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Sustainable Housing Principles

2.3 SAHT Universal Housing Design Criteria

DESIGN GUIDELINES

FOR SUSTAINABLE HOUSING & LIVEABLE NEIGHBOURHOODS

on behalf of the South Australian Housing Trust



Government of South Australia
SA Housing Authority

2.3 SAHT UNIVERSAL HOUSING DESIGN CRITERIA

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2.3 SAHT UNIVERSAL HOUSING DESIGN CRITERIA

Introduction

Background

Established in July 2018, the SA Housing Authority (SAHA) is a statutory corporation that administers the South Australian Housing Trust (SAHT) Act 1995.

The SAHA consolidates housing-related services and management of the housing stock; including strategy, service delivery, assets and related corporate supports; and plays a key role in enabling and supporting the State's modern, multi-provider housing system and in establishing an environment that promotes shared responsibility and ownership.

The Authority is committed to providing housing that is socially and environmentally affordable and sustainable. 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.

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
- 3.1 Neighbourhood Renewal
- 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 the SAHA 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 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 that at the time of construction provides for both visitability and adaptability 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. The principal features of 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 900mm to 1100mm above floor level;
 - Wall power outlets 450mm to 600mm above floor level.
- Wider 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;
- 1000mm wide external paving.

The SAHT building program is committed to providing a minimum of 75% of all new houses to meet or exceed the criteria in this guideline. To enable the adaptation of houses to occur there is also a maintenance program for the modification of housing for persons with a disability.

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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.

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 its 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 (LHD) are now administered 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. This guide however does not meet Livable Housing Gold or Platinum level requirements where considerable expansion widths are required for the paving widths to the front entry, door sizes and clearance widths generally.

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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.

National Disability Insurance Scheme (NDIS)

This project is managed by the National Disability Insurance Agency (NDIA) and is 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) forming part of the National Construction Code (NCC). Residential construction is generally in accordance with BCA class 1 and class 2 construction.

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.

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 BCA 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.

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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 tender documentation under the heading Adaptable Class C Housing. The SAHT maintains that building in accordance with its universal housing design criteria 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*

Meeting Part M and Designing Lifetime Homes, Ed. Catriona Carroll, Julie Cowan and David Darton. Published by Joseph Rowntree Foundation, 1999

Livable Housing Design, Fourth Edition, Published by Livable Housing Australia 2017

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

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

	Width of path from street boundary to front door	Other paving widths
SAHT Universal	1000mm	1000mm
LHD Silver	1000mm	1000mm

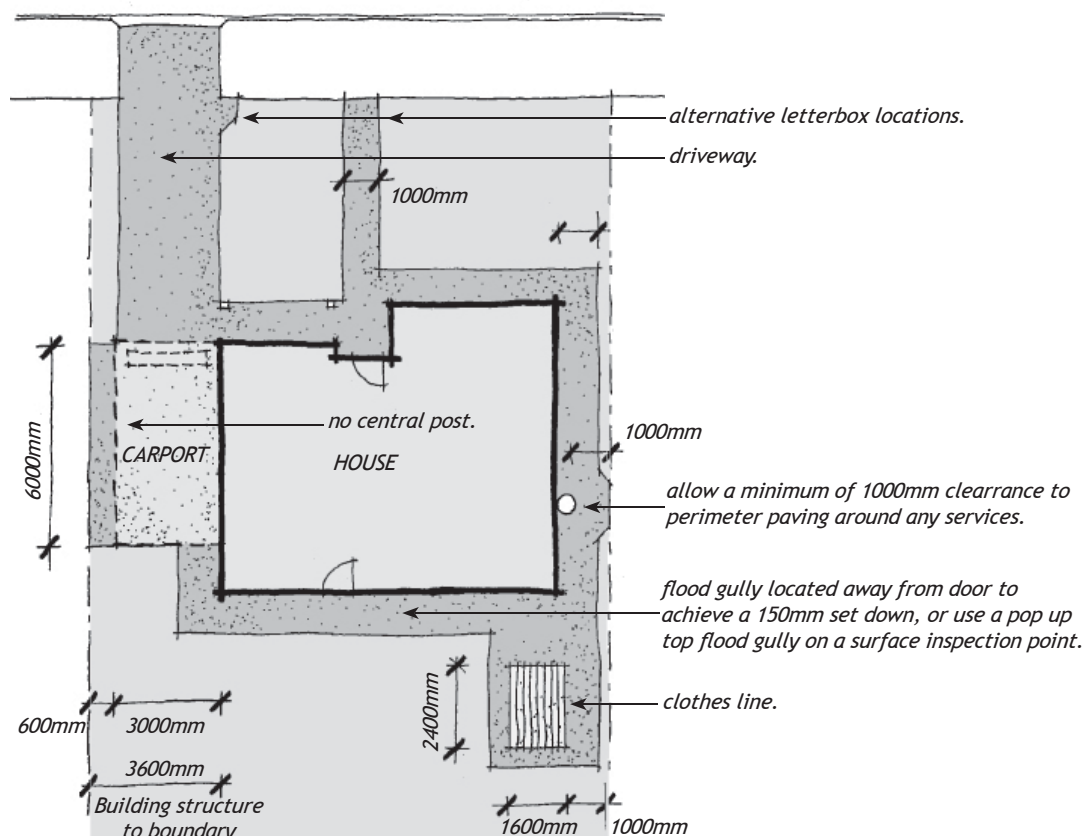


Figure 1: Example Site Plan

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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.

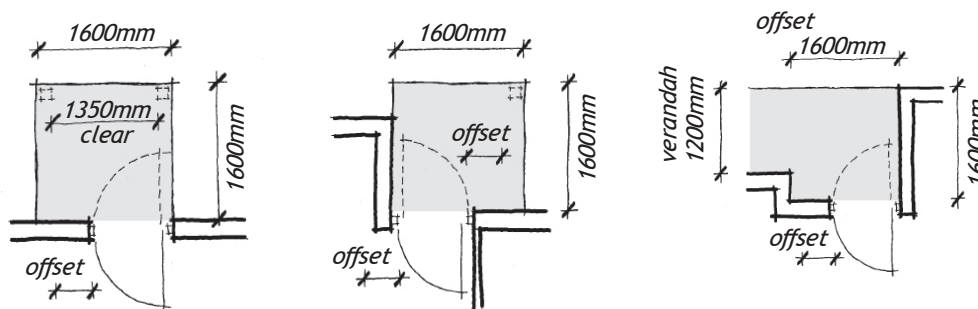


Figure 2: Porch door swing clearances

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 300mm at maximum grade of 1 in 8. Extent of threshold ramps may need to be shown on preliminary documentation to establish paving levels.

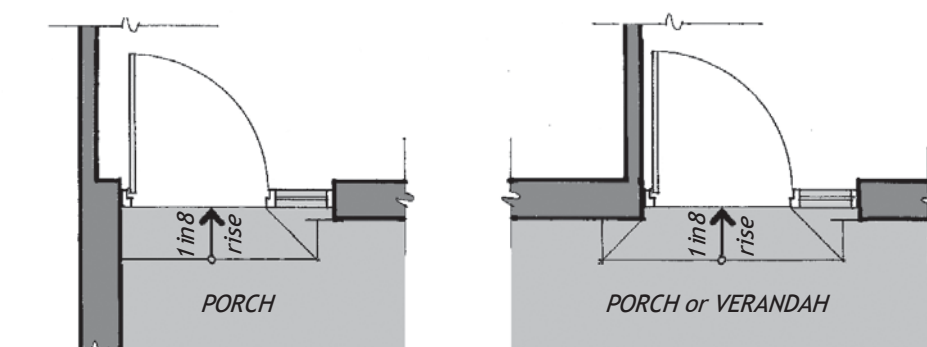


Figure 3: External 1 in 8 rise step ramps at swing doors

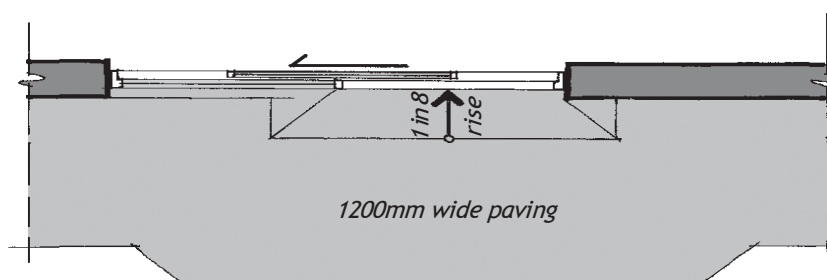


Figure 4: External 1 in 8 rise step ramps at sliding door

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Verandahs and Porches

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

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

Car Parking

Covered car parking spaces where enclosed by walls or fences to have a minimum:

- internal width of 3200mm and length of 6000mm for a single garage;
- internal width of 6000mm and length of 6000mm for a double garage, side by side.

For a single garage, a minimum 3000mm wide is acceptable if the carport is not enclosed and there are no obstructions (eg central posts).

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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 8mm above general floor level to allow for future floor coverings.

Power points

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

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

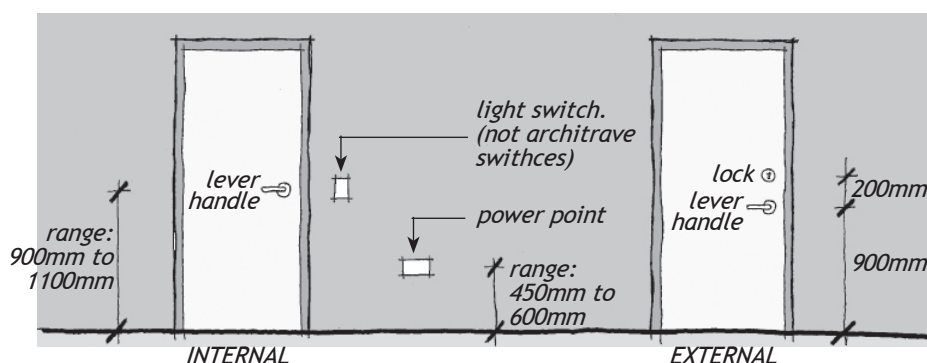


Figure 5: Universal Heights

Doors

Universal housing must provide a minimum of 820mm clear opening door width on all doorways. For swing doors an 870mm door leaf can meet this requirement.

Door handles

Lever hand locksets are specified in the SAHT fixtures and fittings schedule.

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

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Table 1: Door Swing Clearances

	Door Leaf	Clear Width	Offset at Latch side
SAHT Universal	870mm	820mm	310mm
LHD Silver	860mm	820mm	Not Required

Notes:

- (i) The latch side offset is only required on the swing side of the door.
- (ii) The offset at the latch space need only be provided where the person is approaching the swing side of the door.

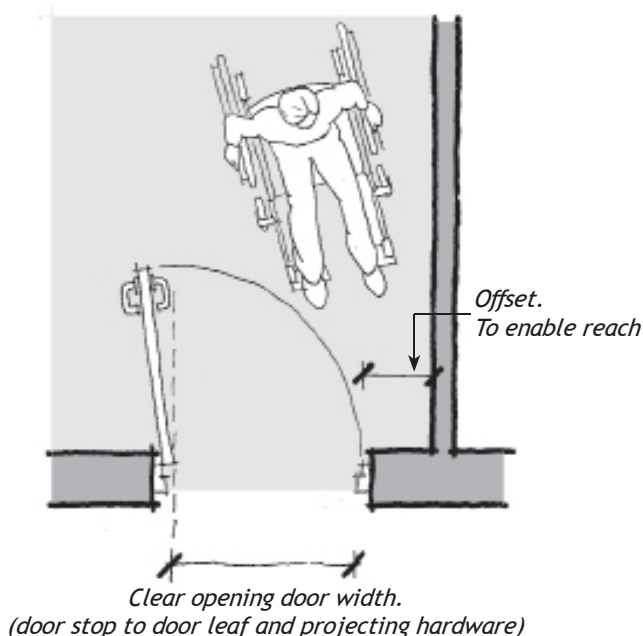


Figure 6: Door Swing Clearances and Offset Requirements

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 1500mm 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 1000mm minimum width and wide enough to allow the side approach widths as shown. Corridors should be limited in length or avoided altogether.

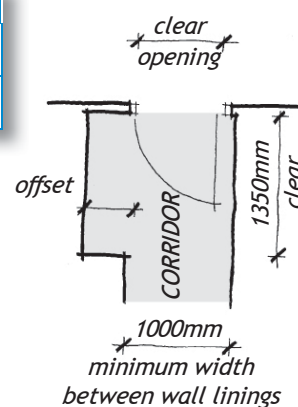


Figure 7: Entry Corridor Door Swing Clearances

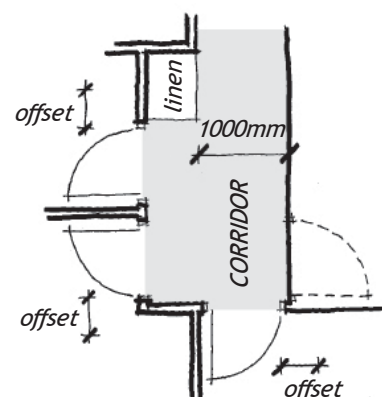


Figure 8: Corridor Door Swing Clearances

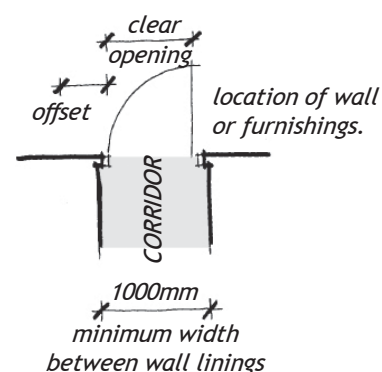


Figure 9: Corridor Door Swing Clearances

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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 fixtures and fittings schedule.

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, not just the shower.

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

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

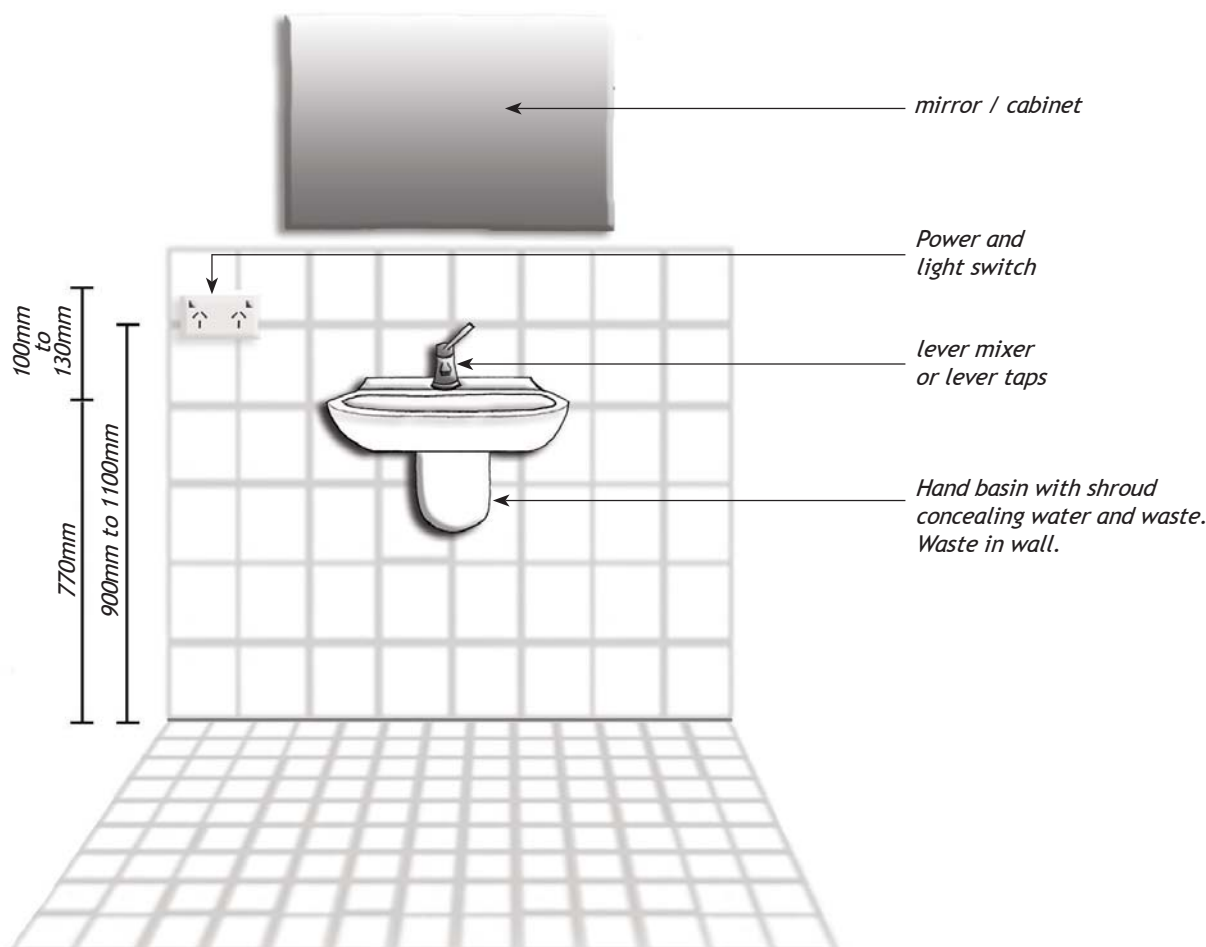


Figure 10: Basin set out

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Shower

Minimum size to be 1100mm x 1100mm.

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.

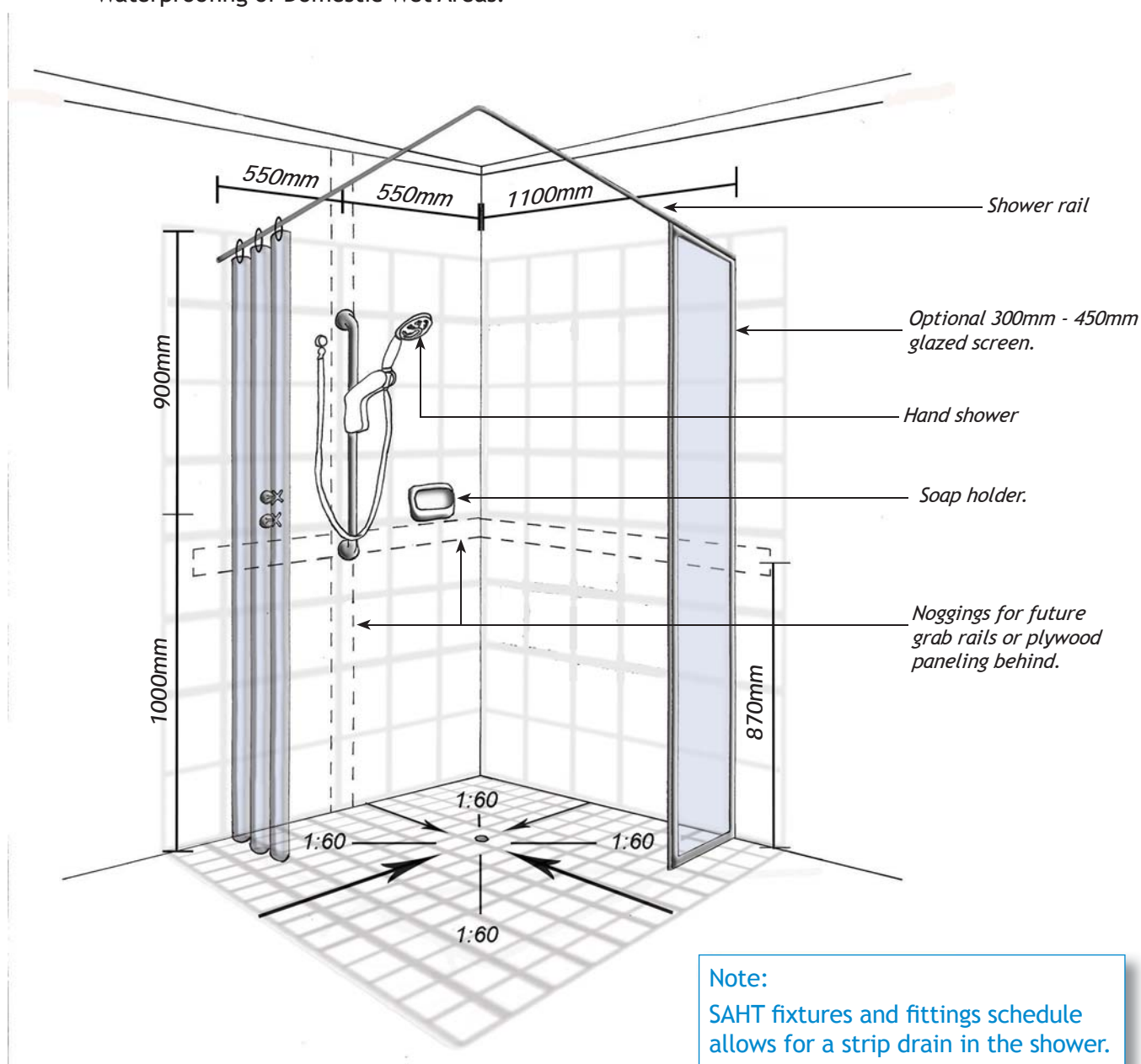


Figure 11: Shower set out

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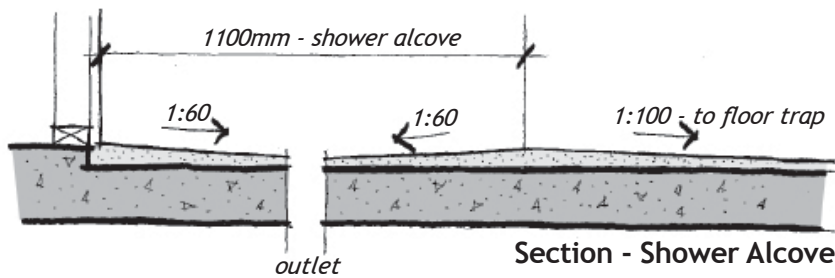


Figure 11a: Stepless shower alcove to larger bathrooms

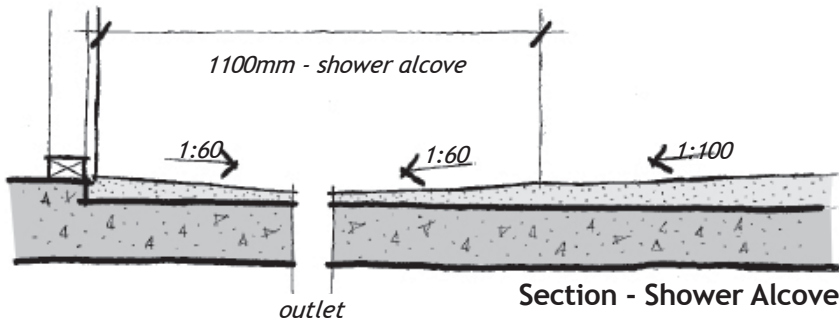


Figure 11b: Stepless shower alcove to smaller bathrooms

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

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.

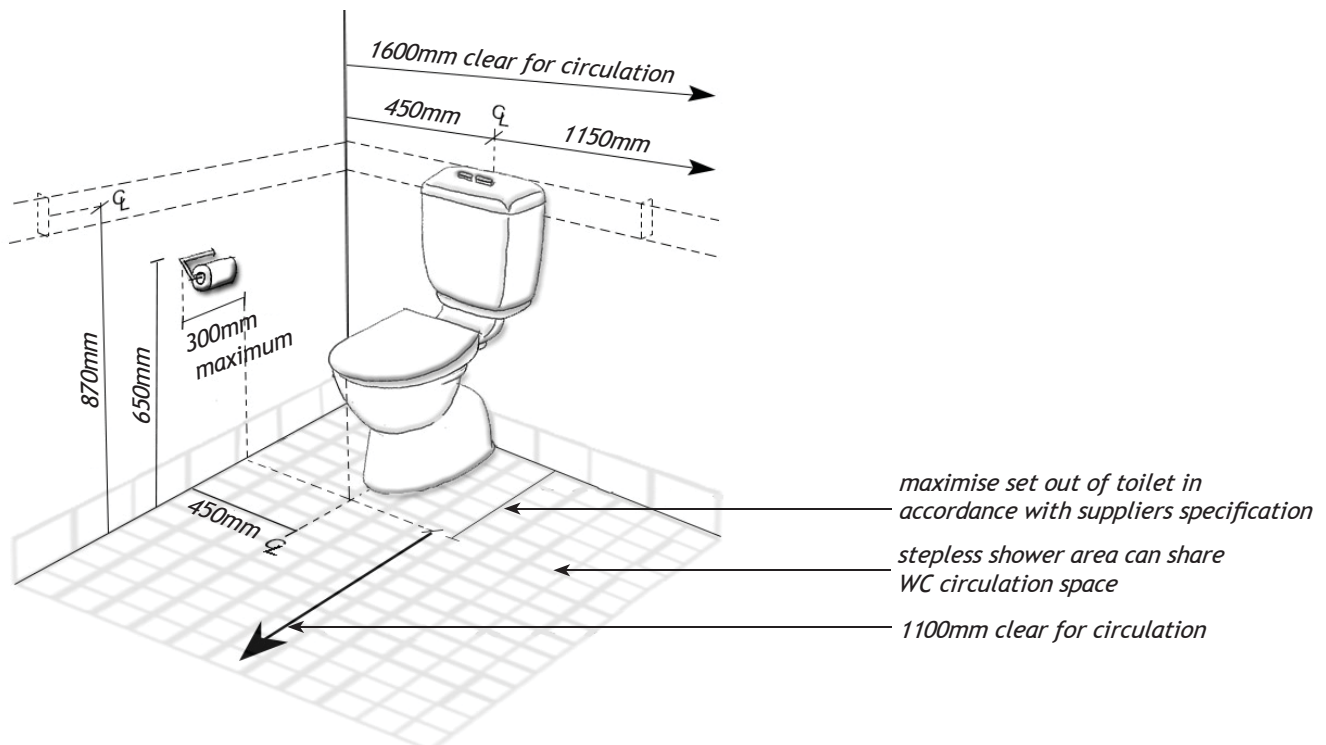


Figure 12: Toilet set out

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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.

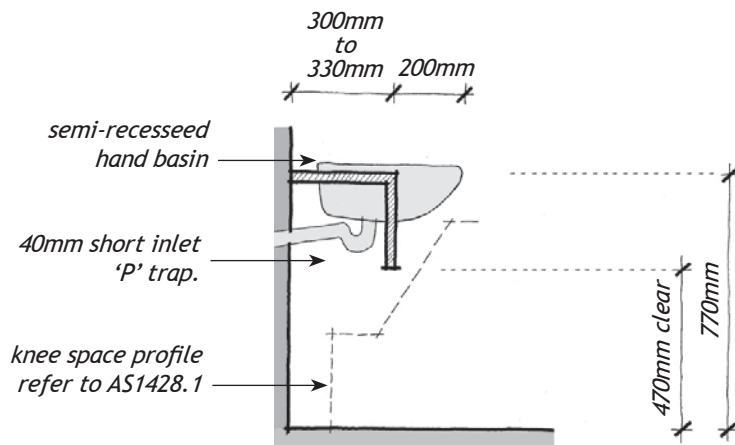


Figure 13: Vanity unit section

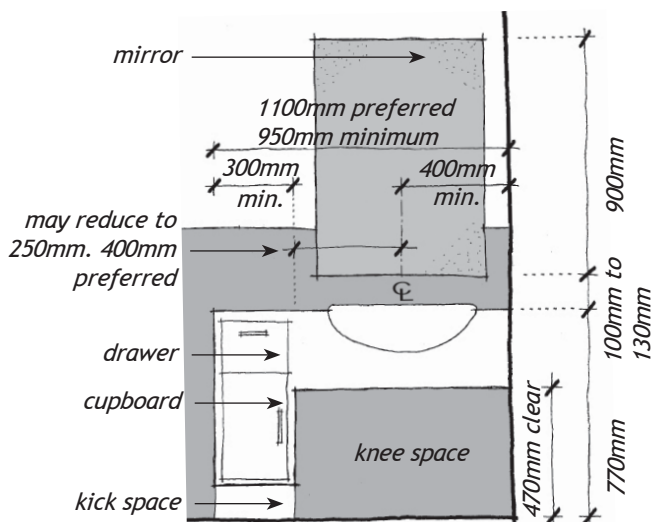


Figure 14: Vanity unit supported off structure

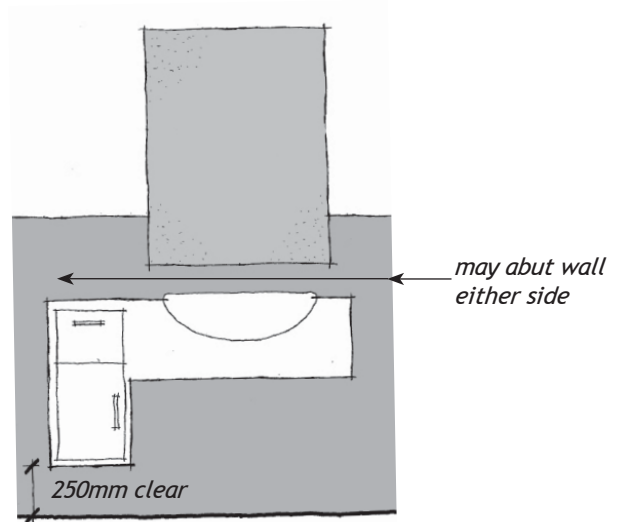


Figure 15: Vanity unit cantilever supported

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Kitchen

The kitchen should allow for:

- Minimum circulation with 1500mm 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 750mm 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:

- Stainless steel 45 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;
- Space for an automatic washing machine and taps.
Circulation space of 1200mm wide in front of these items;
- 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 14.8m² area and minimum 3600mm width dimension;
- Needs to fit queen sized bed, side tables, dressing table and a 600mm x 1500mm wardrobe;
- Will allow for wheelchair turn of 1500mm width.

Second bedroom where sized for two persons in single beds

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

Supplementary and single person bedrooms

- Need not be designed for universal criteria.

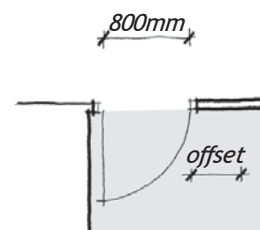


Figure 16: Bedroom Door Swing Clearances

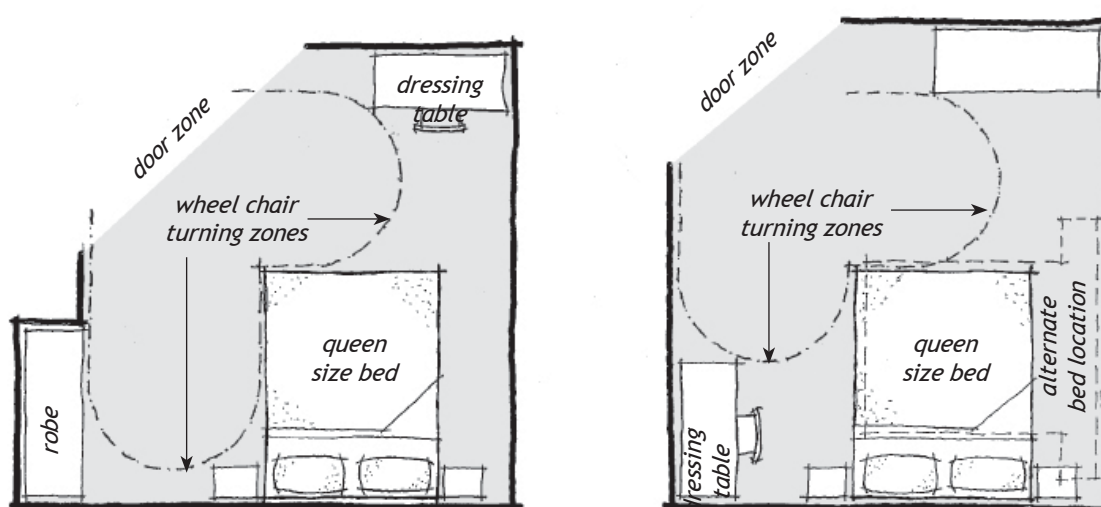


Figure 17: Wheelchair clearances

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 the SAHT modification policies for persons with a disability.

Worked Examples Inside and Around the House

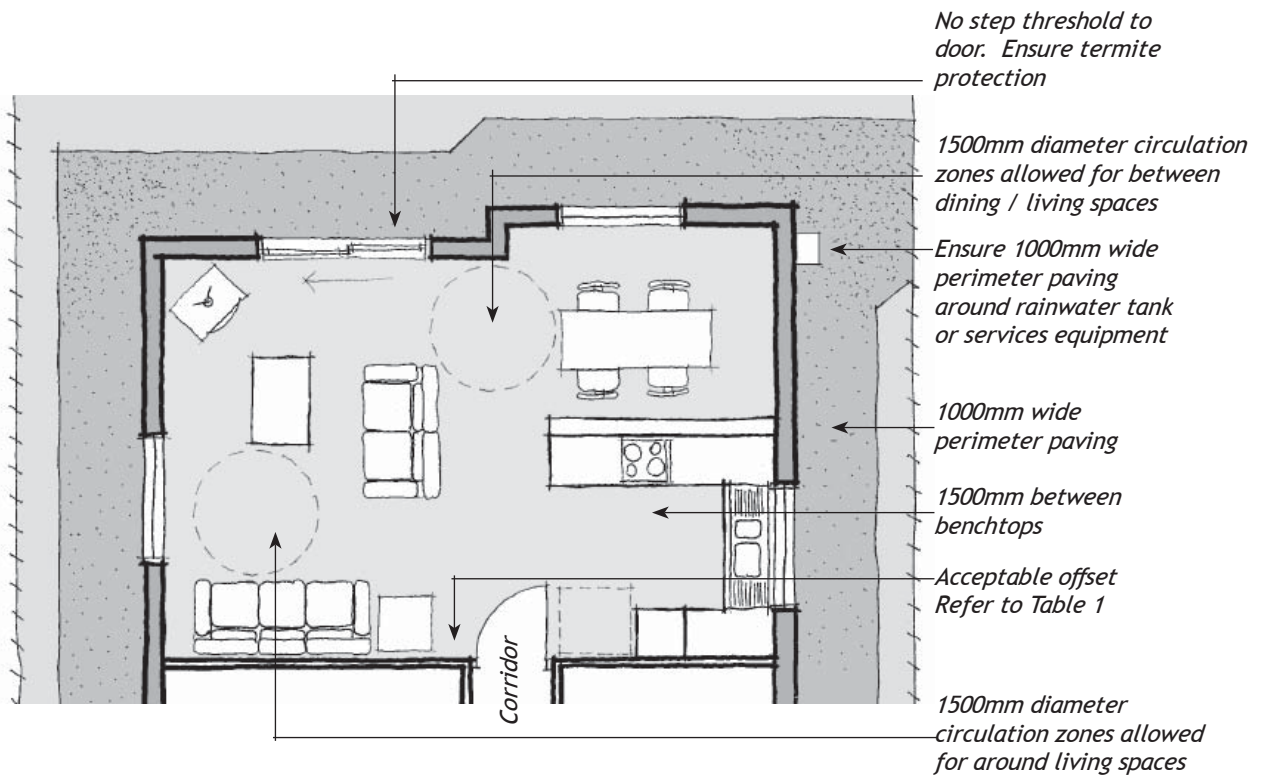


Figure 18: Example of SAHT universal housing requirements for living areas.

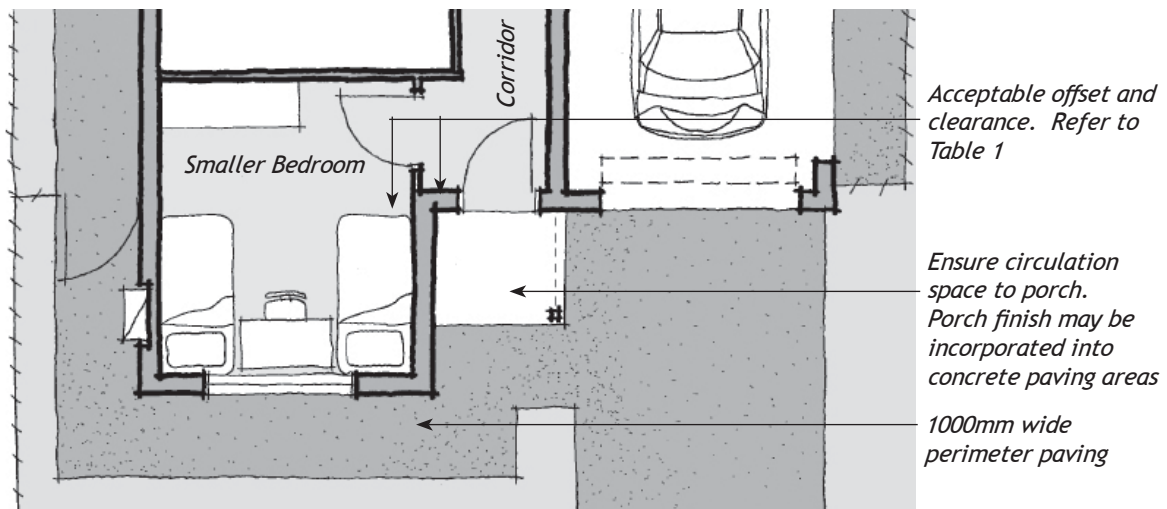


Figure 19: Example of SAHT universal housing requirements for house frontages, narrow fronted sites.

Housing Modifications for Persons with Disability

On request, appropriate modifications can be made to existing housing using protocols established for persons with a disability. 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. However, these modifications (often extensive) can be cost prohibitive, such that tenant relocation to a house built to universal criteria may be a preferable option.

Refer to Design Guideline *4.1 Housing Modifications* for further information for adaptation and modification of existing buildings.

