements can be met if occupied by a single vehicle, and any second vehicle is a ‘mini’ car.
Aged Housing and Single Bedroom Units: Particular Requirements

For single bedroom units, one open lot car park directly related to the unit is sufficient for vehicle parking.

However, houses or dwelling units without carports must have a secured and weatherproof storage area for parking and recharging an electric 3 or 4 wheel scooter. A roofed verandah within the curtilage of a secure private space capable of sheltering an electric scooter may be acceptable. An external electrical outlet must also be provided for battery charging. Standing area required for electric scooters is 1500 mm x 800 mm with the verandah at least 1.50 m wide with a minimum length to include an adjacent doorway. Where facing the prevailing weather, additional strategies should be applied including screens or extended eaves.

Picture 1 - Electric Scooter
PRIVATE OPEN SPACE

For consistency within its own housing an area for private open space amenity has been determined by the SAHT. These areas are incorporated within these guidelines and summarised in the table below.

It is in an accord with most metropolitan councils although it is recognised that there are variations between individual councils. Planning requirements in particular localities may dictate larger space, however where space is at a premium and land values are high, the SAHT can argue that its own amenity is appropriate.

For the SAHT a minimum of 20 m² private open space area per bedroom is sustainable with minimum useable rectangles of 3x5 m (15 m²) for 1 and 2 bedroom dwellings.

A practical design minimum, therefore, is around 20 m² area for single bedroom housing, made up of a 15 m² area useable space (the 3x5 m rectangle) and 5 m² other (alleyway, and the like).

For family housing, 3 bedroom and larger, the application of a 4x6 m (24 m²) minimum rectangle of open space as part of the total private open space is generally accepted by planning authorities.

The rectangle is a simple design tool that ensures side access alleyways are not counted for minimum useable area.

Exclusions to protect the amenity of private open space area minimum rectangle comprising rainwater tanks, clothes drying space, bin storage, plant and equipment, eg, hot water service, and the like. A concession for single bedroom housing may be the shared use of a folding or retractable clothesline within the minimum useable rectangle.

For dwellings other than ordinary houses that do not have direct access to private open spaces, such as above ground level flats and apartments, different requirements can apply. Refer to Design Guideline 1.3 Apartment Design BCA Class 2 Construction.

### Extent of Useable Private Open Space

<table>
<thead>
<tr>
<th>Dwelling Type</th>
<th>Minimum Total Area</th>
<th>Minimum Useable Rectangle</th>
<th>Reduce Area in Higher Density Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom</td>
<td>20 m² area</td>
<td>3x5=15 m²</td>
<td>15 m² area</td>
</tr>
<tr>
<td>2 bedroom</td>
<td>40 m² area</td>
<td>3x5=15 m²</td>
<td>30 m² area</td>
</tr>
<tr>
<td>3 bedroom</td>
<td>60 m² area</td>
<td>4x6=24 m²</td>
<td>45 m² area</td>
</tr>
<tr>
<td>4 bedroom</td>
<td>80 m² area</td>
<td>4x6=24 m²</td>
<td>60 m² area</td>
</tr>
<tr>
<td>5 bedroom</td>
<td>100 m² area</td>
<td>4x6=24 m²</td>
<td>75 m² area</td>
</tr>
</tbody>
</table>

**Notes**

- Clothes drying, bin storage, rainwater tank, plant and equipment are not included within the Minimum Useable Rectangle except that for a one bedroom dwelling a retractable clothesline may intrude into the space.
- Up to 30% of the Total Area may be included under a pergola or verandah.
- Allow 20 m² area of private open space for each additional bedroom.
In certain developments balcony space may contribute to private open space subject to local council development plan requirements or concessions. Typically balcony space is acceptable in higher density multi storey housing, mews developments and accommodation above garaging.

Refer to page 30 in design guideline 1.3 Apartment Design BCA Class 2 Construction for the minimum requirements.
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SOLAR CLOTHES DRYING

Recent practice for solar clothes drying lines has been to provide:

- for 1 bedroom housing a folding “Paraline” type occupying around 10 m² area;
- for 2 and 3 bedroom a rotary clothesline type or an “Extendaline” type occupying around 16 m² area;
- for 4 bedroom and larger family housing Extendaline type lines do not provide adequate line space so a rotary type clothesline should be used.

Traditional rotary clotheslines are preferred in all locations where appropriate and have the advantage of reducing paved areas. Where courtyard space is limited an extendable line type may be more practicable.

Clothes lines must be offset from walls and fences as specified by manufacturers.

Note: Rotary lines may reduce paved areas, and can be converted to shade outdoor areas.

Refer to the SAHT Minimum Design and Construction Specification for line lengths available on a range of clothesline products.
HOUSE FABRIC

These design guidelines are also supported by a range of SAHT Technical Specifications used in the acquisition process for horticultural, upgrade, maintenance and new construction works. These are detailed technical documents written specifically for trades that form part of contractual arrangements.

The outcomes expected from the application of both these design guidelines and the SAHT Minimum Design & Construction Specification for housing to be built include:

Floors
Floors must be level, smooth, nonslip, weatherproof and structurally sound. The surface must be prepared to accept scheduled finishes or applied coverings.

External Walls
External walls must be structurally sound and weatherproof. Footings must also be structurally sound. They should be insulated against heat loss/gain and where appropriate against excessive noise. Materials should be low maintenance and not rely on recoating to maintain integrity and durability.

Windows
Window designs are to be kept simple and generally rectangular (to industry sizing) for ease of furnishing with blinds or curtains. Bay and multiple windows are discouraged due to the expense and difficulty of providing window treatments.
Sill heights should be approximately 750 mm above floor level for bedrooms and 450 mm to 600 mm for living spaces. Full height windows are not preferred, except sliding door access to living spaces.

Internal Walls
All walls and ceilings must be consistent, true and in sound condition. All doors, locks, architraves, skirtings and cornices must be in sound condition and should be consistent throughout the house.
For occupants with specific special needs, increased robustness of wall linings may need to be considered.

Roofs and Gutters
Roofs and gutters must be structurally sound, weatherproof, free of leaks and securely fixed. They must dispose of rainwater effectively to the street water table, storage tank or detention device, as stipulated and required by the local Water Industry, development approvals, appropriate codes and standards. Particular attention is to be given to ensure as much roof area as possible is collected by the rainwater tank and that minimum building code requirements are met.
Other House Fabric aspects are covered under the design guideline 1.2 Amenity Targets.
House Accommodation Summary Table for Rental Use

<table>
<thead>
<tr>
<th>House Type (by Accommodation)</th>
<th>Living Areas Limited to</th>
<th>Building Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedsit apartment without laundry (single person only)</td>
<td>minimum 38 m² area</td>
<td>All suitable for apartment and mews use only</td>
</tr>
<tr>
<td>Bedsit apartment including laundry (single person only)</td>
<td>42 m² to 55 m² area</td>
<td></td>
</tr>
<tr>
<td>1 bedroom housing with laundry included in bathroom</td>
<td>55 to 65 m² area</td>
<td>All suitable for apartment, mews or special group sites</td>
</tr>
<tr>
<td>2 bedroom housing with laundry included in bathroom</td>
<td>65 to 75 m² area</td>
<td></td>
</tr>
<tr>
<td>2 bedroom housing with optional separate laundry</td>
<td>65 to 80 m² area</td>
<td>Suitable for group or shared sites only</td>
</tr>
<tr>
<td>2 bedroom housing (couple with 1 child only)</td>
<td>75 to 90 m³ area</td>
<td></td>
</tr>
<tr>
<td>3 bedroom housing (family with up to 4 children)</td>
<td>110 to 125 m² area</td>
<td>Family housing all suitable for street fronted sites, attached, semi-detached</td>
</tr>
<tr>
<td>4 bedroom housing (family with up to 6 children)</td>
<td>145 to 160 m² area</td>
<td>and detached configurations. All suitable for multi level development.</td>
</tr>
<tr>
<td>5 bedroom housing (family with up to 8 children)</td>
<td>170 to 190 m² area</td>
<td></td>
</tr>
<tr>
<td>6 bedroom housing (family with up to 10 children)</td>
<td>180 to 210 m² area</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- Floor areas exclude carport/garage, porches and verandahs, but include all walls.
- Floor areas will increase slightly (around 10 to 15%) to allow for vertical circulation (stairs) in 2 storey construction. Increases in area may also be required for elongated or unusual site configurations.
- All areas allow for circulation to suit universal access as described in the design guideline 2.2 SAHT Universal Housing Design Criteria.
- Inner city developments may require smaller housing units in response to the built form and specific client groups.

Refer to the design guideline 1.4 Housing Accommodation Schedules for tables on details of accommodation in the various houses types.

Special Needs Housing

Special needs housing will generally require a specific brief for designers to respond to the housing requirements and may require larger internal spaces in specific cases other than those listed, to cater for disability or carer requirements as briefed.

Non-Family Housing

A distinction between small non family housing and family housing is the provision of a bath within the bathroom and separation of laundry facilities usually within a laundry room. A bath is considered to be a design requirement for occupation that allows for the inclusion of children.
MULTI STOREY HOUSING

At present most individual dwellings in this category will comprise two storey house types, all usually of Building Code of Australia (BCA) class 1 type construction.

Other dwelling types may include mews and dwellings above garages, walk up flats, apartments and the like, all generally BCA class 2 or 3 type construction (refer to design guideline 1.3 Apartment Design BCA Class 2 Construction for further details).

Amenity

Generally in the Adelaide area two storey housing provides living areas at ground level with sleeping zones at upper levels.

Smaller two bedroom town house types are not encouraged as they do not provide value for money and the SAHT occupancy for this house type may be a single person. Exceptions may include inner city projects including apartments, loft type units and the like.

Family house types are preferred to justify provision of upper and lower level toilet accommodation.

Two toilets are required, one associated with day-time living and another adjacent to sleeping areas.

- one toilet will generally be included in an upper level bathroom usually associated with the bedroom areas, and
- the second (downstairs) toilet will require hand washing facilities.

Floor areas may be increased by around 10 to 15% to allow for additional vertical circulation and duplicated wet areas.

Internal layout must be zoned to separate sleeping and living activities and to ensure efficient heating and cooling. In particular:

- compartmentalise to reduce heat loss; and
- allow for natural ventilation and the capture of cross flow breezes.

Where practical, laundry facilities should be on the ground floor with direct access to ground level external private open space for solar drying.

Vehicle accommodation for individual dwellings may be undercrofted, attached or freestanding, as on corner sites. Roofing, materials and finishes must be related to the architectural style and design of the associated dwelling.

For 4 bedrooms and larger multi storey housing consider the provision of one bedroom on the ground floor or entry level.
Innovative House Forms

To be assessed on merit.

Partial upper floor arrangements may allow for some bedroom accommodation at ground level giving opportunities for limited accessibility:

- a second bathroom will be required for this option (complies with amenity for 4 bedroom housing);
- this option is also marketable as a home office or study where located adjacent to an entry hall.

Three storey house forms can be promoted where value for money can be demonstrated, as in inner city projects.

Internal Stairs

Flights must be straight with no winders.

Minimum width of treads 1000 mm with 820 mm between handrails or balustrades. Risers and goings in accordance with BCA Volume 2.

At each change of direction a landing is required which must be a simple square or rectangle shape.

Skews or splayed arrangements (on plan) are discouraged.

Balustrade and a continuous handrail on one side to comply with BCA Volume 2.

Lighting fixtures in stair wells must be arranged to allow for ease of lamp replacements by the occupier. Wall mounted fixtures are a suitable option.

Picture 2 - Typical Stairway
1.1 HOUSE DESIGN GUIDE

**Visitability and Access Requirements**

Stepless access to upper levels is usually not achievable. Nevertheless it is expected that space arrangements and fit out requirements should be adhered to.

In larger multi storey family housing of four bedrooms or more the provision of one bedroom and a bathroom at entry level will allow for universal housing requirements to be achieved on the ground floor. The upper level bedroom and bathroom accommodation will not need to meet universal guidelines.

For affordable and tighter inner urban and city projects compromises may be required and negotiated. An example may be the use of 820 mm door leafs throughout, in lieu of the wider doors called up to meet universal requirements.

For further information refer to the design guideline 2.3 SAHT Universal Housing Design Criteria.

**Balconies**

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

Balcony area can be included in private open space in accordance with planning locality guidelines. Refer to table on page 20.

**External Private Open Space**

Service access for wheelie bins must be provided. Where terrace housing is proposed this can be achieved via a garage or carport.

Side alleyways must comply with SAHT minimum requirements 1000 mm wide, but 1800 mm wide is preferred to create a useable space and maximise natural light to side windows.

**Construction Requirements for Multi Level and Attached Housing**

For construction requirements applicable to class 1 dwellings, refer to the SAHT Minimum Design & Construction Specification. Low maintenance, environmentally sustainable fixtures, fittings, materials and finishes are the preferred option within the overriding parameter of value for money.

**Floor Systems**

- May be lightweight within individual dwellings and all class 1 buildings.

- Heavyweight construction is generally required in accordance with BCA requirements for class 2 and 3 buildings.
1.1 HOUSE DESIGN GUIDE

Separating Wall Construction (party and common walls)

- Must be demonstrated to comply with BCA requirements for sound transmission and fire separation.
- Plumbing drainage and service lines should not be run through common walls. In wet areas consider battening out wall linings to create service access spaces.

Upper Level Wall Finishes, Eaves and High Level Fascias

- Must be low maintenance due to accessibility.
- Masonry external cladding is preferred.
- Prefinished materials can be considered on merit.

Roof Design

- Box gutters are not acceptable.
- Roofs must not fall or drain in such a way as to compromise future land divisions or land titling arrangements for row and terrace housing.
- Roofs should maximise opportunities and allow for the collection of rainwater, take into account local development regulations, and meet the minimum statutory requirements.
- Allow for future location of appropriately orientated solar collection equipment.
- Fascia design including parapets and finishes should be of low maintenance construction.

Services and Ducting

- Location of upper floor wet areas will impact on lower floor accommodation due to dropped ceilings, waste stacks and acoustics.
- Vertical co-location of wet areas is preferred to take advantage of the efficiencies of single plumbing stacks.
- Lower ceilings can be considered in kitchen areas and wet areas, however isolated bulkheads are discouraged.
- Allow for vertical ducts for future mechanical ventilation between levels.
- Allow for mechanical ventilation (to be ducted to outside) of enclosed toilets, wet areas and kitchen exhausts.

Kitchen Design

In some narrow building types, townhouses and apartments the kitchen or meals preparation area may 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.

Recirculating range hoods will not be acceptable in any circumstance, due to clogging of filters.
Title Boundaries and Zero Lot Line Requirements

All building rules/requirements for construction on boundaries must be met where there is potential for future boundaries. All attached houses must comply with fire separation and stormwater disposal requirements.

Rainwater collection arrangements and gutters must not pass over common walls or future boundary lines.

Use of box gutters is not acceptable.

Refer to design guideline 2.1 Land Titling and Service Infrastructure for further information on titling arrangements.

Privacy and Overlooking

Planning authority requirements pertaining to overlooking issues are not appropriate within SAHT sites. The SAHT prefers to promote passive surveillance and applies Crime Prevention through Environmental Design (CPTED) principles.

Within group housing developments, compromises in respect to overlooking are acceptable subject to:

• internal window furnishing arrangements (curtains or blinds) can be demonstrated to provide shielding;
• sleeping areas are not considered critical due to limited use and provision for curtains or blinds;
• staggering or offsetting window arrangements between facing dwellings; and
• provision of pergolas can be used to assist in maintaining privacy from overlooking.

Additional Guidelines and Design Variations for Inner City Living

Inner city living projects are generally housing projects located in city and inner urban areas constrained by the limited availability of land.

These projects may include multi storey projects, walk up flats, mews, mixed use development and other novel forms of dwelling accommodation. Car parking requirements may be reduced or not be required where ready access to public transport is identified. City Living projects may also include serviced accommodation, boarding houses and the like.

For apartment development refer to design guideline 1.3 Apartment Design BCA Class 2 Construction.