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Maintenance Guides

4.1 Housing Modifications

DESIGN GUIDELINES

FOR SUSTAINABLE HOUSING & LIVEABLE NEIGHBOURHOODS

on behalf of the South Australian Housing Trust



Government of South Australia
SA Housing Authority

4.1 HOUSING MODIFICATIONS

CONTENTS

| | |
|-------------------------------------|----------|
| Introduction | 4 |
| Background | 4 |
| This design guideline | 5 |
| Comment on Australian standards | 5 |
| Special needs | 5 |
| Existing Conditions | 6 |
| Dwelling Access and Entrance | 7 |
| Ramped Threshold | 8 |
| Landings | 9 |
| Doors and Doorways | 9 |
| Handrails | 11 |
| Step Ramps | 12 |
| Ramps | 13 |
| Timber Ramps | 15 |
| Kerb Rails | 16 |
| Sanitary Facilities | 17 |
| Bathroom Modifications | 18 |
| Shower Facilities | 19 |
| Grabrails for Ambulant Users | 20 |
| Toilet Modifications | 23 |
| Doorway Modifications | 22 |
| Washbasins | 23 |
| Kitchen Facilities | 24 |
| Kitchen Modifications | 25 |
| Expansive Soil Sites | 26 |
| Typical Paving Details | 28 |

4.1 HOUSING MODIFICATIONS

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4.1 HOUSING MODIFICATIONS

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.

4.1 HOUSING MODIFICATIONS

This Design Guideline

This design guideline seeks to assist staff and contractors in the delivery of services for people with special needs. Within financial and budgetary constraints, the SAHA will provide specifically constructed housing or carry out appropriate modifications to suitable existing housing.

In modifying existing housing the SAHA will endeavour to provide essential modifications, which are those required to ensure an appropriate amenity to sustain the tenancy resulting in the customer maintaining independence.

While there is no specific requirement for residential buildings to be included under the Australian Standard for “Design for access and mobility,” the drawings in this design guideline provide a platform for decision making that will in effect meet most requirements of the applicable Australian Standards.

This design guideline is provided as an aid to health professionals (eg Occupational Therapist), contractors, and the SAHA staff and can be used as a basis for options in evaluating the extent of modifications for a particular site.

Comment on Australian Standards

Australian Standards, and in particular AS 1428.1 *Design for Access and Mobility - General Requirements for Access - New Building Work* and AS 1428.2 *Design for Access and Mobility - Enhanced and Additional Requirements - Buildings and Facilities* are designed for public buildings but provide a framework and technical guide for the SAHA to use in its application for all permanent dwelling modifications carried out under the housing modifications for people with a disability policy and procedure.

It must be noted that under the Building Code of Australia (BCA) all dwelling types are not required to comply with access provisions. This means that residential buildings are not required to meet the specific requirements of the Australian Standard.

AS4299 *Adaptable Housing* is also not called up by the BCA but is used by the SAHA as a guide for some new housing construction. Selected features from this standard are now incorporated into the SAHTs’ universal housing, refer to Design Guideline - 2.3 *SAHT Universal Housing Design Criteria* for further details.

Special Needs

AS 1428 *Design for Access and Mobility - Set of standards* does not cater for all particular needs. Exceptions may occur such as special health needs, high dependency circumstances, extremes in size and weight and in particular children. The SAHA may purpose design and build special housing to meet these special requirements. These type of dwellings will have ‘site specific’ technical requirements outlined within tender and contract documentation.

4.1 HOUSING MODIFICATIONS

Existing Conditions

A continuous step-free path of travel is required from the entry of the property to all areas of the house to eliminate barriers to access. The following site assessment should be made to determine the level of modifications required:

- Measure changes in level and gradients of paths and driveways;
- Measure path/driveway widths to ensure there is a continuous path of sufficient width to travel to the street and unload from the car onto a path, assess the surface material;
- Measure porch entry size and door side clearances;
- Check corridor widths;
- Determine clear opening width of doorways;
- Note any step downs throughout the property, even if they seem small, as these may require threshold ramps;
- Check that the letter box is next to the path and is of an appropriate type;
- Check damp proof membrane location.

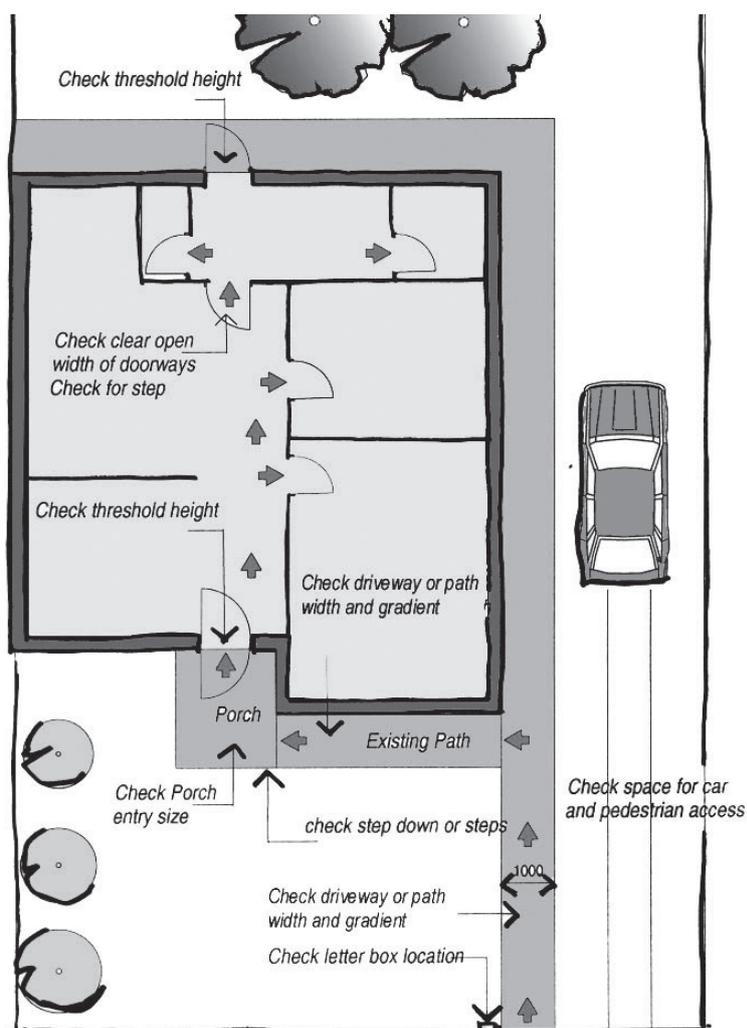


Figure 1 - Typical existing house - continuous path of travel checklist

4.1 HOUSING MODIFICATIONS

Dwelling Access and Entrance

- Walkways are an ideal means of providing access to a residence when there is not a great height difference between the house and point of entry to the property;
- Walkways and landings should have an unobstructed width of 1000mm and an unobstructed vertical clearance of 2000mm;
- Walkways with gradients of up to 1 in 20 may be used for access for persons with disabilities;
- Walkways may be constructed with concrete with a wood float finish;
- Walkway surrounds shall be graded to the natural surface at 1 in 20 gradient for a minimum of 600mm each side. Handrails are not required.

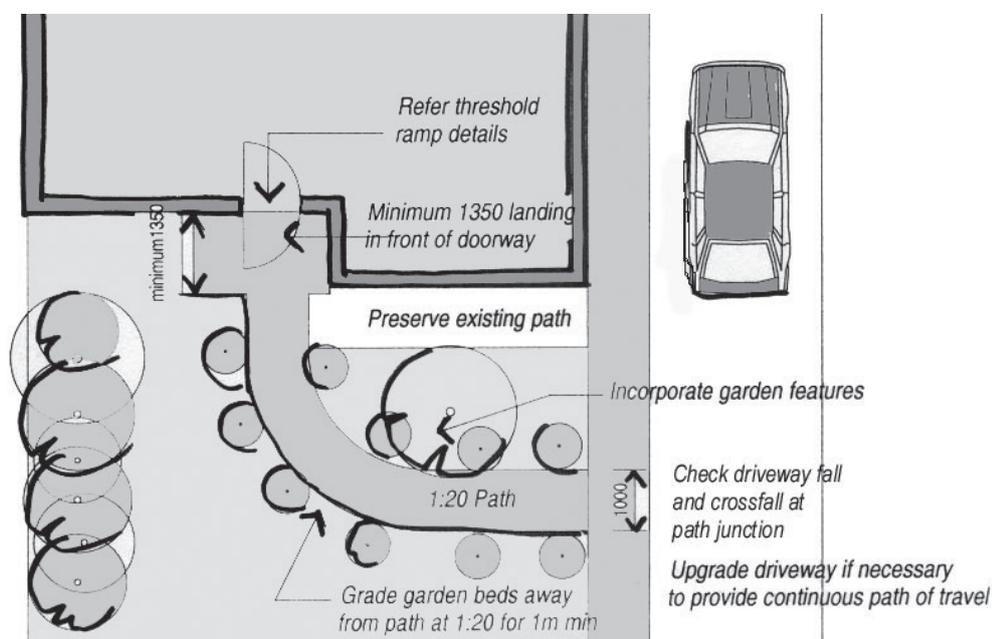


Figure 2 - Garden path - plan view

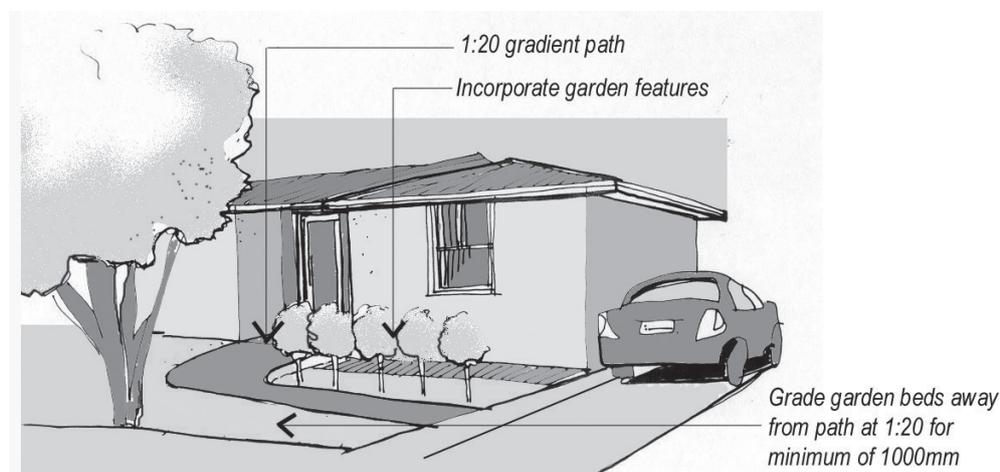


Figure 3 - Garden path - elevation view

No handrails required

Integrate path with landscaping features

4.1 HOUSING MODIFICATIONS

Ramped Threshold

- Ramped thresholds are to eliminate small steps with a maximum of 40mm rise;
- Ramped thresholds at external doorways shall be a hardwood or aluminium wedge to the full width of the doorway. For a raised door threshold a ramp will be required on both sides. Gradient shall not be steeper than 1:8, and length shall not exceed 450mm;
- Brass angles shall be used at doorway thresholds where changes of levels occur between tiles and other floor finishes;
- To prevent damage to doors and doorjambes from wheelchairs, a protective surface may be applied to vertical surfaces to a height of 300mm above the plane of the finished floor.

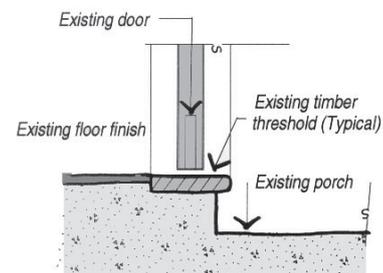


Figure 6 - Section showing typical existing conditions

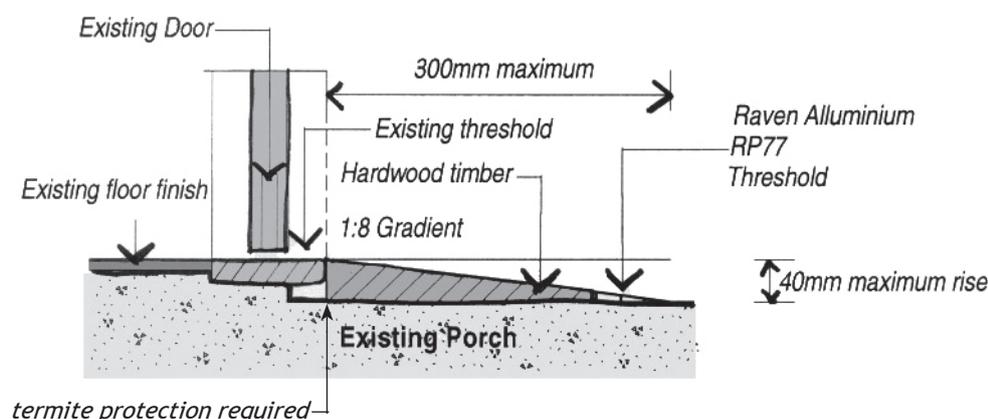


Figure 4 - Threshold ramp

Detail for existing timber thresholds

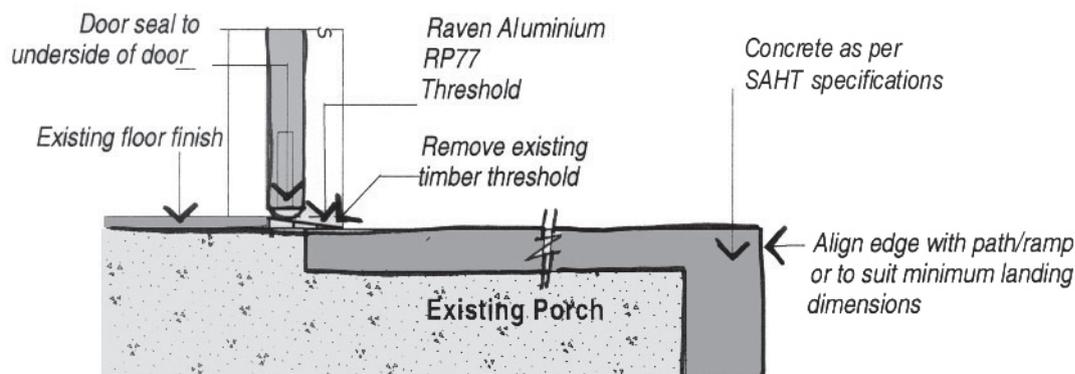


Figure 5 - Landing threshold modification

Alternative detail showing topping to porch to accommodate threshold/porch heights of greater than 40mm

4.1 HOUSING MODIFICATIONS

Landings

- Landings provide the user with a safe level platform to open a door;
- The length of landings at walkways and ramps shall be not less than 1200mm and at step ramps not less than 1330mm;
- The overall dimensions of landings shall be determined by the swing of doors either toward or away from the user and the approach either from the latch side, hinge side or front on. Typically front entry doors will have a screen door;
- Landing dimensions outside of these parameters should be discussed with the SAHA.

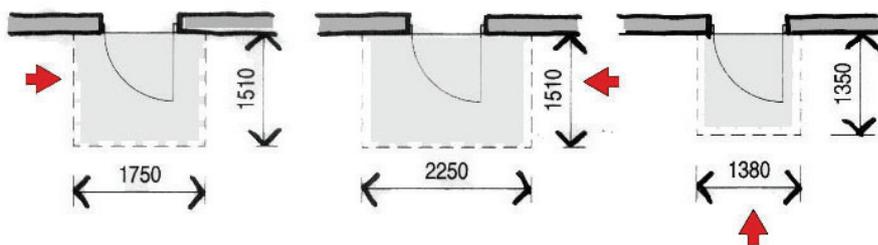


Figure 7 - Door swing towards user
Minimum porch landing.

Note: typically front entry doors will have an outward opening screen or safety door.

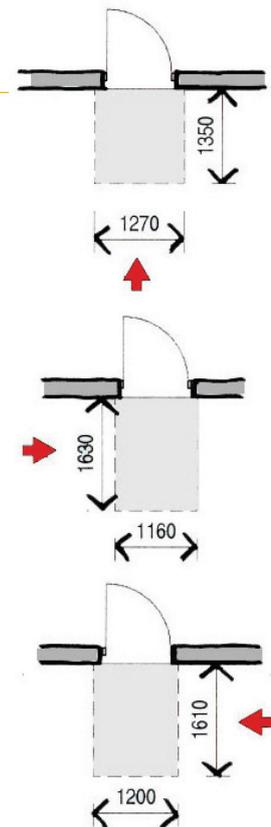


Figure 8 - Door swing away for user.
Minimum porch landing.

Doors and Doorways

- The minimum clear opening of all doorways including the open door shall be 820mm;
- Circulation and turning space should be considered where doors are being altered, to determine if sliding doors or concertina doors are more appropriate. However swing doors are the preferred option for maintenance, draught exclusion and acoustic reasons;
- Lever handles to doors are preferred with the centre of the handle located between 900mm and 1100mm above the floors;
- If door glazing is used, the glass used shall be safety glass in accordance with AS 2208 *Safety glazing materials in buildings*;
- Frameless or fully glazed doors shall have a 75mm wide safety strip fitted, located 900mm above floor level.

How to measure clear opening dimensions

The opening width is measured with the door in the 90 degree open position, from inside stop to inside door face.

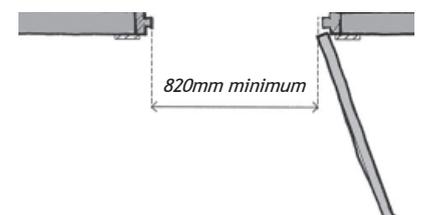


Figure 9 - Clear opening dimensions

4.1 HOUSING MODIFICATIONS

Table 1: Swing Door Swing Clearances

| Door Leaf | Clear Opening Door Width | Offset at Latch side |
|------------------|--------------------------|----------------------|
| 870mm swing door | 820mm minimum | 310mm |
| Sliding | 820mm minimum | Not required |

Notes:

- (i) The latch side offset is only required on the swing side of doors in SAHT projects.
- (ii) 820mm door leaf is usually found in existing houses and is generally acceptable if landing or passage widths can be met (see figures).

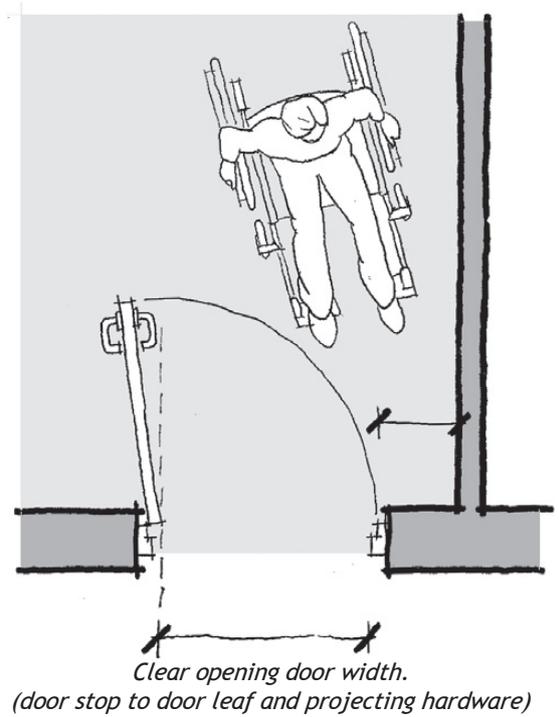


Figure 10 - Door swing and offset requirements

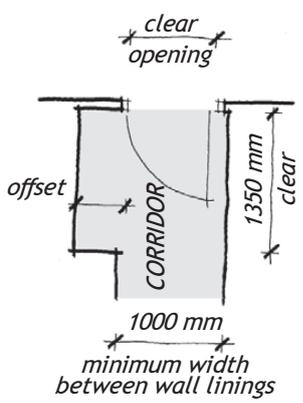


Figure 11 - Entry corridor door swing clearances

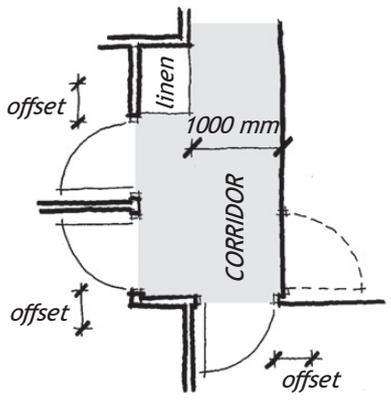


Figure 12 - Corridor door swing clearances

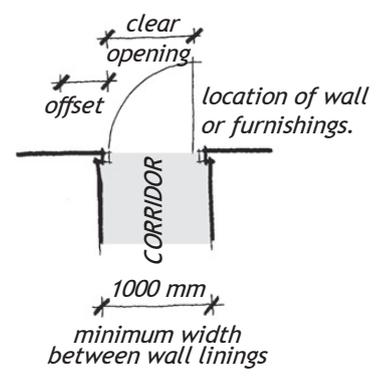


Figure 13 - Corridor door swing clearances

4.1 HOUSING MODIFICATIONS

Handrails

- Handrails shall be fitted to both sides of ramps to steady users for safety;
- Refer to the SAHT Property and Maintenance Technical Specification for fabrication details of external grab and hand rails;
- The tops of handrails shall be not less than 865mm or more than 1000mm above finished floor of the walkway or ramp;
- All handrails shall be securely fixed and rigid;
- The clearance between a handrail and adjacent wall surface shall be not less than 50mm;
- Handrails should be constructed and fixed so that there is no obstruction to the passage of a hand.

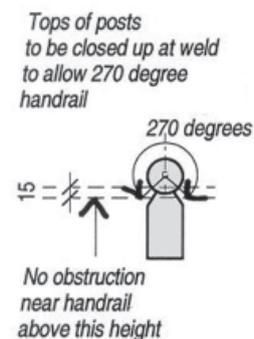


Figure 14 - Handrail detail

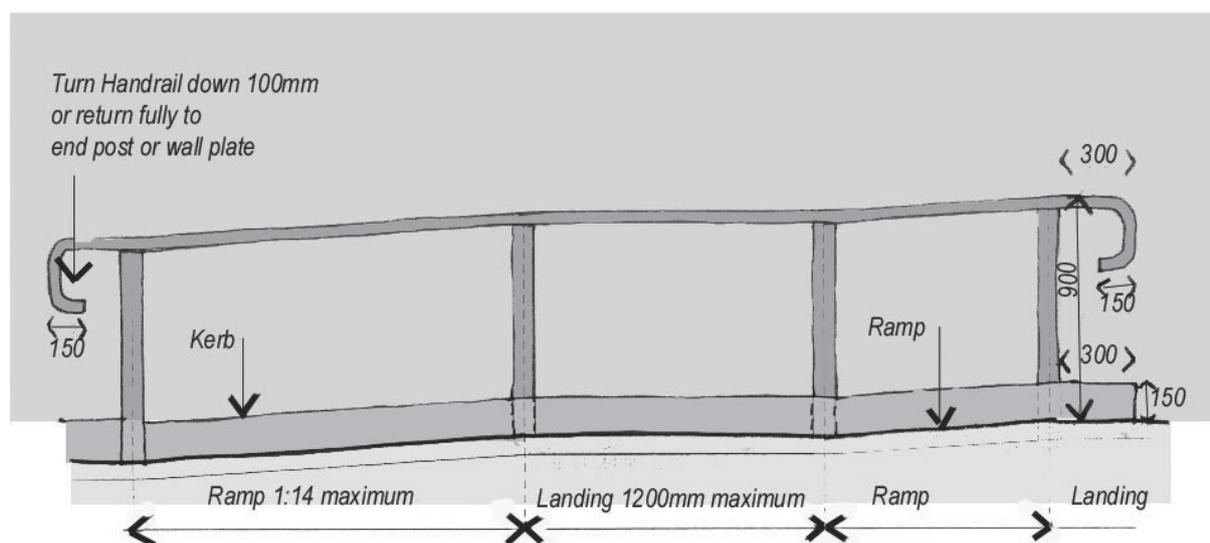


Figure 15 - Handrail elevation

4.1 HOUSING MODIFICATIONS

Step Ramps

- Step ramps may be provided for changes of levels of up to 190mm;
- The step ramps shall be a maximum of 1520mm long and a minimum of 1000mm wide with a maximum gradient of 1 in 8;
- Step ramps shall have a wood float finish in the case of concrete or approved non slip paint finish in the case of timber ramps;
- Landings at the top of ramps shall be 1330mm minimum clearance from any obstructions;
- Refer to the SAHT Property and Maintenance Technical Specification for specified slip resistant finishes and other technical details for steps, ramps and stepless entry.

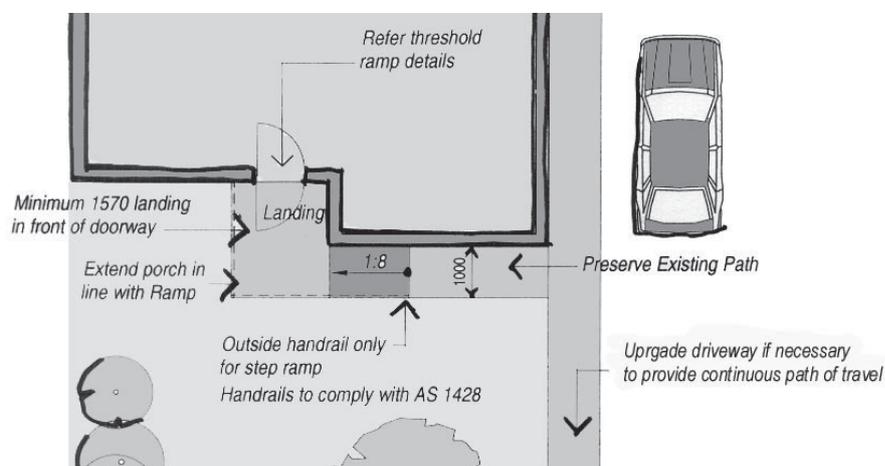


Figure 16 - Typical step ramp - plan view

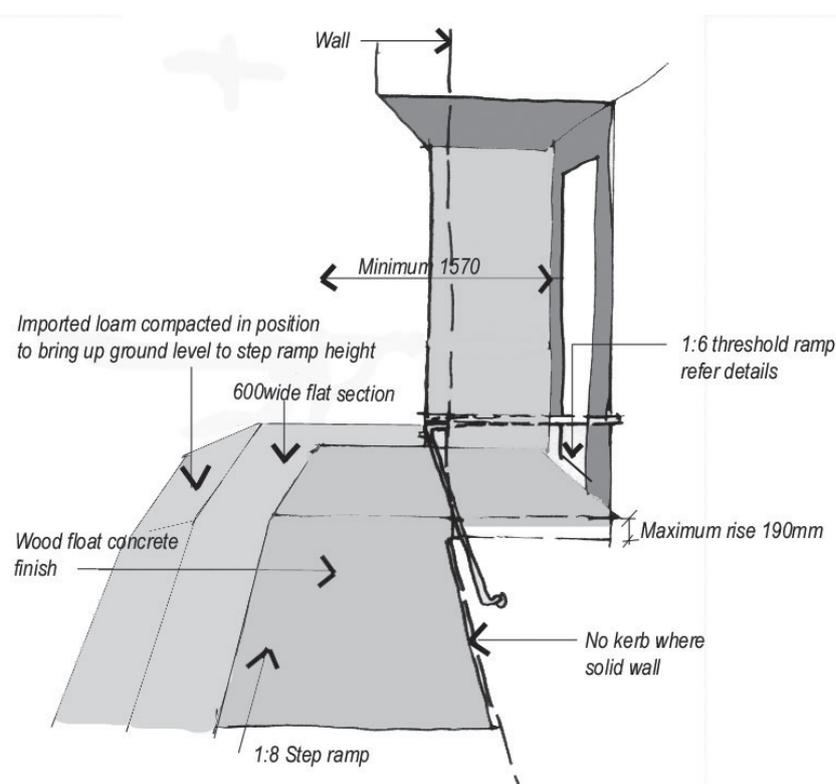


Figure 17 - Typical step ramp - elevation view

4.1 HOUSING MODIFICATIONS

Ramps

- Ramps will be required if the height difference exceeds 190mm and step ramps cannot be used;
- The maximum gradient of a ramp shall be 1:8 unless it exceeds 1900mm in length and in that case shall be 1 in 14.
- Landings shall be provided at the top and bottom of the ramps at intervals not exceeding 9.0 metres;
- Ramps shall be constructed from concrete (up to 600mm high) or treated timber (600mm - 1000mm high) with a wood float finish to the concrete surface or approved non slip paint finish in the case of timber ramps;
- Ramps shall have a maximum camber or cross fall of 1 in 40;
- Where the ramp requirement is to be temporary consideration should be given to modular temporary ramps. Discuss this option with the SAHA.

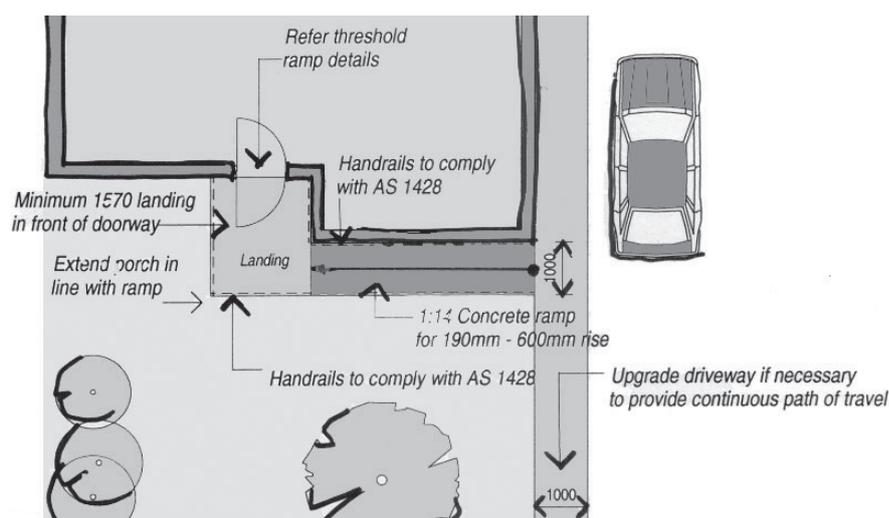


Figure 18 - Typical ramp - plan view

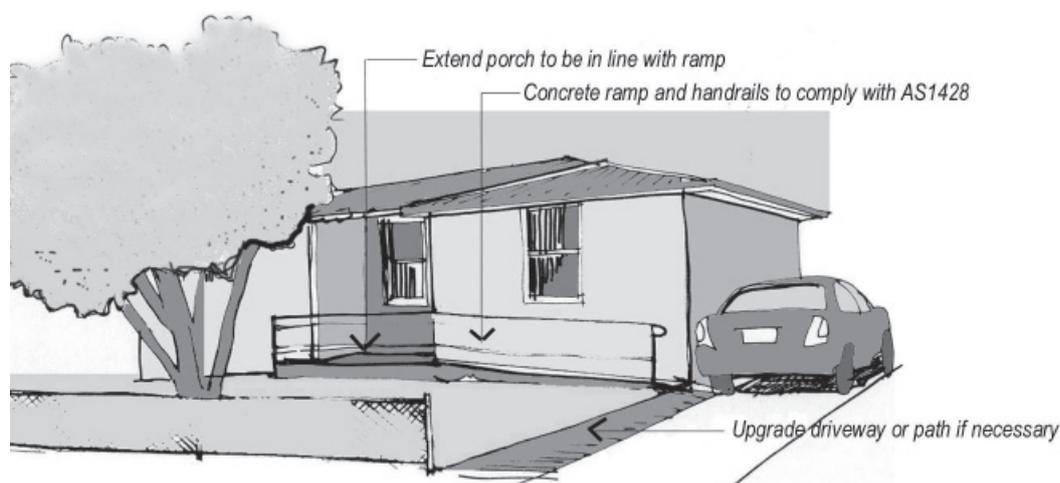


Figure 19 - Typical ramp addition - elevation view

4.1 HOUSING MODIFICATIONS

Where long ramps are required to accommodate a larger height difference, incorporate landscaping into the design and try to avoid zig zags. This will reduce the visual impact of the ramp on the house.

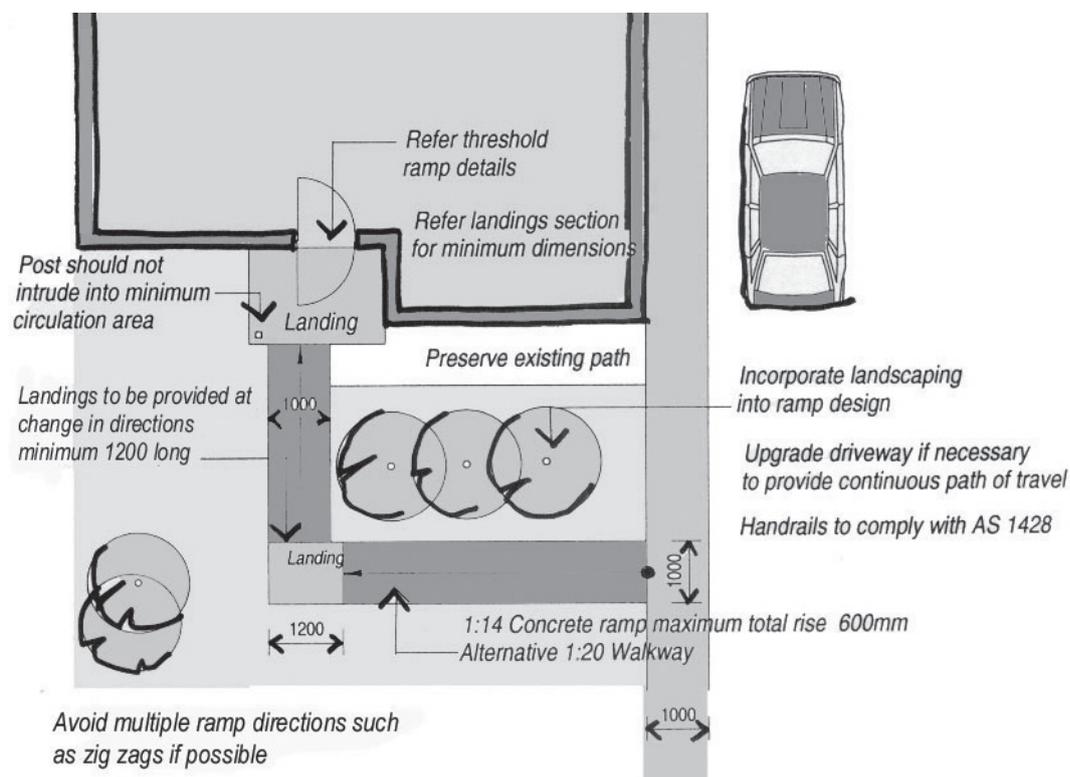


Figure 20 - Typical ramp addition - plan view

Note: an alternative may be to make part of the travel path a walkway.

4.1 HOUSING MODIFICATIONS

Timber Ramps

- Timber ramps are to have plywood deck with approved non slip paint finish. Timber ramps are to be considered when the site rise is above 600mm, or when the existing building is of a timber construction, and when the sites are steeply sloping;
- Generally timber is to be used only when it is the most economical solution.

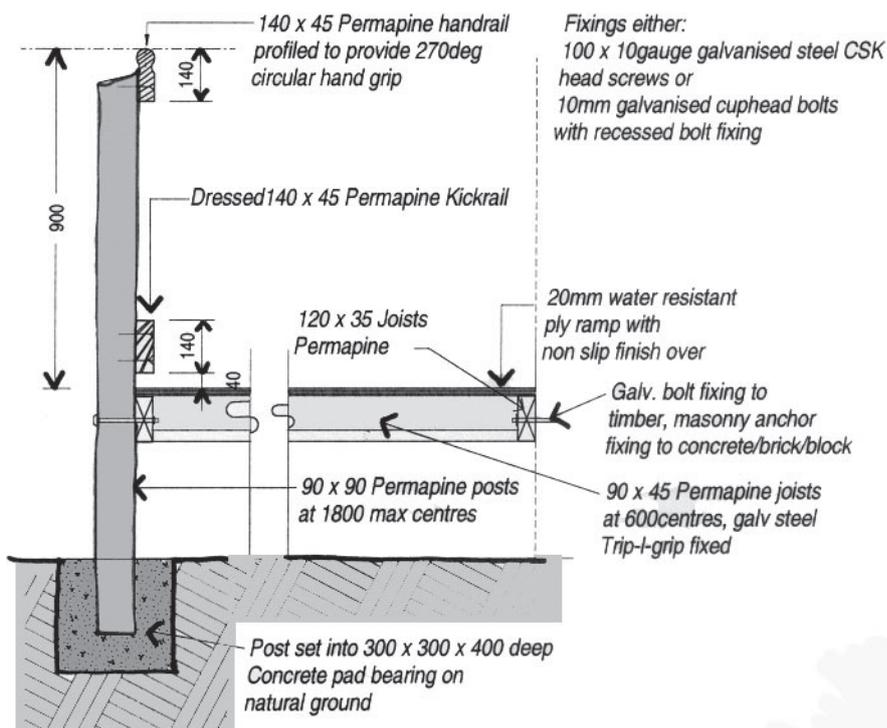


Figure 22 - Typical section through timber ramp

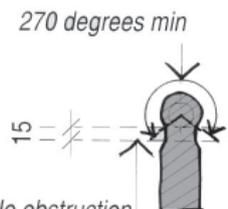


Figure 21 - Handrail detail

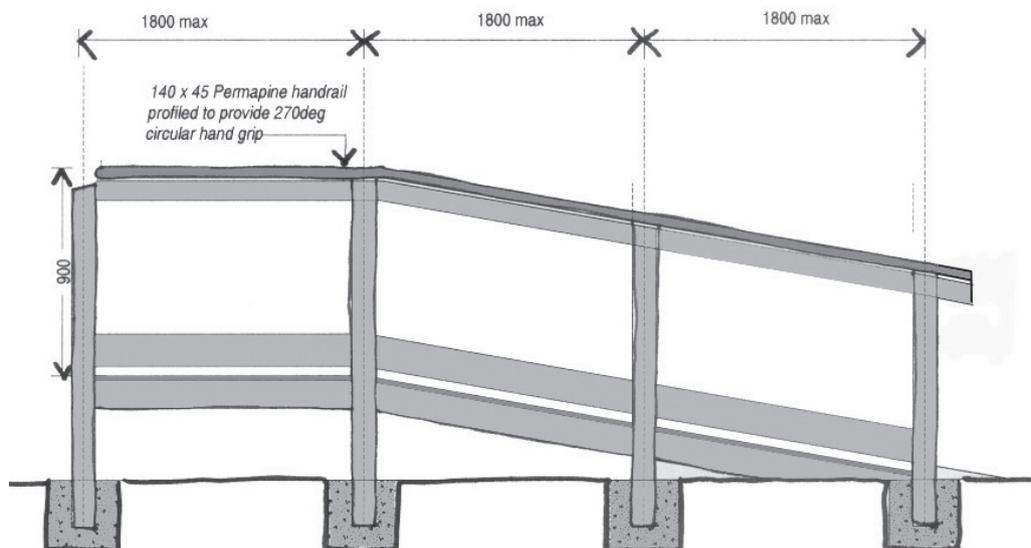


Figure 23 - Typical timber ramp elevation

4.1 HOUSING MODIFICATIONS

Kerb Rails

- Concrete kerbs or timber kerb rails shall be provided at the sides of the ramp for safety;
- The inside face of handrails shall line up with the inside face of kerbs or kerb rails;
- The top of a concrete kerb shall be 70mm \pm 5mm above the surface of the ramp.

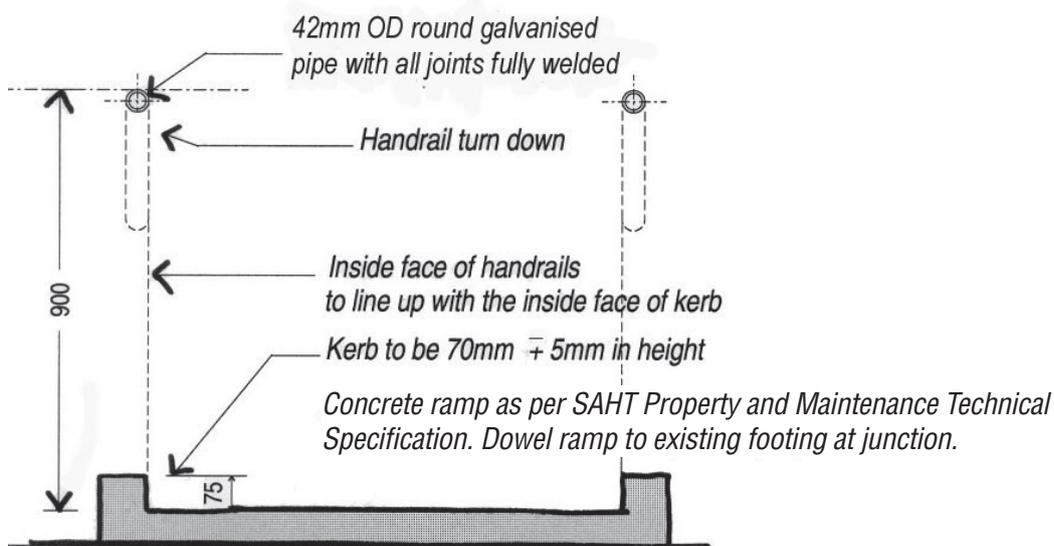


Figure 24 - Concrete kerb detail

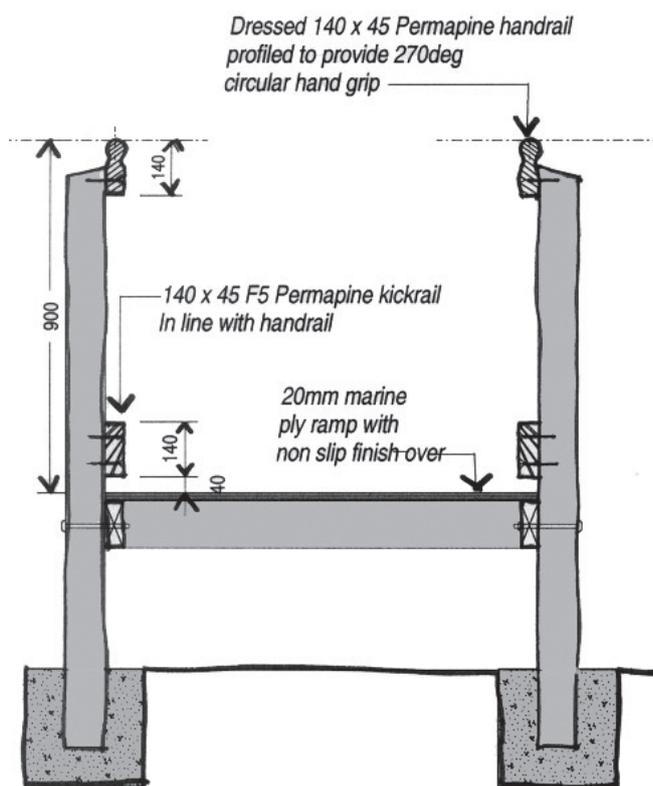


Figure 25 - Timber kerb detail

4.1 HOUSING MODIFICATIONS

Sanitary Facilities

Modifications to bathroom and toilet facilities should be made after careful assessment of the existing conditions and the tenant's requirements. The modifications required to suit wheelchair users are much greater than for ambulant users. In some cases suitable modifications will not be possible.

The following existing conditions assessment should be made to determine the level of modifications required:

- Check all dimensions of bathroom, toilet and hallway access;
- Check window locations;
- Check door swings and open position clearances;
- Check for any obstructions in the path of travel;
- Check construction methods and materials of existing facilities.

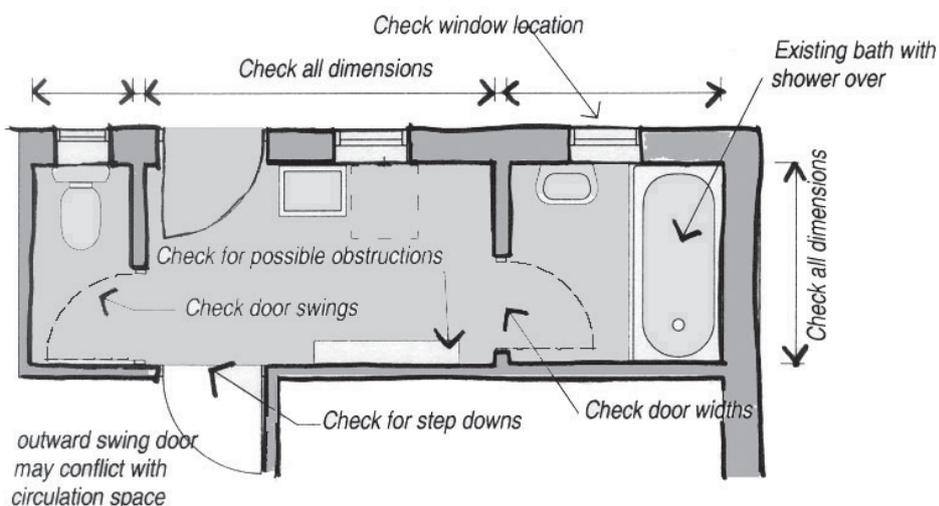


Figure 26 - Typical existing conditions, typical double unit

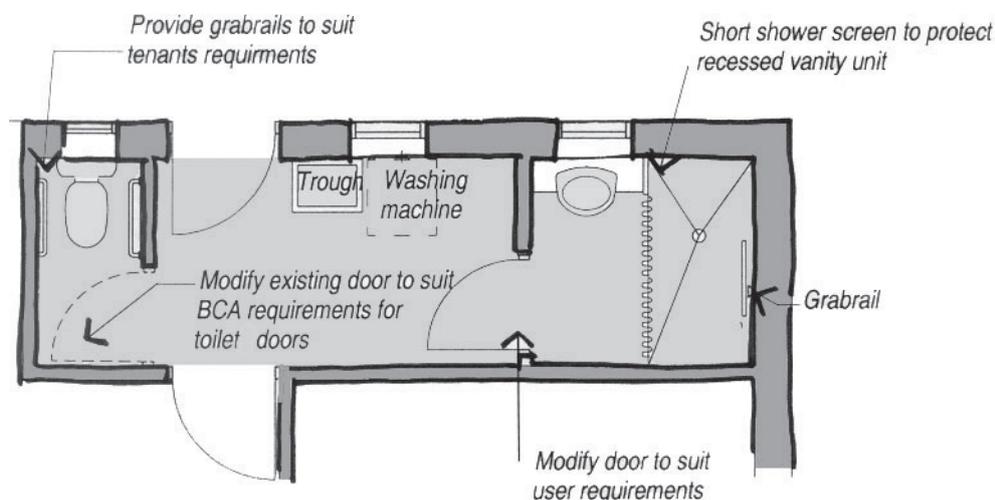
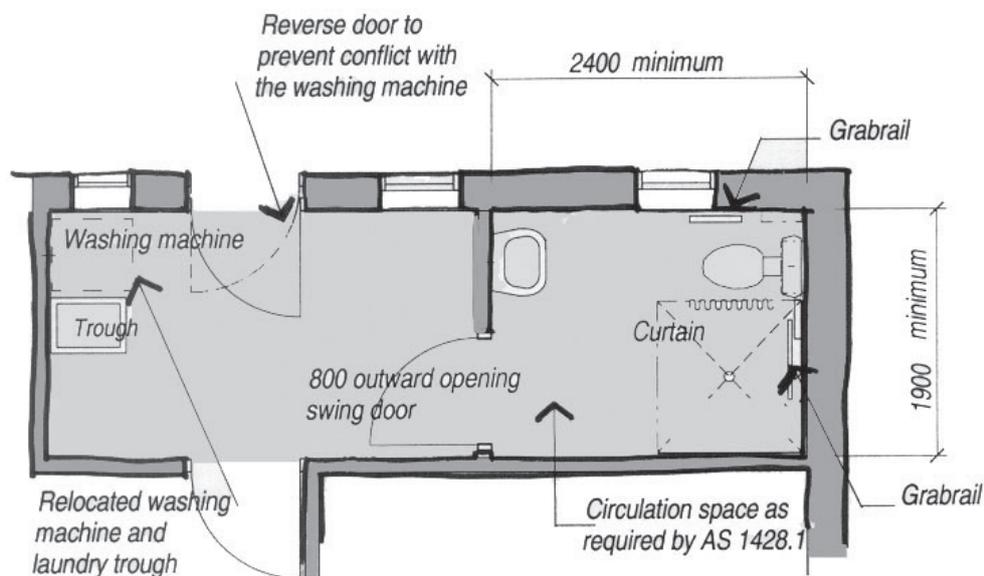


Figure 27 - Accessible bathroom for ambulant user

4.1 HOUSING MODIFICATIONS

Bathroom Modifications



Note: Installation of Bathroom to be in accordance with AS 1428.4

Figure 28 - Bathroom modification - minimum width 1900mm

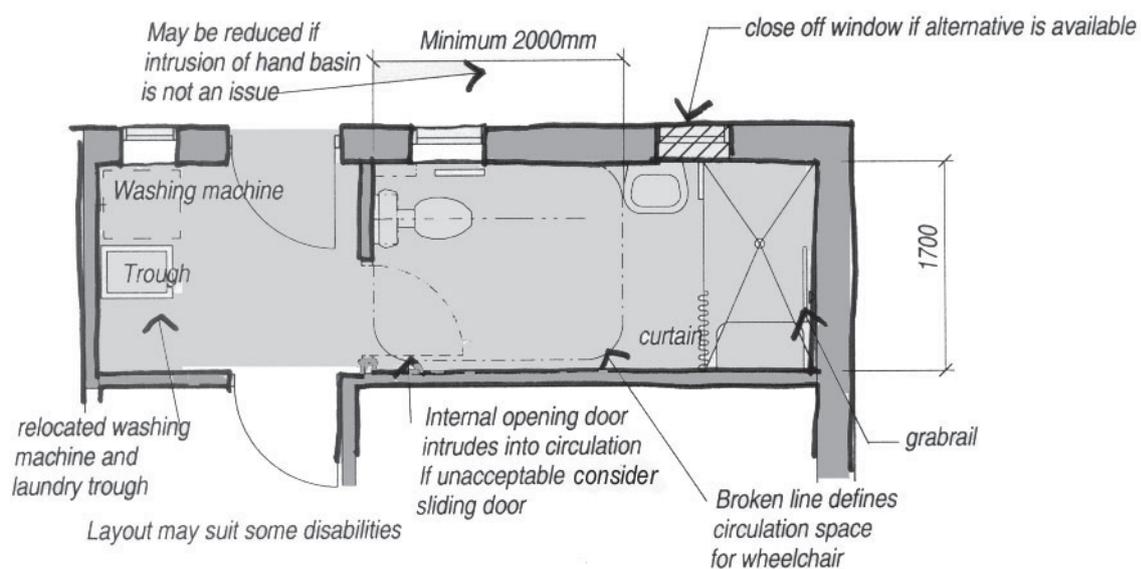


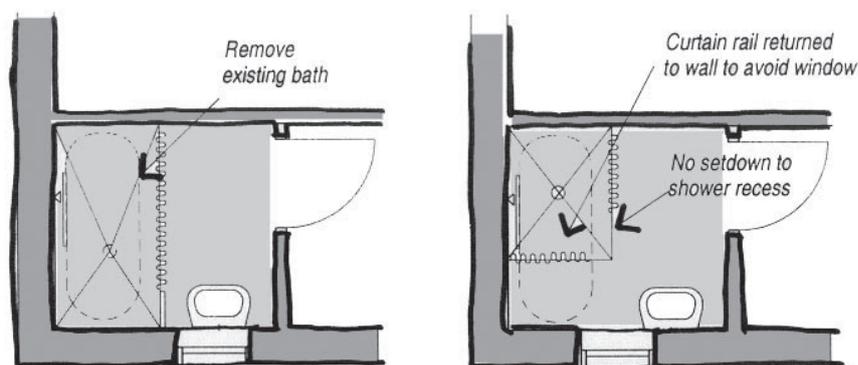
Figure 29 - Bathroom modification - less than 1900mm width

This layout may suit some wheelchair users

4.1 HOUSING MODIFICATIONS

Shower Facilities

- Hand held showers shall be fitted on vertical adjustment rods, in accordance with manufacturer's recommendations, to mains pressure hot water services;
- Continuous grab rails in showers are preferred with locations determined by the occupational therapist and liaison with the tenant and the SAHA;
- Floor and waste outlets may require the installation of metal grates to a tiled recess for people with severe disabilities;
- Tiles in disabled toilets, bathrooms, and laundries shall be slip-resistant in accordance with SAHT Property and Maintenance Technical Specification;
- All showers must be provided with rails to carry tenant supplied shower curtains;
- The introduction of hand held showers will not effect electrical equipment (such as power points and light switches) provided the shower area is defined by a curtain or screen.



Note: For difficult solutions consider bricking up the window or providing a fixed glazing panel. Provide roof light and exhaust fan in accordance with requirements for internal bathrooms.

Figure 30 - Bathroom modifications - replace bath with shower

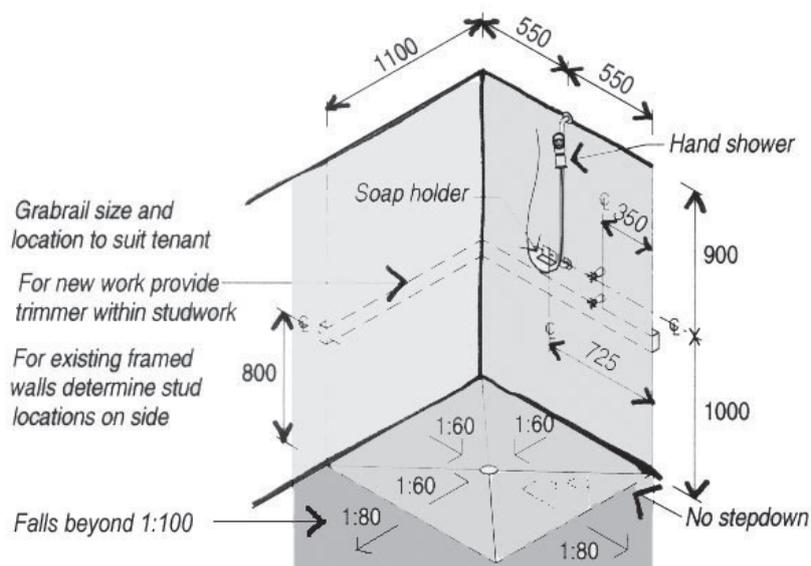


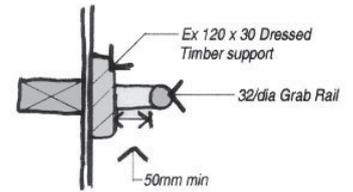
Figure 31 - Shower set out

4.1 HOUSING MODIFICATIONS

Grabrails for Ambulant Users

- Contractor to ensure that grabrail is located to suit the tenant;
- Grab rails shall be a minimum 450mm long (typical lengths are 450mm, 600mm and 900mm), 32mm in diameter and a minimum of 1.2mm wall thickness and shall be either stainless steel 304 or white powder coated ripple finish aluminium with stainless steel fixings appropriate to the substrate i.e. masonry, timber;

For details in relation to fixing options for grab rails refer to the SAHT Property and Maintenance Technical Specification.



Typical grabrail fixing
Framed walls only

Figure 32 - Grabrail detail

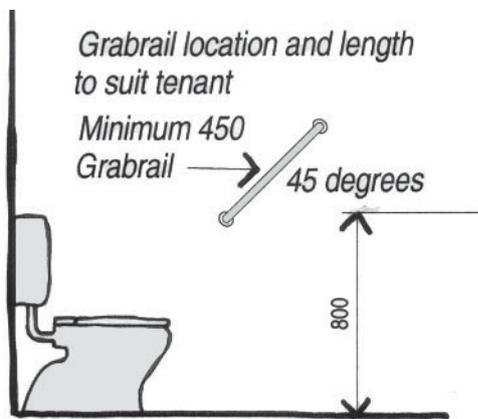


Figure 33 - Toilet grabrail

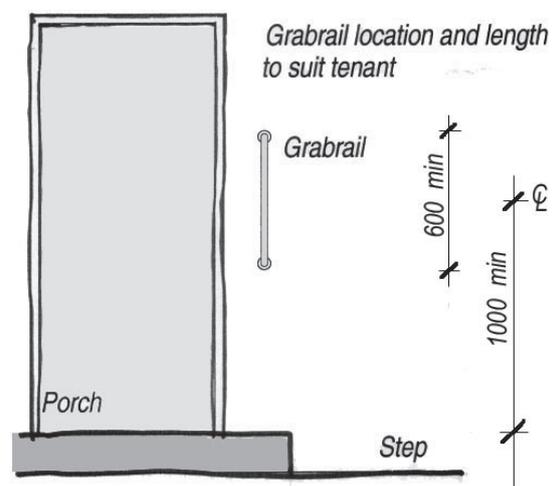


Figure 34 - Step or entry grabrail

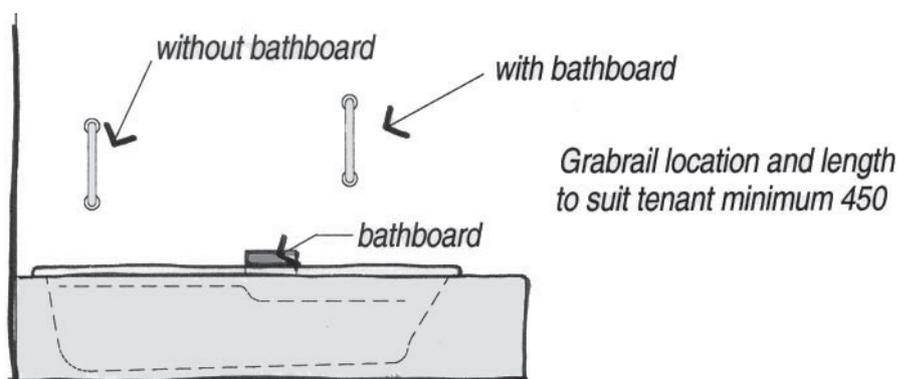


Figure 35 - Bath grabrail

4.1 HOUSING MODIFICATIONS

Toilet Modifications

- Water closet (WC) pans should be located 800mm from the front of the pan to the rear wall if requested by an occupational therapist otherwise the existing position is to remain;
- Raised toilet pans, with a rim 460mm above floor level, compliant with AS 1428.1 *Design for Access and Mobility - General Requirements for Access - New Building Work* should be considered when requested by an occupational therapist and a height increasing aid is unacceptable. Otherwise an ordinary toilet pan with a rim 400mm above floor level is acceptable;
- The centre of the pan should preferably be located 450mm from the sidewall;
- Toilet roll holders shall be located a maximum of 700mm above floor level and within 330mm from the front of the pan;
- Cisterns shall be located a maximum of 1000mm to the top from the floor;
- Grab rail length and locations will be determined in consultation with the tenant and occupational therapist/health professional or as shown below;
- Fold-up grabrails may be used if required and where fixing arrangements can be established to comply with suppliers specification;
- Confirm that the WC door is acceptable or alternatively modify.

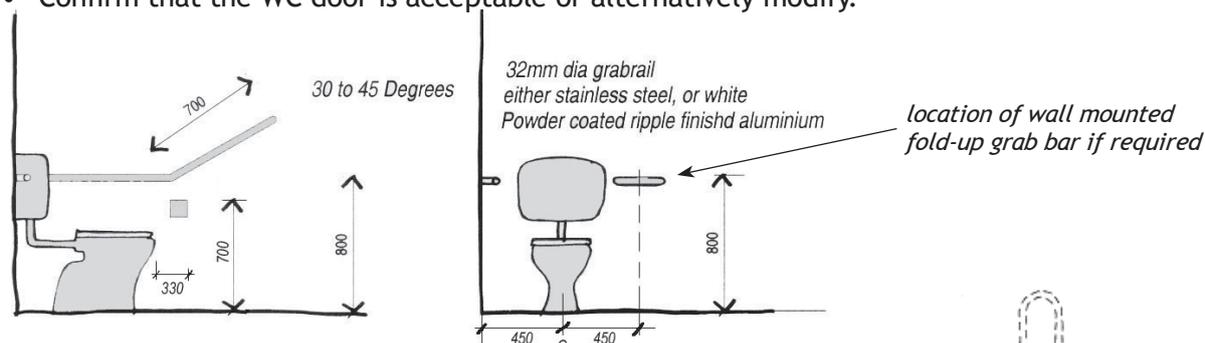


Figure 36 - Set out dimensions for grabrails and toilet roll holder

In accordance with AS1428.1

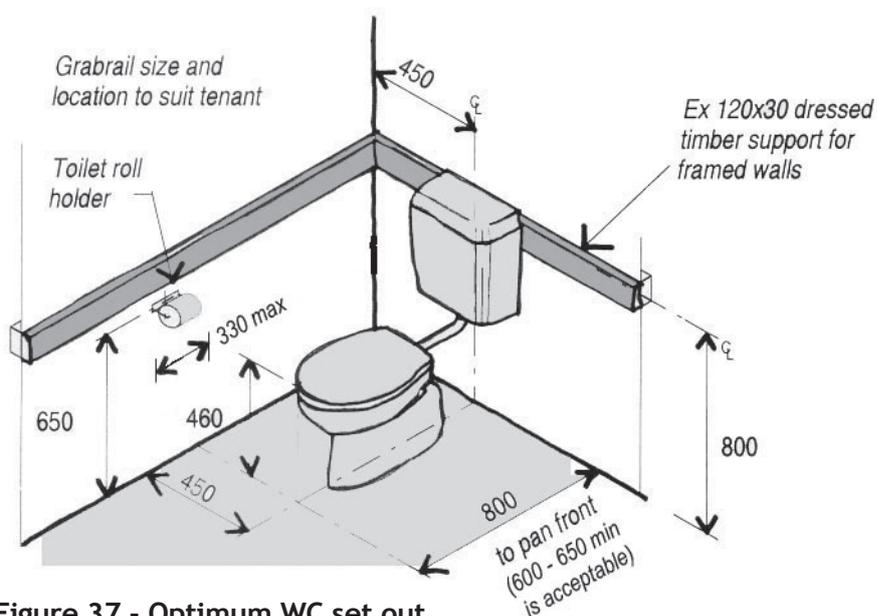


Figure 37 - Optimum WC set out

Optimum WC setout to suit wheelchair user in accordance with AS 1428.1. The 800mm pan offset is required for persons who require assistance. A 600mm - 650mm pan offset is acceptable for independent users.

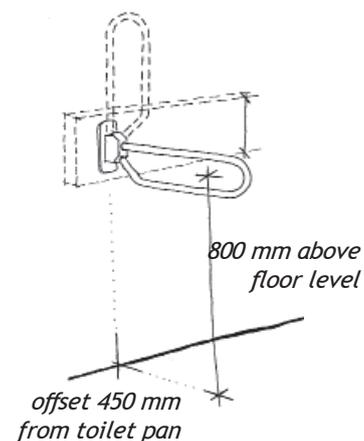


Figure 38 - Wall mounted fold-up grab bar

reinforcing in walls to receive wall-mounted fold-up grab bars may need to be 300mm or greater in height and very securely anchored in place.

4.1 HOUSING MODIFICATIONS

Doorway Modifications

- Doors of insufficient width may need to be modified. This can be achieved without altering the wall opening by changing the door and lining type;
- Consider painting doors and architraves in contrasting colours to aid sight impaired persons.

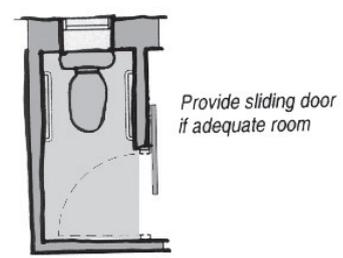
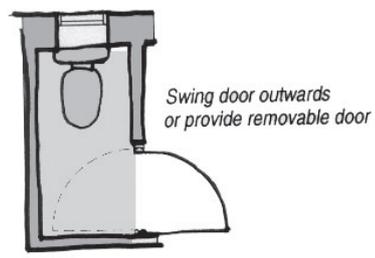
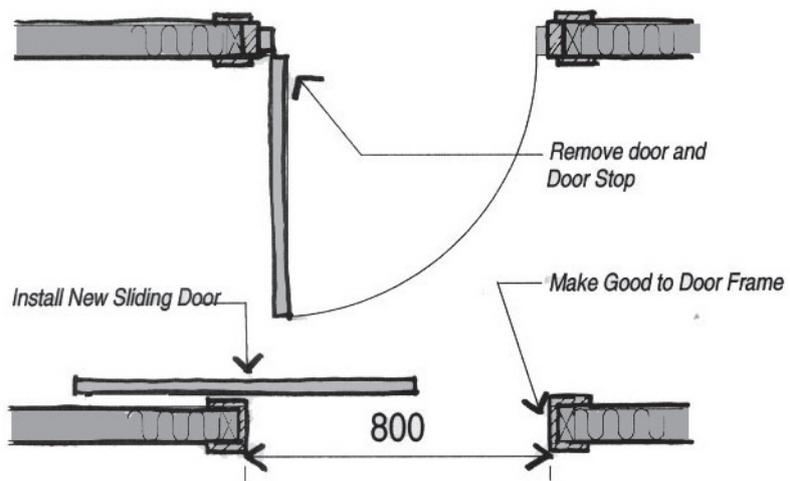
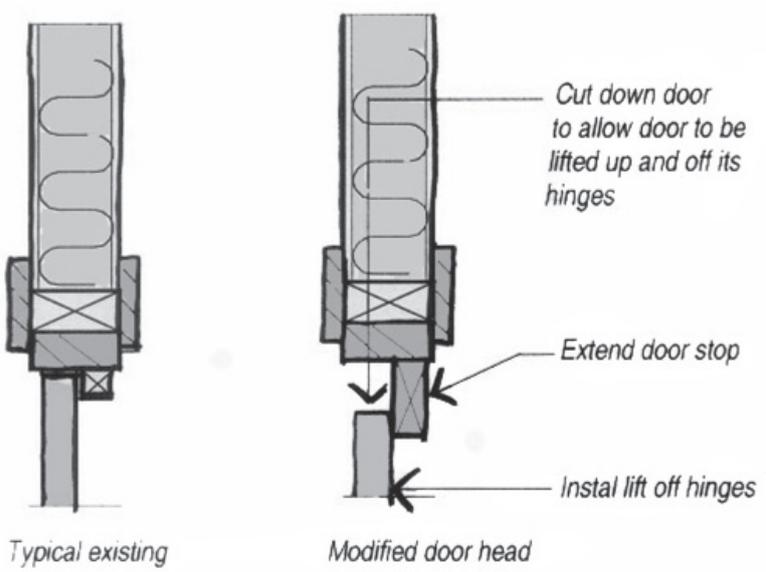


Figure 39 - Increase door width - sliding door option



Section through door head
Removable hinges modification

Figure 40 - Removable door

4.1 HOUSING MODIFICATIONS

Washbasins

- Wash basins shall be fitted with Raymor flared lever action taps and have a clear space of 650mm beneath the basin including outlet pipes;
- Mirrors not less than 350mm wide shall be centred over the wash basin and shall extend from a height of not more than 900mm above the floor to not less than 1850mm above the floor;
- Where shelves are provided they shall be securely fixed within the height range of 900mm to 1100mm above the finished floor;
- New shaving cabinets, soap holders and towel rails shall be fitted within the same dimensions as shelves.

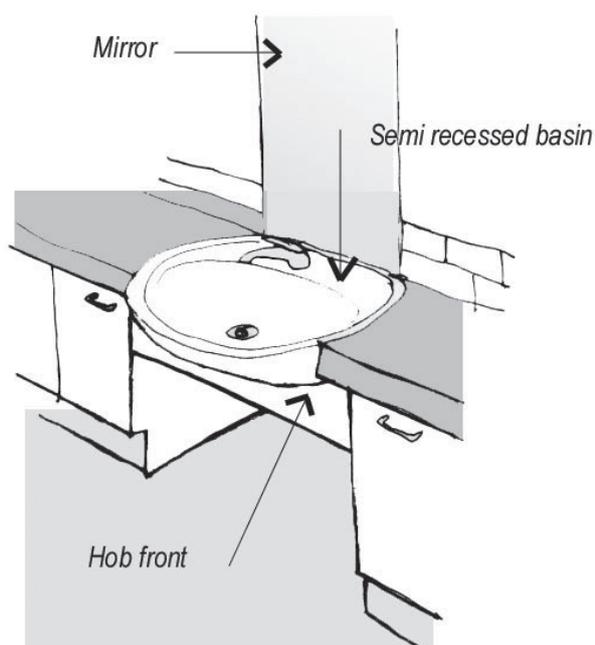


Figure 41 - Typical hand basin

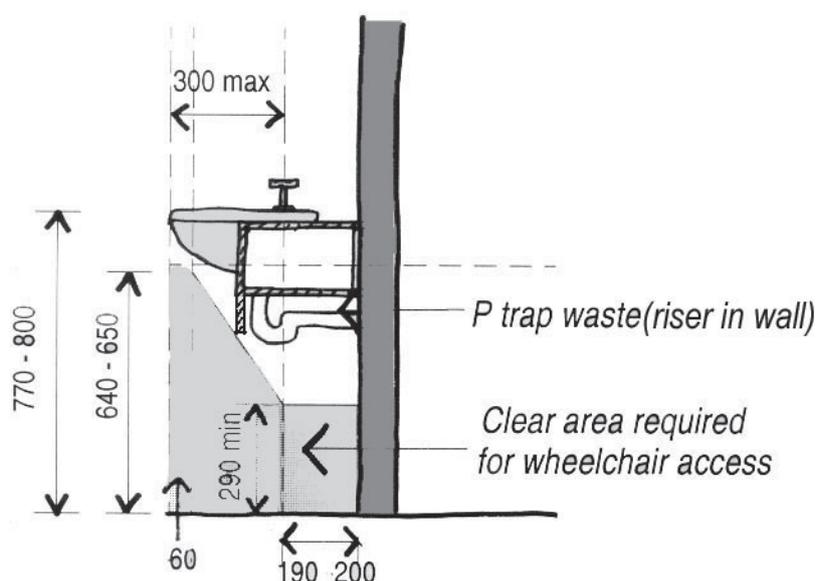


Figure 42 - Hand basin section set out dimensions in accordance with AS1428.1

4.1 HOUSING MODIFICATIONS

Kitchen Facilities

The extent of kitchen modifications will vary depending on the existing conditions and needs of the user.

The following modifications range from the minimum to the preferred but not essential.

- Allow a minimum of 800mm in length open bench space at a level suitable for a wheel chair user

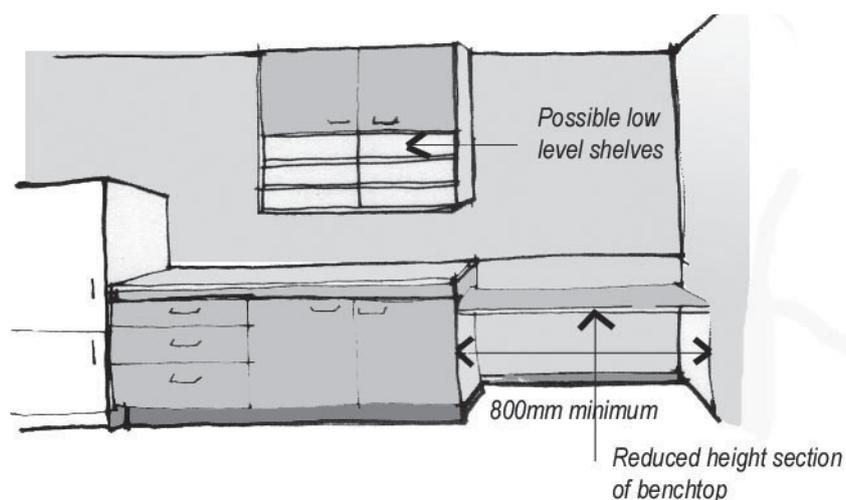


Figure 43 - Kitchen - minimum modification

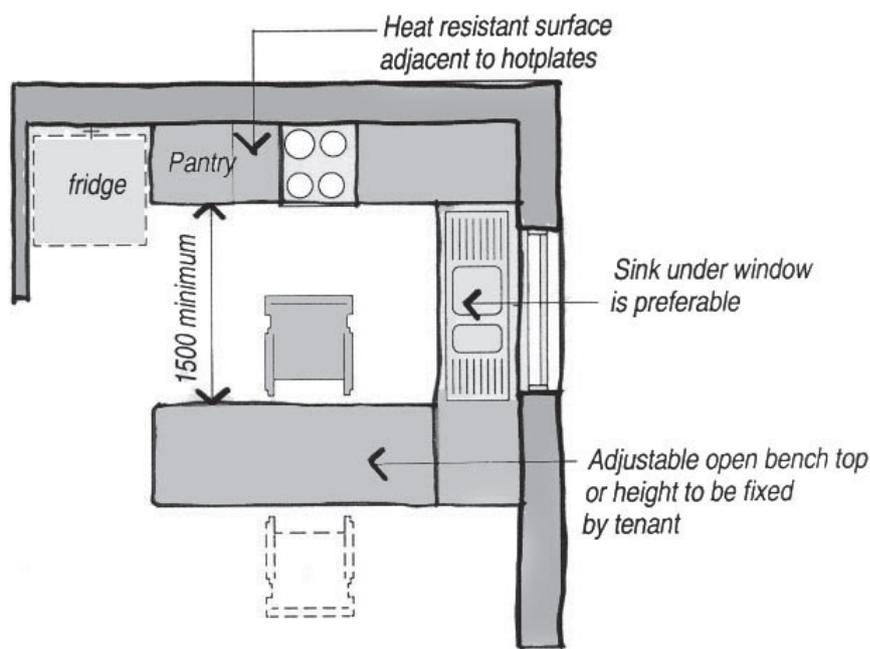


Figure 44 - Typical universal kitchen

4.1 HOUSING MODIFICATIONS

Kitchen Modifications

- Minimum 1500mm circulation space between benches where practical;
- Heat resistant surfaces adjacent to hotplates;
- Electric hot plates with controls at front;
- Adjustable height counter top when required;
- 200mm high x 150mm deep recessed skirtings to provide toe space;
- Oven elevated to bench height with side hinged door;
- Refer to the Property and Maintenance Technical Specification for cooker schedules listing approved products.
- Lever tap mixer to sink.

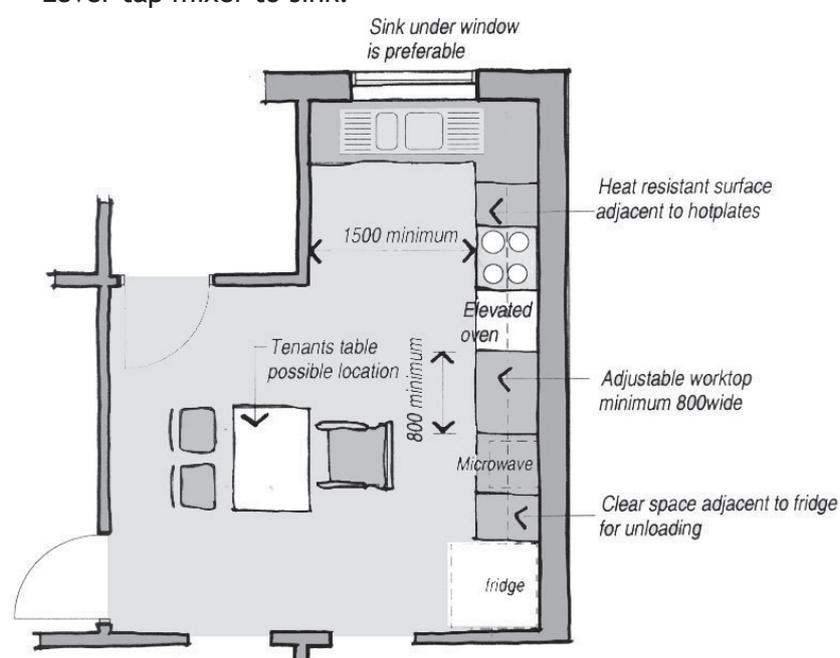


Figure 45 - Accessible kitchen in existing house

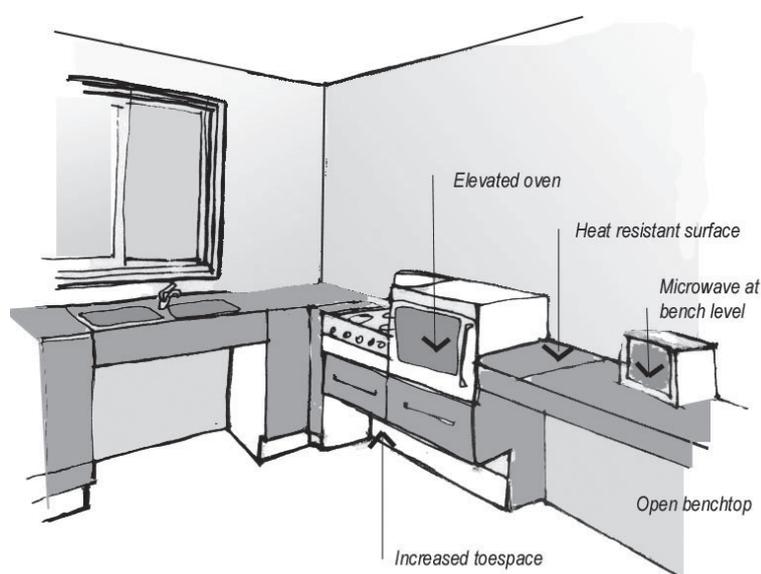


Figure 46 - Accessible kitchen suggested layout

4.1 HOUSING MODIFICATIONS

Expansive Soil Sites

Ramps on sites with highly expansive soils will need special design consideration.

Refer to the attached suburb listing and figure 47 for a checklist of areas where this may be required.

| | | |
|------------------|-------------------|-------------------|
| Aberfoyle Park | Greenacres | Paradise |
| Andrews Farm | Greenwith | Parkside |
| Ascot Park | Hackham | Plympton |
| Athelstone | Hackham West | Plympton Park |
| Bedford Park | Hallet Cove | Pooraka |
| Belair | Hampstead Gardens | Redwood Park |
| Bellevue Heights | Hectorville | Reynella |
| Blackwood | Highgate | Richmond |
| Blakeview | Hillcrest | Ridgehaven |
| Brahma Lodge | Holden Hill | Rostrevor |
| Broadview | Hope Valley | Salisbury |
| Campbelltown | Huntfield | Seacliff Park |
| Christie Downs | Hyde Park | Seacombe Gardens |
| Clearview | Ingle Farm | Seaford Rise |
| Clovelly Park | Klemzig | Sheidow Park |
| Collingswood | Lonsdale | Smithfeild |
| Craigmore | Magill | Smithfeild Plains |
| Davoren Park | Malvern | South Plympton |
| Dernancourt | Marleston | Springfeild |
| Dover Gardens | Mile End | St Agnes |
| Eastwood | Mitchell Park | St Marys |
| Edwardstown | Modbury | St Morris |
| Elizebeth Downs | Modbury Heights | Sturt |
| Elizebeth East | Modbury North | Surrey Downs |
| Elizebeth North | Morphett Vale | Tranmere |
| Elizebeth Park | Morphettville | Trott Park |
| Elizebeth South | Munno Para | Unley |
| Enfeild | Munno Para Downs | Unley Park |
| Felixstow | Munno Para West | Valley View |
| Frewville | Nailsworth | Walkley Heights |
| Fullarton | Newton | Windsor Gardens |
| Gilles Plains | Noarlunga Downs | Woodcroft |
| Glandore | Northfeild | Wynn Vale |
| Glenside | Oakden | Yatala Vale |
| Golden Grove | O'Halloran Hill | |
| Goodwood | ParaVista | |

4.1 HOUSING MODIFICATIONS

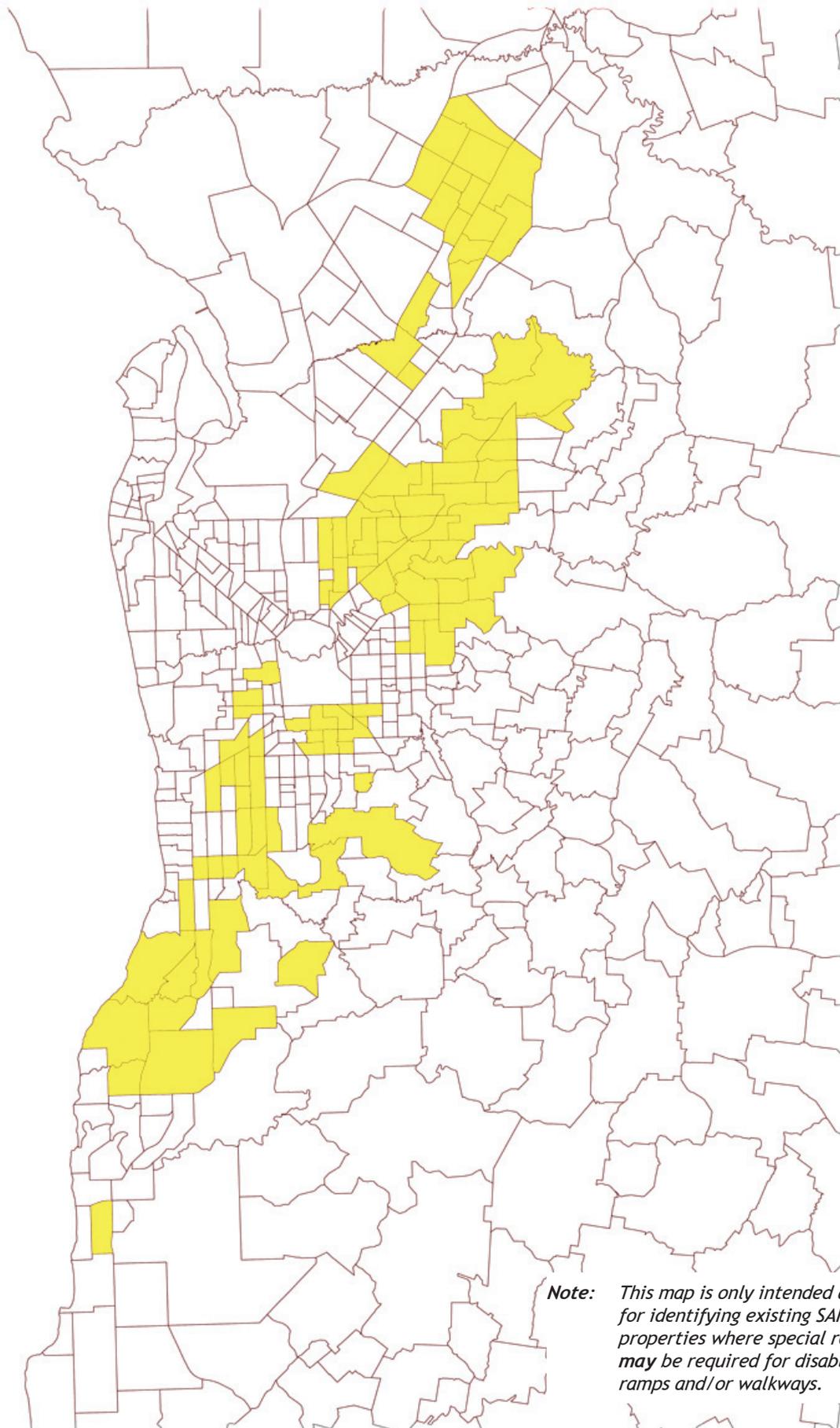


Figure 47 - Suburbs where highly expansive soils may exist

4.1 HOUSING MODIFICATIONS

Typical Paving Details

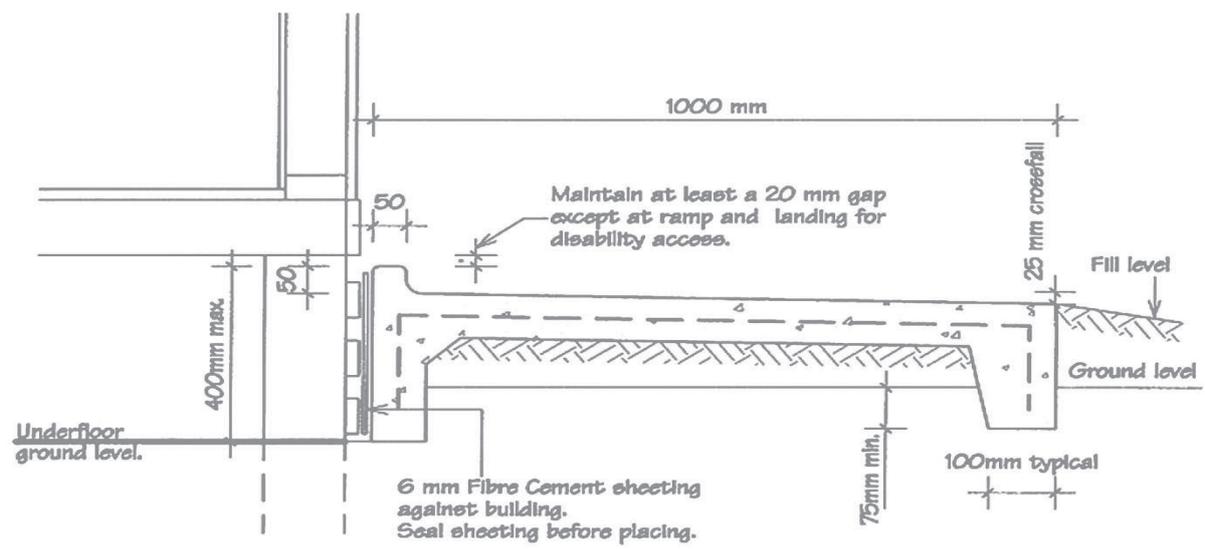


Figure 48 - Detail 1 - Timber house on stumps with paving level above underfloor ground level

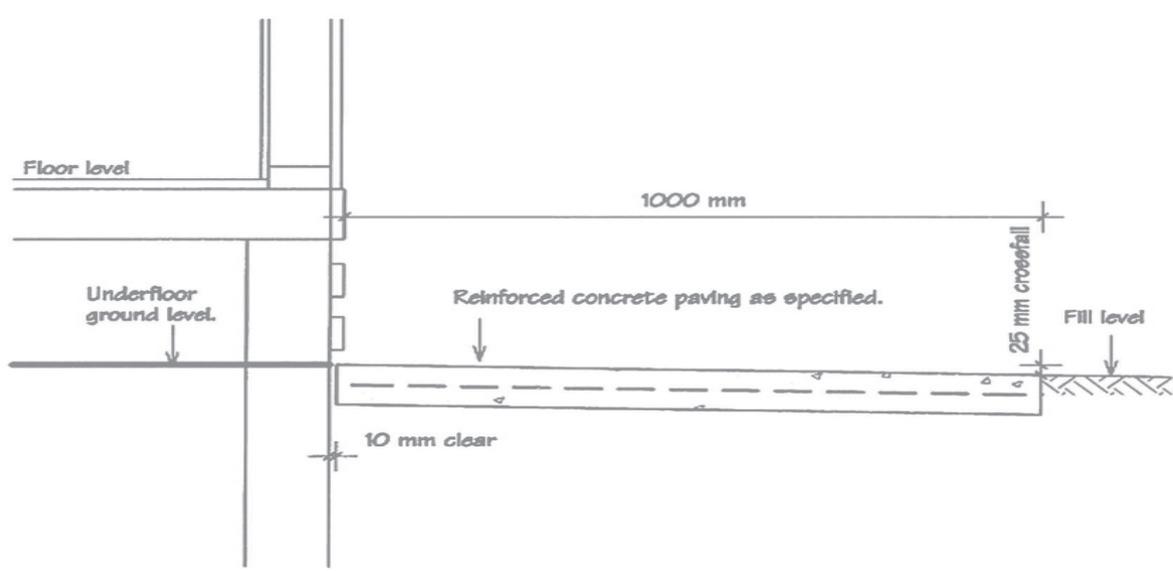


Figure 49 - Detail 2 - Timber house on stumps with similar paving and underfloor ground level

4.1 HOUSING MODIFICATIONS

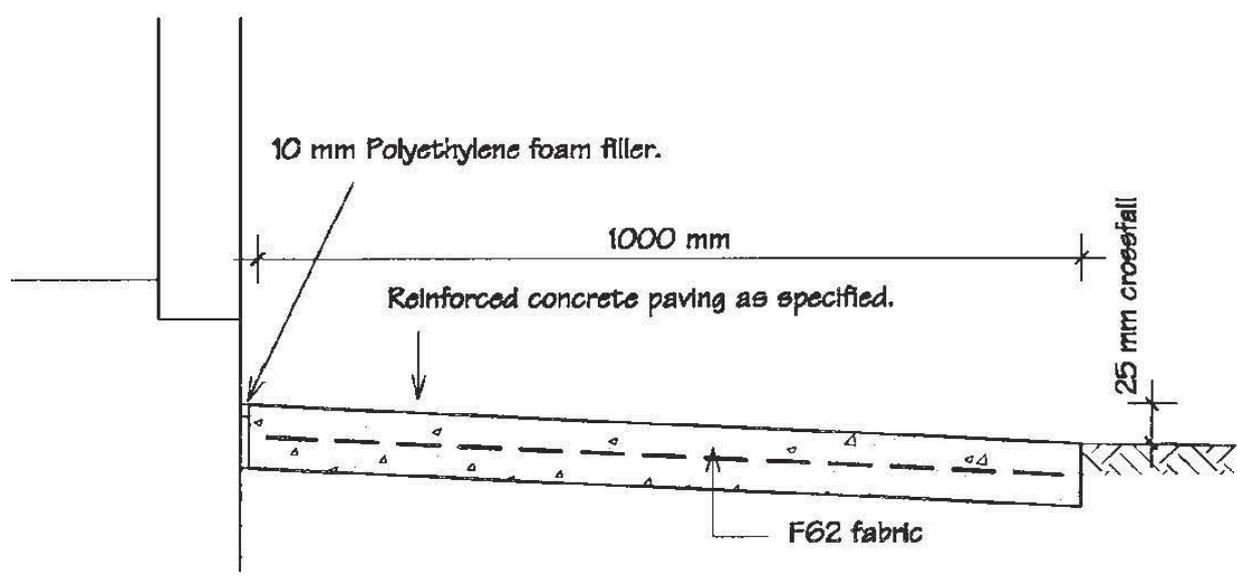


Figure 50 - Detail 3 - Path detail

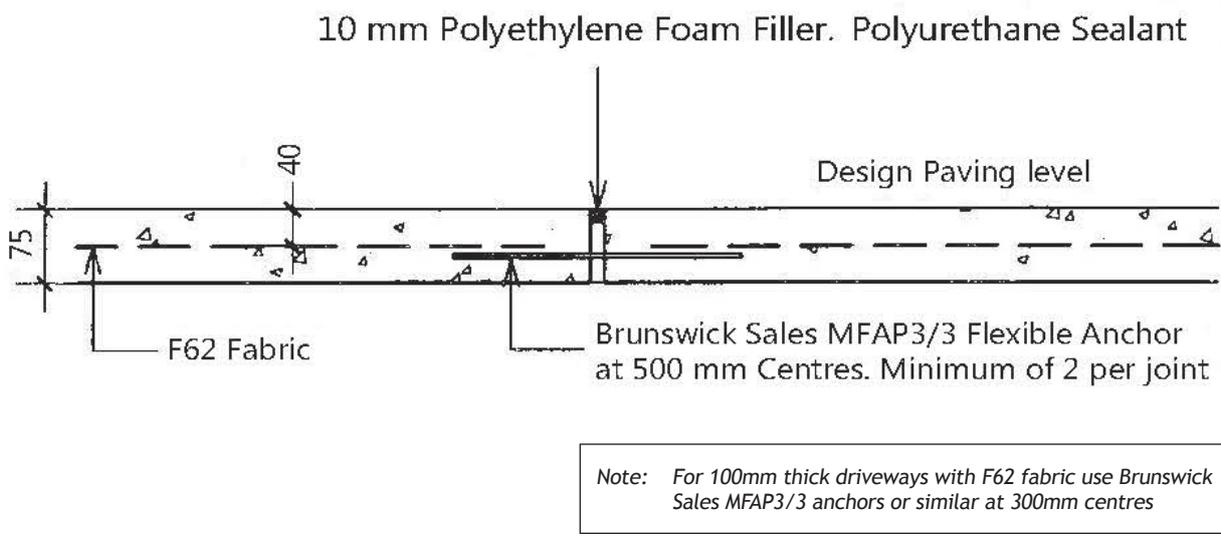


Figure 51 - Detail 4 - Dowelled construction joint detail

