Sustainable Housing Principles

2.3 SAHT Universal Housing Design Criteria
2.3 SAHT UNIVERSAL HOUSING DESIGN CRITERIA

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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 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 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.
This Design Guideline

This design guideline was previously published as 2.3 Design Criteria for Adaptable Housing. The name of this guideline has now changed to 2.3 SAHT Universal Housing Design Criteria to remove confusion with the definitions of the previously published and now outdated Australian Standard introduced in 1996 as AS 4299 Adaptable Housing.

This design guideline has been developed as there is a requirement for the SAHT to provide housing suitable for persons with varying degrees of disability including wheelchair users. In the past this has been met by modifying existing housing stock on an ‘as required’ basis. Significant modifications are, however, often very costly.

For this reason, after extensive research of Australian and International practices, the SAHT has adopted a universal housing design approach which is defined on page 6 that provides for both visitability, and adaptability at the time of construction together with general SAHT requirements for its clients that are designed to:

- Minimise the current high cost of converting existing houses to accommodation for persons with a disability;
- Enable the SAHT to modify houses at minimal cost to allow tenants in houses designed to this criteria to stay in their own homes if they become disabled; and
- Enable access by visitors with a disability.

This guideline summarises and provides examples of the key aspects of the design criteria. It is intended that this guideline is used as a design tool that provides an overview of what is required so that builders and designers can assess their existing designs and either modify or generate new designs that comply with these requirements.

The principal features of the SAHT universal housing include:

- Stepless entry and enhanced design of doorways;
- Wider circulation at doorways;
- Power points, fixtures, doors and circulation at universal heights with:
  - Door hardware generally 900 mm to 1100 mm above floor level;
  - Wall power outlets 450 mm to 600 mm above floor level.
- Wider (1500 mm) circulation between kitchen benches;
- Bathroom designed to accessibility criteria including:
  - stepless shower;
  - toilet;
  - reinforced wall construction so that grab rails can be fitted later as an adaptation.
- Carport with widening at side and extended paving;
- 1000 mm wide external paving.
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The SAHT building program managed by Renewal SA is committed to providing a minimum of 75% of all new houses to meet or exceed the criteria in this guideline. In recent years this ongoing commitment has been comfortably exceeded with only some two storey projects and steeply sloping sites not complying. To enable the adaptation of houses to occur there is also a Housing SA maintenance program for modification of housing for persons with a disability. In addition Renewal SA continues to influence the wider community and industry by:

• Promotion, whenever practicable, of sustainable housing demonstrating that implementation of the SAHT Universal Housing Design Criteria is both affordable and unobtrusive. The house designs can be shown to be ‘normal’ and marketable;
• Engagement with the housing industry through the Housing Industry Association (HIA) and Master Builders Association (MBA);
• Coordination with Department of Planning, Transport and Infrastructure (DPTI) on building rules and control issues.

Ultimately DPTI, Building Policy has responsibility for any mandatory requirements to provide adaptable, visitable and accessible housing in South Australia. It controls legislative requirements for buildings in South Australia and can influence house building through mandatory and advisory criteria.

Definitions of Housing Design Approaches

The following definitions are provided as background information and to allow a greater understanding of the many different approaches that exist to provide housing to the community.

SAHT Universal Housing Design

Provides for both visitability, and adaptability at the time of construction together with general SAHT requirements for its clients. This guideline sets out the design criteria in detail and has considered and incorporated many of the other housing design approaches listed below. Implementation of this criteria combined with the modification policy ensures that social/welfare housing is truly universal and can meet almost all of the SAHT client needs.

Universal Design

This is a design philosophy that promotes an inclusive ‘design for all’ process. The thinking applies to the design of all products from kitchen utensils to transport and urban planning.
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**Accessible Design**

Accessibility for persons with a disability is achieved by legislative guidelines driven by codes and standards. Australian Standard AS 1428 Design for Access and Mobility – Set mandates requirements applicable to buildings other than houses.

**Visitable Housing**

Is housing that can be accessed by persons with a disability ensuring that an entry, usually the front door, and access to a bathroom can be achieved.

**Adaptable Housing**

Is a generic term for housing that incorporates provision for inexpensive modifications to houses that can be adapted to meet particular needs of a resident with a disability.

**Livable Housing**

In 2013 the Australian Federal Government through it's Department for Families, Housing, Community Services and Indigenous Affairs implemented a Livable Housing Design initiative that proposes a range of guidelines for adaptable housing. The guidelines are pitched at three levels of compliance; silver, gold and platinum. The guidelines are not mandatory in mainstream building projects however may be mandated for certain projects that are financed directly with Commonwealth funds including the National Disability Insurance Scheme (NDIS).

The Livable Housing Design guidelines are now administrated by a separate organisation known as Livable Housing Australia. In general the SAHT Universal Housing Design Criteria guideline meets the intent of the Silver performance ratings of the Livable Housing Design initiative. Compliance is noted throughout this document as applicable and in particular paving widths to the front entry, door sizes and clearance widths may require expansion. This guide however does not meet Livable Housing Gold or Platinum level requirements for full accessibility where considerable expansion widths are required for the front entry, door sizes and clearance widths generally.

**Housing for Life**

The Master Builders Association (MBA) of the Australian Capital Territory has developed a guide for “Housing for Life” with funding provided under the Commonwealth Government's Veteran & Community Grants scheme operated by the Department of Veterans' Affairs.

**Lifetime Homes**

Proposed by Joseph Rowntree Foundation and incorporating requirements of Part M of the Building Regulations in England which provide for visitable and accessibility in new residential construction.

**Barrier Free**

Lifetime Homes concepts applicable to housing in Scotland.
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Modifications

Housing SA also has a program for modification of housing for persons with a disability which is used to implement further adaptation that can be easily and inexpensively applied to new housing built to the SAHT Universal Housing Design Criteria. This include features such as provision of handrails.

The program also identifies options and techniques that can be applied to modify older house types. However, there are often significant structural impediments to basic modifications. In particular, widening narrow openings and eliminating steps by means of ramps can be problematic. Extensive modification to older housing can be both socially disruptive and cost prohibitive, so relocation to a newer house built to the SAHT Universal Housing Design Criteria may be a preferable option.

Refer to the design guideline 4.1 Housing Modifications for further details.

National Disability Insurance Scheme (NDIS)

This project is managed by the National Disability Insurance Agency (NDIA) and is currently being implemented throughout Australia. Although the scheme is set up to provide funding services to individuals there will be implications to design and form of residential buildings. The NDIS Improved Livability and Robust categories can be met by the provision of a range of specific requirements drawn from Livable Housing Australia performance category Silver, as incorporated within this design guideline. However this design guideline does not meet requirements for NDIS categories Fully Accessible and High Physical Support.

Building Rules and Australian Standards

Building Code of Australia

All building work in South Australia must be in accordance with rules set out in the Building Code of Australia (BCA) managed by the Australian Building Codes Board. Residential construction is generally in accordance with BCA class 1 and class 2 construction.

Residential construction is initiated and managed by Renewal SA on land owned by the SAHT.

Whilst there are no mandatory requirements for access to persons with a disability within the dwellings in these construction classes, there will be requirements for complying with AS 1428 Design for Access and Mobility – Set for access in the foyers and common areas associated with class 2 buildings.
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Design for Access and Mobility AS 1428.1

The requirements of Australian Standard AS 1428.1 Design for Access and Mobility apply to all buildings with the exception of class 1 and class 2 residential development. These requirements apply to buildings which are work places, institutions and in any form are publicly accessible.

Nevertheless these standards may be called upon in certain “Special Needs” projects to meet particular client requirements or expectations.

Adaptable Housing AS 4299

This Australian Standard AS 4299 Adaptable Housing has been used to develop specifications for Adaptable Class C Housing, which was historically used in a proportion of new construction dwellings financed by the Commonwealth under the Nation Building Scheme.

From time to time this type of housing may be required by the SAHT and this will be outlined in Site Specific documentation under the heading Adaptable Class C Housing. The SAHT is confident that building in accordance with the SAHT Universal Housing Design Criteria and the SAHT Minimum Design and Construction Specification will provide users with an equivalent level of access and adaptability in all housing.

References and Acknowledgements

Australian Standard AS1428.1 Design for Access and Mobility
Australian Standard AS4299 Adaptable Housing
Welcome - Design Ideas for Accessible Homes, Building Commission of Victoria 2002
AS 3740 Waterproofing of Domestic Wet Areas - Additional requirements
Australian Standard AS/NZS 2890.1 Parking facilities Part 1: Off street car parking
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Detailed Requirements

Around the House

The basic requirement is that a person in a wheelchair should be able to easily and safely get from the street, car park or carport into the house and into the rear yard. In meeting requirements for wheelchair access, the needs of persons with walking aids and other disabilities can be met. To achieve this, the following should be provided:

Steps

There should be no steps in the path from the street, carport or car park into the house.

Paths

Should be 1000 mm wide and have a maximum grade of 1:20 (50 mm in 1000 mm) with 1:40 maximum cross falls (25 mm in 1000 mm).

If provided, a driveway widened to 3500 mm can be integrated with the access path to the front door. In situ concrete paving is preferable to unit pavers.

<table>
<thead>
<tr>
<th></th>
<th>Width of path from street boundary to front door</th>
<th>Other paving widths</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAHT Universal</td>
<td>1000 mm</td>
<td>1000 mm</td>
</tr>
<tr>
<td>LHA Silver</td>
<td>1000 mm</td>
<td>1000 mm</td>
</tr>
</tbody>
</table>

Figure 1: Example Site Plan

alternative letterbox locations.

driveway.

no central post.

Houses

allow a minimum of 1000 mm clearance to perimeter paving around any services.

flood gully located away from door to achieve a 150 mm set down, or use a pop up top flood gully on a surface inspection point.

clothes line.
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Thresholds

At the front and back door, thresholds must be the 'no step' type, eg. Raven RP77 threshold with RP4T seal or similar.

Note: This means special attention to termite treatment at this point. For aluminium sliding doors the track needs to be set down into a special rebate and attention paid to the drainage of the track.

Figure 2: Porch door swing clearances

Stepless Entrances

Ramped thresholds can be used to ensure weathering at entrances, preventing the entry of wind driven rain. The ramped threshold can extend for up to 300 mm at maximum grade of 1 in 8. Extent of threshold ramps may need to be shown on preliminary documentation to establish paving levels.

Threshold ramp construction details for both swing doors and aluminium sliding doors can be found in Part B Annexure 2: Minimum Design & Construction Specification for Class 1 Buildings.

Figure 3: External 1 in 8 rise step ramps at swing doors

Figure 4: External 1 in 8 rise step ramps at sliding door
Verandahs and Porches

A covered porch area of 1600 mm x 1600 mm is the minimum required. If a verandah is provided it should be 1200 mm minimum width and have a 1600 mm x 1600 mm circulation space at the front door.

Attention must be given to door clearances for screen or safety doors.

Car Parking

Space should be 6000 mm x 3600 mm minimum.

For SAHT houses a 3000 mm wide carport is acceptable if the paved area beyond the structural footprint is 3600 mm wide and there are no obstructions, eg, central posts.

Figure 5: Universal Housing Design Carport
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Inside the House

Within the house the rooms, corridors and doors should be sized and arranged to enable a person in a wheelchair to readily move through the house and use all facilities. To ensure this can be achieved, the following are required:

Steps

No steps inside the house. All floor surfaces are to finish at the same height. The bathroom floor should be set 8 mm above general floor level to allow for future floor coverings.

Power points

General Purpose Outlets (GPO) should be in the range 450 mm to 600 mm above floor level.

Kitchen power points should be a maximum of 1100 mm above floor level.

Figure 6: Universal Heights

Doors

Universal housing must provide a minimum of 760 mm clear opening door width on all doorways. An 820 mm door leaf can meet this requirement. (Refer to Table 1 for further details). External and internal swing doors should comply with the following:

- Sliding doors, if used, should have an 800 mm clear opening clearance;
- For external doors, allowance must be made for both an internal swing door and an external screen or safety door.

Door handles

Should be lever type, not knobs, refer to SAHT Minimum Design and Construction Specification for hardware schedules.

- The centre lines to all door handles, locks and latches and light switches need to be in the 900 mm to 1100 mm range above floor levels.
- For external doors with separate locks, handles should be mounted at 900 mm and locks at 1100 mm.
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Table 1: Door Swing Clearances

<table>
<thead>
<tr>
<th>Door Leaf</th>
<th>Clear Width</th>
<th>Offset at Latch side</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAHT Universal</td>
<td>820 mm</td>
<td>760 mm</td>
</tr>
<tr>
<td>SAHT Universal</td>
<td>870 mm</td>
<td>820 mm</td>
</tr>
<tr>
<td>LHA Silver</td>
<td>860 mm</td>
<td>Not Required</td>
</tr>
</tbody>
</table>

Notes:
(i) The latch side offset is only required on the swing side of doors in SAHT housing.
(ii) The offset at the latch space need only be provided where the person is approaching the swing side of the door.
(iii) Advisory sizes only subject to taking into account door leaf thickness, door stops and actual measured clear width.

Living Room, Dining Room and Family Room

Because of circulation requirements for wheelchairs in these spaces and the need to minimise corridors, it is likely that in smaller dwellings some or all of these spaces will need to be combined.

In the living area, space for a wheelchair turning circle of 1500 mm must be accommodated within the furnishing layout.

Generally the living room, dining room or family room should have a door to the external living space.

If a full height aluminium sliding window is used it will need to be set down into a rebate so that door track can be crossed by a wheelchair.

Corridors

Should be 1000 mm minimum width and wide enough to allow the side approach widths as shown. Corridors should be limited in length or avoided altogether.
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Bathroom and Toilet

The bathroom should be built in its universal housing design form from the start so that the only changes required to convert it for disabled use would be the installation of grab rails and removal of the shower screen if this had been fitted.

The universal housing design form bathroom should include as a minimum a shower, a WC and a hand basin with a cabinet over.

A bath is not required for adaptability purposes.

Floor tiling should be as specified within the SAHT Minimum Design and Construction Specification.

Hot water temperature limited to 50°C at sanitary outlets in accordance with domestic plumbing code requirements.

Tap sets should have capstan or lever handles.

The waterproofing system should extend under the whole bathroom floor, ie, not just the shower.

The walls of the bathroom (if framed) should have a 140 x 35 mm trimmer all round for fixing future handrails with a centre line 800 mm above the finished floor.

The AS 4299 Adaptable Housing shows plywood panels which are preferable and could be combined with wall frame bracing.

![Figure 11: Basin set out](image)

- mirror / cabinet
- Power and light switch
- lever mixer tap or lever taps
- Hand basin with shroud concealing water and waste. Waste in wall
2.3 SAHT UNIVERSAL HOUSING DESIGN CRITERIA

Shower

Minimum size to be 1100 mm x 1100 mm.
The shower floor must not have a hob or a set down. Refer to the diagram for required falls.
The shower should allow for the installation of an adjustable handset and flexible hose type, mounted on a vertical grab rail. The shower screen, if provided, should be removable.
Tiling is continuous under and behind the screen.
The SAHT does not allow for the future installation of a fold down seat. It is anticipated that, if required, a separate shower chair can be used.
General bathroom falls of 1:100 in accordance with the AS 3740 Waterproofing of Domestic Wet Areas.

Figure 12: Shower set out
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Water Closet (WC)
A disabled person's WC, with rim 460 mm above floor level, is not required, but may be provided as a modification. The front of the pan should be a minimum of 600 mm from the back wall and 450 mm from the side wall. Additional trimmers are required for future grab rails as shown.

Note:
For water proofing details refer to AS 3740 Waterproofing of Domestic Wet Areas.

Figure 12a: Stepless shower alcove to larger bathrooms

Figure 12b: Stepless shower alcove to smaller bathrooms

Figure 13: Toilet set out
Hand Basin

The basin waste should be built into the wall.

If a vanity basin is provided, then it should be the semi recessed type.

If clear knee space is not provided, any cupboard under should be removable, ie, wall and floor tiling is to be continuous.

The hand basin should be a type suitable for disabled use.

![Figure 14: Vanity unit section](image)

![Figure 15: Vanity unit supported off structure](image)

![Figure 16: Vanity unit cantilever supported](image)
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Kitchens

The kitchen should allow for:

- Minimum circulation with 1500 mm cupboard face to cupboard face;
- Mixer tap to the sink;
- 1 x 36 watt fluoro light with prismatic diffuser.

The SAHT will adjust bench height only if requested as a modification, therefore there is no need to have an adjustable height bench top.

To allow this to occur in the future, service connections such as waste pipe work, hot and cold water, electrical and gas connections shall be in the wall at the rear, set at a height so that bench height can be lowered to 750 mm if required.

Water and gas connections should be made with approved flexible hoses.

Laundry

If a separate room is required for a laundry, the following should be included in accordance with SAHT requirements (refer design guideline 1.1 House Design Guide).

- Stainless steel 70 litre wash trough with cabinet under;
- Space for dryer is assumed at high level over the washing machine space;
- For persons with particular disabilities it is assumed the dryer can be stacked directly over a front loading type washing machine;
- 750 mm space for an automatic washing machine and taps. Circulation space of 1200 mm wide in front of these items reduced from 1550 mm AS 1428.1 Design for Access and Mobility – General requirements for access – New building work requirement;
- Linen and broom cupboards are also required and could be incorporated into the laundry depending on the layout adopted;
- In certain circumstances some concessions may be considered for clear opening door width and circulation space.
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Bedrooms

Bedroom requirements are:

Larger bedroom

- Minimum size approximately 14.8 m² area and minimum 3600 mm width dimension;
- Needs to fit queen sized bed, side tables, dressing table and a 600 mm x 1500 mm wardrobe;
- Will allow for wheelchair turn of 1500 mm width.

Second bedroom where sized for two persons in single beds

- Minimum size approximately 10.8 m² area and minimum 3000 mm width dimension;
- Needs to fit two single beds, a desk and chair, and a wardrobe 600 mm x 1500 mm wide;
- Will allow for wheelchair access with only one bed in the room.

Supplementary and single person bedrooms

- Need not be designed for adaptability.

Window Design

Window design should be kept simple. A rectangular shape is best for ease of furnishing. Full height windows are discouraged except for an access slider usually located off a living room. There are reduced construction costs for windows that do not extend to floor level, as internal linings and skirting are continuous. Further advantages include greater privacy and reduced length of curtain material.

Recommended sill heights are:

- Bedroom 750 mm above floor level - Can see out from in bed; bed height is below sill. (daytime restricted view inwards);
- Living 450 to 600 mm above floor level - Can see out easily from seated position.
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Items Not Required

The SAHT does not promote the use of demountable walls in housing as proposed in parts of ‘AS4299 Adaptable Housing’. All space should be designed to allow for accessible circulation space.

Grab rails and the like are generally not provided at construction, but can be included on request, using protocols established by Housing SA’s modification policies for persons with a disability.

No allowance is made for the future installation of a fixed fold down seat in the shower area. It is anticipated that a removable chair or stool can be provided.
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Housing Modifications for Persons with Disability Policy

Within financial and budgetary constraints, Renewal SA and/or Housing SA will carry out appropriate modifications to existing housing on request using protocols established by this policy. Usually a request for a modification requires a report prepared by an occupational therapist or a medical practitioner. The modifications can include:

- Provision of grab rails;
- Alteration of door swings;
- Alteration of height of kitchen bench tops;
- Provision of a high set WC in the toilet;
- Flexible shower rose.

For older houses not built to universal housing design principles, other modifications may be required to meet particular requirements. Refer to Design Guideline 4.1 Housing Modifications for further information for adaptation and modification of existing buildings.
Examples of Application of SAHT Universal Housing Design Principles

Figure 19: Example of SAHT universal housing requirements for living areas.

Figure 20: Example of SAHT universal housing requirements for house frontages, narrow fronted sites.