

The Architectural Access Brief has been developed by the Offices of the University Architect and the Disability Service. It provides guidance for architects engaged by the University regarding its requirements for disability access and inclusive design and will overcome the problems associated with reliance on out of date standards and building codes. It incorporates knowledge from a wide range of sources and, as a living web based document, will continue to be updated.

### **Principles of the Brief**

- Universal Design (equitable, marketable)
- Inclusion (information, power sharing)
- Education (describe intent, culture change)
- Adaptivity (living document)

### **The Access Brief is a:**

- Briefing document, combined with UTAS standard brief
- Review and compliance document
- Workplace & post occupancy review tool

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## **1.0 Accessible routes**

### **1.1 Adjacent levels**

Edges abutting a path are to match the level of the path or be at no more than 1 in 40 slope for 600mm unless kerbs or handrails are provided.

Path edges that fall away or raise up can cause problems for all users when forced to the edge of the path.

*Walkways AS 1428.1 5.0, 12.C*

### **1.2 Curved paths**

Curved paths should provide a some tactile assistance or guide on the edge or centre of path.

Cane and visually impaired users may de-orientate on curved paths

### **1.3 Destination clues**

Give clear visual and tactile clues to major destinations along routes. Use texture as well as lighting, contrast or other design approaches.

All users benefit from clear clues to destinations. Visually impaired used particularly benefit from textured markers.

### **1.4 Doors, windows**

Ensure doors or windows do not open onto path clear widths.

In general anything that reduces the clear width of a path should be avoided, doors and awning windows in particular are collision points for all users.

### **1.5 Edges**

Contrasting edging to used in along paths in high density areas and along paths of high usage.

Definition between path and edge assists visually impaired users.

*AS 1428.1 5.0, 12.C*

### **1.6 Protruding objects**

Ensure paths are clear of protrusions that a long cane can go under, if this can't be achieved tactile pavers should be used around base of the objects.

Access paths should be "cane friendly", however protruding objects are problem for all users.

### **1.7 Ramp slopes**

A path steeper than 1 in 20 is to considered as a ramp

Ramp definitions are given in the definitions section.

*AS 1428.1 5.0*

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## 1. 8 Rest stops

Incorporate rest stations along paths at minimum 100 mt intervals, include seats, ensure rest stop clear of main path.

Elderly and access users require rest bays, the frequency of stops should increase with slope. Adding seats also increases activity along paths.

## 1. 9 Surfaces levels

Any path or landing should have changes in level across adjacent surface materials of no more than 2 mm.

Small level changes are difficult to see and are a trip hazard for all users.

*Walkways AS 1428.1 5.0, 12.0*

## 1. 10 Trees

Ensure trees or other obstruction are above 2400 on pathways and branches do not encroach onto clear widths.

Maintain clear overhead space for all users.

## 1. 11 Walkway cross slopes

Path cross slopes to be less than 1 in 40.

Cross slopes are potentially more hazardous than longitudinal slopes

*AS 1428.1 5.0*

## 1. 12 Walkway landings

Landings to be provided at approximately 25 mts intervals where walkway is between 1 in 20 and 1 in 33 slope.

As a path becomes steeper the need for flat rest zones increases, particularly for older or impaired users.

*AS 1428.1 5.0*

## 1. 13 Walkway slopes

Paths must have a longitudinal slope of less than 1 in 20 and do not require handrails unless the path edges fall away rapidly.

Path definitions are given in the definitions section.

*AS 1428.1 5.0*

## 1. 14 Widths

Path widths to have a clear, unobstructed minimum path of travel of 3000mm nom. in intensive or high density zones, 2100mm nom in secondary or, medium density zones. 1500mm nom in low density or extensive zones. Refer to the UTL Framework plan for zones

All paths should be wide enough for access users and service vehicles in intensive zones. AS1428.2 requires 1200mm minimum.

*AS 1428.1 5.0, AS 1428.2 8.0*

## 3.0 Colour

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### **3. 1 Contrast**

Use contrasting colours on nosings, handrails, lift walls etc. Contrasting colour must be selected in the context of the background and overall colour scheme. Bright colours are not automatically the best

Contrast provides useful visual clues to people with residual vision. Colours allow easy identification and aid in the sense of three dimensionality. Bright colours are often not the best.

*RVIB -colour, NCASL 8.0*

### **3. 2 Distant objects**

Use higher contrast values when objects need to be seen from a distance.

Objects seen at a distance require a higher contrast value than seen close up. (e.g. a door at the end of a corridor vs a coat hook). This aids persons with residual vision and general navigation for all users.

*RVIB -colour, NCASL 8.0*

### **3. 3 Intensity**

Colour selection should take into account the colours intensity value and ensure contrast is effective for visually impaired or in reduced light.

Red and green for instance have the same intensity value and therefore do not provide good contrast for the visually impaired or for general users when the light levels are reduced.

*RVIB -colour, NCASL 8.0*

### **3. 4 Skirting**

Use contrasting skirting is preferred to differentiate wall/floor junctions where appropriate

Contrast provides useful visual clues to people with residual vision. Colors allow easy identification and aid in the sense of three dimensionality.

*RVIB -color, NCASL 8.0*

## **4.0 Controls**

### **4. 1 Switches**

Switch heights and locations should be consistent throughout a building. The preferred location is adjacent to and at the same height as the door handle.

Consistent control heights and locations make their use more intuitive for all users.

## **5.0 Definitions**

### **5. 1 Contrast**

Contrast refers to the visibility of one feature against its background. This does not require bright colours.

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## 5. 2 Path slopes

Walkways	Slope < 1 in 20
Ramps	1 in 14 <= Slope < 1 in 20
Step ramps	1 in 8 <= Slope < 1 in 14

Definitions of paths to ensure consistent application of rules.

AS1428

## 6.0 Doors

### 6. 1 Automatic door exit buttons

After hours exit buttons when used, should be clearly placed at consistent accessible heights and locations and contrast against background. When frameless glazing is used the button should be post mounted near the opening.

Clear location of door exit buttons, even when used as emergency door openers , assists all users

### 6. 2 Automatic door markings

Place door arrows on each leaf showing direction of travel . Contrast colour with background, mount at 1500mm above FFL.

Where door may not contrast well with wall, arrows allow people to align with door opening.

*UTL standard for glass markings*

### 6. 3 Automatic door sensors

Automatic door sensors should allow people with canes to trigger the doors without having to touch the doors.

Canes often hit the doors before the automatic sensors detect the person and trigger door opening, this should be avoided.

### 6. 4 Automatic door speed

Automatic doors should open fast enough to allow users to pass through without slowing down too much. The closing cycle should be slower

All users can collide with doors when automatic doors do not open fast enough. This is worse for cane users and for frameless glazed doors.

### 6. 5 Clear space at sides

Clear space on handle side and hinge side of doors should comply with the AS 1428.2 11.5. Clear space precludes any encroachment such as fire services, columns or fixtures into this space. Sinks are allowed to encroach slightly if open under.

Clear space on the handle side of doors is always required for wheelchair users to negotiate a doorway. Its also essential for any user carrying bulky items or trays and to help avoid collisions.

*AS 1428.2 11.5 AS1428.1 7.3*

### 6. 6 Closers

Closers should allow 3 seconds from full open to closed.

Doors that close too fast can cause problems for access users and all users when more than one person are using the door at the same time.

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## 6. 7 Colour

Where possible provide definition using contrasting colours around main access doors or reception areas.

Defining doorways clearly is useful to all users particularly the visually impaired. Contrasting allows users to align on doorways and predict, for instance glass doors that might otherwise be difficult to see.

*RVIB -colour, NCASL 8.0*

## 6. 8 Double leaf

Double swing doors are to avoided unless held open (such as a fire door) or one side is normally locked. The opening leaf of a double door should comply with all other door requirements.

Double doors can not be negotiated by a wheelchair user unless the opening leaf is the correct size.

*RVIB S 1428.1*

## 6. 9 External door widths

All external doors widths should comply with AS1428.2.

Refer to reference

*AS 1428.1 11.1*

## 6. 10 Floor colours at doors

Contrasting floor colour should be used to identify major external doorways. Use in conjunction with floor texture changes.

Provide visual clues to door location and opening zone, assists all users.

## 6. 11 Frameless glazing

A door or door frame should provide some contrast against the background to provide visual clues to the location. Use large graphics (not standard dots) or frosting on the glass and use architectural clues to identify the doorway.

All users have problems sighting frameless doors in expanses of frameless glazing, good design can overcome this. All methods using ground plane texture/colour, awnings, colour, lighting should be explored.

*UTL standard for glass markings*

## 6. 12 Handle colour

Where possible door levers should contrast against the door background. Where this is not possible, push-pull symbols should be used.

Door levers are the indication of opening side of the door and allow users to align more easily.

*RVIB AS 1428.*

## 6. 13 Handles

Lever handles should be used in all situations other than WC cubicles where privacy sets are appropriate.

Some users can not operate knob type handles, they are also safer in fire or emergency situations.

*AS 1428.1 11.0*

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## 6. 14 Hardware

Door hardware should be consistent throughout a building or building zone

Consistent use, placement and types of door hardware makes it more comfortable for users navigate doorways. It is also more effective for maintenance and gives users predictable opening pressures and results.

*RVIB S 1428.1*

## 6. 15 Lever handles

Lever handles must not be closer than 40 mm to the door stop or jamb or any jamb molding. The preferred fixing height is 1000mm above FFL

Jamming fingers between the handle and jamb is common for all users, particularly in short backset aluminum doors.

*AS 1428.1 11.0*

## 6. 16 Opening force

Maximum opening forces to be 19.5 N or as shown in AS 1428.1 11.1. Compliance should be demonstrated to client with appropriate measuring instruments. If door is double leafed then the main door should meet these requirements.

Easy opening doors assist all users and are essential for access impaired users.

*AS 1428.1 11.1*

## 6. 17 Opening widths

Door widths should comply with AS 1428.2 11.5. Compliance should always be checked entering and exiting the door.

Door clearance zones are clearly defined in AS 1428, they provide not only good wheelchair access but are good design rules, leaving space around opening, creating spaces that can define openings and reduce collisions for all users.

*AS 1428.2 11.5 AS1428.1 7.3*

## 6. 18 Swing

Door leaves should open flat to a wall at 90 or 180 degree wherever possible.

Doors protruding into spaces and not up against a wall are collision hazards, particularly when viewed end on.

*RVIB AS 1428.1*

## 6. 19 Threshold ramps

Door ramps are allowed, when essential, if the ramp is less than 450 mm long and has a maximum gradient of 1 in 8. Preferably have no ramp or use an extended slope > 1:20

Door ramps should not be required in new construction. Users stepping out of a door with a threshold ramp can trip easily.

*AS 1428.1 7.2*



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## 6. 20 Threshold seals

Fabricated threshold plates should be low profile access threshold plates with a maximum rise of 5mm for cover strips or 8 mm when changing floor finishes. Proprietary, access designated threshold plates are preferred.

Thresholds should generally have no change of level and have the lowest threshold possible consistent with door sealing requirements. They are trip hazards for all user as well as wheel chair unfriendly.

AS 1428.1 7.2

## 6. 21 Turnstiles

Turnstiles are not to be the only means of access to any area. An alternate entry with the same use pattern is required.

If a turnstile needed for security reasons then alternate methods such as wide, sensor operated horizontal booms should be considered.

## 6. 22 Viewing panels

Glazed viewing panels should be used where possible have a minimum area as specified in AS 1428.1 7.5 and be at an accessible height.

Avoid collisions when users move through all doors and ensure wheelchair users can use glazing. They are also invaluable in emergency evacuations allowing rooms to be checked quickly.

RVIB AS 1428.

## 7.0 Entrances

### 7. 1 Access entries

Accessible entries will be the main entry in all cases.

The DDA requires this.

### 7. 2 Tactile indicators in open spaces

Define routes through foyers to a reception desk with contrasting colour and surface texture floor finishes, such as resilient finishes against carpet.

Large expanses of open areas with consistent surface finishes can make it difficult for visually impaired people to maintain a straight direction when walking.

NCASL design principles

## 8.0 Furniture

### 8. 1 Fixed furniture layout

Access routes should be free of obstacles for the full required width. Telephones, bins, fire equipment, lockers, planter boxes, switchboards etc. should be recessed into walls or outside the defined path.

Thoroughfares and circulation area defined paths should be free of obstacles to avoid collisions for all users

NCASL 2.0

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## 8. 2 Fixed furniture mounting

Fixed furniture and fittings are not to have space under them that can trap a cane. Use to-the-floor solutions where possible or add tactile tiles around the base of the objects.

The base of structures should be able to be located with a cane and followed if needed. Removing trapping locations is also beneficial for cleaning.

*NCASL 5.0*

## 8. 3 Furniture layouts

Furniture in access rooms should not be altered without informing visually impaired students.

Avoid visually impaired users losing key points or reference.

## 8. 4 Overhead cupboards

Overhead cupboards or similar elements should not be used unless floor mounted cupboards are placed underneath them.

Over head items are dangerous for all users particularly visually impaired. The base of structures should also be able to be located with a cane.

*NCASL 5.0*

## 9.0 Hallways

### 9. 1 Airlocks

Airlocks to be as large as possible. When approaching a door from the side, rather than head on, the airlock size increases, refer to AS 1428.2.11 . Always check requirements entering and exiting. Viewing panels are required

Airlocks can be critical areas of congestion and collision. When too small they are also difficult to clean

*AS 1428.2 11.5 AS1428.1 7.3*

### 9. 2 Carpet

Carpet to have a maximum pile height of 6 mm .Carpet edge trim to be no more than 3 mm in height

Reduce trip hazards for all users. Improve ease of cleaning

### 9. 3 Design criteria

The minimum clear floor space for a wheelchair is 1300 mm long x 800 wide. The minimum clear width of travel, internally or externally is 1200mm Minimum clear floor space for 180 deg turn is 2070 in direction of travel and 1800mm width.

Sets out the minimum design spaces for wheelchairs not covered explicitly in other rules.

### 9. 4 Doors

Unless required by BCA door leaves should not swing into busy areas and never into hallway clear zones. Use indents or setbacks.

Door leaves are collision points for all users.

*RVIB S 1428.1*

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### 9. 5 Grates

The difference in levels between adjacent surface should be no more than 2 mm.

A level change of more than 2 mm across surfaces is a trip hazard for all users.

*As 1428.2 9.0*

### 9. 6 Passing areas

Where a corridor is less than 1800mm in width, widenings of a minimum 1800mm width and 1600 long are required at 6000mm intervals.

Hallways should allow 2 chairs or a chair and pram to pass. Passing areas can break down longer corridors, provide opportunities for notice boards, or social interaction.

### 9. 7 Resilient surfaces

Slip resilient flooring to be specified that complies with AS3661.1

Non slip resilient floors should be used throughout for general safety.

*NCASL 10.0*

### 9. 8 Slip resistance

Paths should have even, slip resistant surfaces, using materials the and slip resistance greater than 0.65 wet as measured by AS3661.1. Proprietary material should have a slip resistance test report.

All paths should adhere to minimum construction standards for OH& S, aesthetic and access reasons

*AS3661.1*

### 9. 9 Standard widths

Hallways to be a minimum of 1200 mm wide at any point. The minimum width for major corridors is 1800mm. The preferred minimum width for minor corridors is 1350mm

Hallways should accommodate a wheelchair comfortably, and allow 2 chairs or a chair and pram to pass. They also reduce collisions when users exit into hallways.

### 9. 10 Tactile indicators in open spaces

Directional corridors or zones in large open spaces should be defined with resilient finishes, not carpet. Carpet is often associated with obstacles. Provide tactile and colour contrasts where possible.

Large expanses of open areas with consistent surface finishes can make it difficult for visually impaired people to maintain a straight direction when walking.

*NCASL design principles*

### 9. 11 textures in different zones

Use consistent floor finishes in each building zone. Introduce different textures to indicate particular areas or important changes of function.

Different materials or finishes that relate to different zones or functional areas assist navigation for all users.

*NCASL 7.0*

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## 9. 12 Widths

Critical corridor widths and airlock widths should always be checked against AS 1428.2 11.5.

Minimum corridor widths are required for wheelchair users entering a doorway off the corridor.

*AS 1428.2 11.5 AS1428.1 7.3*

## 10.0 Handrails

### 10. 1 Clearance

Handrail to wall clearance must be greater than 50mm.

Wall clearance is required to avoid jamming hands or fingers.

*AS 1428.1 6.2*

### 10. 2 Colours

Handrail colours should contrast where possible against the background, not necessarily be a "bright" colour.

Handrails should be easily seen when approached, they are indicators or stairways or steps.

*AS 1428.1 13.0, AS 1428.2*

### 10. 3 Continuity

Gripping surfaces must be continuous. Where a landing is less than 4000mm or not straight, the handrail must be continuous

If the handrail is not continuous a visually impaired person may de-orientated between flights. Elderly users benefit from the additional support while climbing stairs.

### 10. 4 Design

Where appropriate the UTL standard detail must be used for all handrails. This includes 38mm-360 deg handrails.

The UTL standard of 38mm diameter is accessible for a wide range of users and is preferred over the maximum diameter rangers allowed under the standards.

*AS 1428.1 6.2*

### 10. 5 Dimples

Raised dimples should be placed on the handrails at the top and bottom only, not at landings.

Warning the end of handrails is useful for some users. Adding extra dimples are confusing.

*AS 1428.1 13.0, AS 1428.2*

### 10. 6 Lead on and off sections

Handrail layouts should follow AS 1428.1 13.0, details to UTL standard. They will always extend 300mm past the top riser and 600 mm past the bottom riser.

Handrails should generally indicate the changing ground level as indicators for visually impair users. The lead on and lead off sections are useful for all users particularly aged and physically impaired users.

*AS 1428.1 13.0, AS 1428.2*

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## **10. 7 Ramps**

Handrails must follow the form of the ramp and must flatten out and extend 300mm past ends of ramps. A handrail must not encroach into a circulation space.

Handrails indicate rise and fall of a ramp. And are useful for all users.

*AS 1428.1 6.2*

## **10. 8 Turndowns**

Handrails are to have a minimum 100mm turn down at both ends.

If not turned down, handrails ends can be OH&S problems

*AS 1428.2 UTL standard.*

## **10. 9 Vertical sections**

Handrails are to be continuous with no vertical sections.

Vertical section in handrails are confusing to visually impaired users and may be difficult for access impaired users.

*AS 1428.1 13.0, AS 1428.2*

## **11.0 Kerb ramps**

### **11. 1 Construction**

Kerb ramps are to constructed to the Local Government standard details and be consistent throughout an area.

Kerb ramps should be of consistent design both for landscape and access purposes.

*AS1428.1 5.8*

### **11. 2 Edges**

The ground surface to the sides of a ramp is to be level with the ramp for 900 mm or have a handrail or kerb.

Any ramp or path should provide safe, level edges to avoid trip hazards or ankle injuries and avoid wheelchairs tilting over if forced to the edge.

*AS1428.1 5.8*

### **11. 3 Kerb ramps**

The width of a kerb ramp should be the same as the access path not including the feathered or curved section used to blend with the kerb.

Any kerb blending or kerb sections that intrude into the path clear-width are trip hazards primarily for users walking quickly and visually impaired users.

*AS1428.1 5.8*

### **11. 4 Location**

Kerb ramps must be located so that they can not be obstructed by parked cars.

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## 11. 5 Tactile markers

Tactile pavers to the AS 1428.3 dimensions, must be used for the full width at the top of the kerb ramp and be contrasting with background if possible.

All users, but particularly visually impaired users, benefit from tactile warnings when approaching a roadway.

*AS1428.1 5.8*

## 12.0 Kitchens

### 12. 1 Bench

At least one 1000mm long section of bench must allow wheelchair access

An open section is always useful for bins if access use is not required.

*AS 1428.??*

### 12. 2 General

Kitchens do not have to comply with AS1428.?? But should have a minimum set of access items.

Items include some bench, microwave, tap handle.

### 12. 3 Layout

The kitchen layout should allow use by a wheelchair user.

Increasing the size or altering the shape of a kitchenette will allow all users better and safer access.

### 12. 4 Microwave

A microwave should be located at no more than 1200 mm above floor level

## 14.0 Lighting

### 14. 1 Backlighting

Do not locate main viewing areas, such as teaching points or reception desks so that people need to look into glare or brighter areas.

Relative illumination levels between subject being viewed and background should be similar to avoid constant eye accommodation and to make the viewer more feel more comfortable.

*RIBA lighting, NCASL 9.C*

### 14. 2 Glare in work areas

Ensure diffused, even light is provided for work areas. Pay attention to relative illumination levels between work surfaces and walls.

Good lighting assists all users. In particular, partially sighted persons can be sensitive to excessive glare and the need for rapid eye accommodation.

*RIBA lighting, NCASL 9.C*

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### 14. 3 Illumination contrast

Avoid rapid changes in light or glare levels from room to room. Keep stair wells, air locks or corridors within the same illumination range as work areas.

All users moving from high to low (or visa versa) levels of light will have accommodation difficulty leading to trip or collision problems. Partially sighted can be particularly sensitive to excessive glare and the need for rapid accommodation.

*RIBA lighting, NCASL 9.C*

### 14. 4 Stairs

Stair nosings need to be well illuminated and not in shadow.

## 15.0 Parking and passenger zon

### 15. 1 Access bay layouts

Access parking bays to meet AS 2890.1 . Where possible one bay to be 4200 wide for special purpose cars; this bay can overlap with other use areas.

Ensure parking is sized correctly to allow access to and around vehicles.

*Layout AS 2890.1*

### 15. 2 Access bay location

Access bays to be located closest to accessible buildings and accessible routes, a maximum of 120m travel should be allowed, bays should be allocated according to essential teaching and learning locations.

Access parking bays are not useful if located too far from the likely destination.

*BCA D3.5 AS 2890.1*

### 15. 3 Access bay numbers

Access parking bays to make up 2% of any car park area. Allow for a group of wider bays that can be adapted to access parking by changing signage.

Access parking must be flexible to avoid an adversarial approach to setting access parking bay numbers. Design flexibility in.

*BCA D3.5 AS 2890.1*

### 15. 4 Car overhangs

Car overhangs are not to protrude into a path circulation zone, extend path width or use other design approaches rather than using wheel stops.

Car noses or tow bars protruding onto paths reduce the overall width and cause OH+S problems, however wheel stops themselves are a trip hazard.

*BCA D3.5 AS 2890.1*

### 15. 5 Check outs

At least one check out in a library shop or canteen must be accessible.

Access user should have equal use of all facilities. Consider flexible checkout systems.

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## **15. 6 Consistency**

Where appropriate consistent details should be used within a building, this should include the width and surface of corridors, the height and design of balustrades, door handles, switches and signage.

Consistent details allow easier navigation for all users.

## **15. 7 Kerb ramps**

Kerb ramps are to be adjacent to access parking areas, be clearly visible and constructed to the appropriate standard.

Parking needs to be serviced by adequate access ramps and paths for wheelchair and pram users.

*BCA D3.5 AS 2890.1*

## **15. 8 Overhead obstructions**

Overhead obstructions including trees to be more than 2500 high over parking bays.

*Layout AS 2890.1*

## **15. 9 Parking signage**

Car parks with access parking are to be identified at car park entry

Access parking users should be aware of access bays on entering the car park

*Signs AS 1428.1 14.2*

## **15. 10 Public transport maps**

Maps to be situated at bus stops taxi ranks and show access routes.

All users benefit from clear maps and signage.

## **15. 11 Public transport pick up point slopes**

Cross and longitudinal slopes in waiting and loading zones of pick up areas to be maximum of 1 in 40.

Slopes in waiting and loading areas should be the same as for paths.

## **15. 12 Public transport pick up point edges.**

Tactile and contrasting indicators, 300 mm wide, to run full length of kerb in pull -in area

All users benefit by the edge warning pavers.

## **15. 13 Public transport pick up points**

Bus stops and taxis ranks to be on accessible paths and accommodate a wheel chair under cover.

Access for public transport should be available for all users. Following rules for accessible walkways and access improves personal security.



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#### **15. 14 Service counters**

Service counters must provide an access section for wheel chair or seated users, this is to be a minimum of 900 mm long. A 200 mm overhang space is required and provision must be made for the server to be seated.

A drop down section is essential for frail users on seats or access users. Equal eye height should be achieved.

#### **15. 15 Set down area services**

Set down areas are to be provided with Campus maps which are readable from vehicles, kerb ramps and access footpaths.

the Provision of maps, ramps and footpaths in setdown areas is essential for all users.

#### **15. 16 Set down areas**

Set down areas or layby widths to be a minimum of 3200mm be on the drivers side of the road.

Set down areas on road side should be adequate for all users, including access bay users.

#### **15. 17 Set down areas slopes**

Set down area cross gradients to be 1 in 40 maximum.

#### **15. 18 Slopes**

Cross slopes in access parking bays to be a maximum of 1 in 40. Maintain other cross slopes to the minimum possible.

Cross slopes are more likely to cause ankle injuries and cause problems for wheel chairs than longitudinal slopes.

*Layout AS 2890.1*

#### **15. 19 Surfaces**

Access parking bays to be sealed, even and free from irregular levels or tree roots.

Parking areas generally need to be treated like paths and be free of any obstructions and trip hazards.

*Layout AS 2890.1*

#### **15. 20 Water coolers**

Water coolers with cups, and adequate front and side clearances are to be used.

#### **15. 21 Wheel stops**

Wheel stops or single "raised" kerbs are to be avoided or placed so they are not hazardous and clear from any paths or kerb ramps. Islands that require users to take at least one step on top are better solutions.

Any raised object that requires users to step over it is potentially a trip hazard.

*Layout AS 2890.1*

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## **16.0 Misc. Landscape elements**

### **16. 1 Bollards**

Bollards must not hinder access users and should be contrasting with the background.

### **16. 2 Grate materials**

Pressed metal grates are not permitted. Slip resistance of grates should be considered and grates should be flush with the surrounding ground level. Proprietary cast steel grates are preferred.

Grates present slip and trip hazards particularly if they are damaged from use.

*As 1428.2 9.0*

### **16. 3 Grates**

Grates should have holes no more than 13mm wide and 150 mm long and be made of substantive materials. Grate openings should be at right angle to the direction of travel. Proprietary heel guard grates are preferred.

Wheelchair or bicycle wheels can be caught in grates.

*As 1428.2 9.0*

### **16. 4 Grates, locations**

Grates should not be located at the bottom of stairs unless a proprietary, slip resistant, heel guard product is used.

Grates are hard to see at the bottom of stairs and can present a serious trip hazard for all users.

### **16. 5 Water fountains**

Proprietary access-water fountains are to be used in all cases.

## **17.0 Pedestrian crossings**

### **17. 1 Kerb ramps**

Kerb ramp widths (not including feathering or curving to blend with kerbs) are to be the full width of line markings.

Users line up visually on road markings, a trip hazard exists if the kerb ramp is narrower.

*AS 1428.4 6.3*

### **17. 2 Layout**

A defined pedestrian crossing must meet the Tasmanian statutory requirements and include tactile markers or dots on the edge of the path.

Tactile markers allow visually impaired users to navigate in what may otherwise be an amorphous space.

*AS 1428.4 6.3*

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### **17. 3 Refuges**

Central traffic islands to be cut through at road level and have tactile warning pavers.

Roadway refuges to be accessible for all users and present kerb or tripping hazards.

*AS 1428.4 6.3*

### **17. 4 Tactile markers**

Tactile pavers in contrasting colour to be used across the full width at the top of the kerb ramp.

*AS 1428.4 6.3*

## **18.0 Protruding objects**

### **18. 1 Fire services**

Fire service equipment such as fire extinguishers and hose reels should be recessed into walls wherever possible or set clear of walkway clear space.

Items should be placed to avoid collisions and not hinder cane users following walls as guides

### **18. 2 Free standing**

Object should protrude no more than 500 mm into walkways and should not reduce the clear width.

Any protruding object is a collision problem for all users particularly the visually impaired.

### **18. 3 Protection**

Objects may protrude more into walkways if they are protected by nib walls on both side no less than 100 mm higher than the objects, without reducing the clear width.

Objects can be visually and physically protected by walls. This also assists cane users following the wall edges.

### **18. 4 Vending machines**

All vending machines are to be set back 900 mm from clear circulation space.

users congregating around vending machines can block access ways and cause collisions. Introducing a consistent approach will also assist aesthetically.

### **18. 5 Wall mounted**

Object should protrude no more than 100 mm into walkways and should not reduce the clear width.

Any protruding object is a collision problem for all users particularly the visually impaired. The danger is increased when the object is not continuous to the floor.

## **19.0 Ramps**

### **19. 1 Compliance**

All stairs and steps are required to comply with the BCA and referred standards

*RVIB stairs AS1428.1 9.0*

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## 19. 2 Cross slopes

The maximum cross slope for ramps is 1 in 40, this includes any allowance for drainage requirements at the top and bottom of ramps.

Cross slopes are difficult to navigate in wheelchairs, particularly if the path includes smaller locally steeper sections for drainage.

AS 1428 5.2 & 5.6

## 19. 3 Doors, windows

Doors or awning windows must not open onto landings unless they are outside of the minimum clear access width.

Landings have defined clear space requirements and it is dangerous to all users if doors protrude into that space.

AS 1428.1 5.2 & 5.7 AS 1428.2 8.1

## 19. 4 Handrails and kerbing provision

Handrails and kerbs are to be provided as specified in AS 1428.2 5.3.

Handrails or kerbs are required for ramps, to assist movement of users and to avoid falling from the edge of paths.

AS 1428.1 6.2

## 19. 5 Kerbing

If not otherwise required, kerbs are required when the ramp is the main building entry and used by visually impaired.

Kerbs assist visually impaired persons to follow ramp edges.

AS 1428.1 6.2

## 19. 6 Landing cross slopes

Landings must have a maximum of 1 in 100 slope for drainage.

Landings should be flat, so that no effort is required to rest at them.

AS 1428.1 5.2 & 5.7 AS 1428.2 8.1

## 19. 7 Landings

Landings are required on all ramps and walkways steeper than 1 in 33, as set out in AS1428.2. This requires landings at 6000mm intervals on 1 in 14 ramps.

Landings are required as rest and passing points for all users on ramps, the steeper the ramp the more frequent the landings.

AS 1428.1 5.2 & 5.7 AS 1428.2 8.1

## 19. 8 Slopes

A ramp is between 1 in 14 and 1 in 20 in slope. Gradients are to be constant. The maximum (no the required) gradient is 1 in 14.

A ramp is a walkway that is steeper than 1 in 20 and all the requirements for ramps are required at this point. All effort should be made to have slopes over 1:20

AS 1428 5.2 & 5.6

## 20.0 Seating

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### **20. 1 Access to performing areas**

Accessible routes must be provided from seating the podiums or performing areas.

### **20. 2 Accessible seating**

Accessible seating should be available in varied locations and have lines of site equivalent to other users.

Accessible seating should be an integral part of the design with access spread over the area.

### **20. 3 Left hand writing tablets**

Left hand writing tablets should be provided in a flexible manner ensuring the tablet folds toward the user and not over adjacent users.

Poor support for left hand writers in lecture theatres is an OH&S problem causing users to twist too far in one direction.

## **22.0 Signage**

### **22. 1 Doors**

On major doors tactile sign markers should be used. This applies to normally closed doors the visually impaired would often use such as WC's.

Simple, consistent symbols that a visually impaired user is orientated to use, can form the basis of an effective standard marking system that all users can use.

*UTAS Standard WC markings.*

### **22. 2 Placement**

Place signs so they do not protrude into clear circulation spaces. Heights are given in the University of Tasmania Sign Manual

### **22. 3 Standards**

Signage should comply with the University of Tasmania Sign Manual.

Lettering in the sign manual is based on Australian standards for reading distances and speeds. It also specifies appropriate fonts for the visually impaired.

## **23.0 Steps and stairs**

### **23. 1 Landscape step sequences**

Single steps are to be avoided. If treads are not 300mm then tread should be 2 steps wide and consistent in each path flight.

Tread design should be based on comfortable steps for ease of use, particularly for visually impaired users. Uneven tread spacing is dangerous for all users.

### **23. 2 Landscape step sizes**

Landscape steps should always be a minimum of 300 mm x 150 mm (tread x riser)

More generous tread sizes are a requirement of good landscape design.

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### **23. 3 Ramped treads**

Ramped treads between risers are not permitted

This form of step is a trip hazard as the risers are hard to see when going down hill; leading to trip hazards and leading wheelchair users into dangerous situations.

### **23. 4 Riser & tread sizes**

Stair proportions and handrails should be consistent within a building and tread + 2 risers should be on the higher range of the BCA requirement

Risers or goers of different sizes should be avoided. Maintaining consistent details allows users to navigate the building more easily.

*RVIB stairs AS1428.1 9.0*

### **23. 5 Riser and tread contrast**

Stair risers should be coloured the same as the treads and contrast with the nosings.

This arrangement achieves the appropriate nosing contrast.

*AS 1428.1 9.0 AS 1428.2 13.0 BCA D3.4 (b)*

### **23. 6 Soffits and undercrofts**

Stairs should be infilled underneath or use devices such as plinths or other architectural devices to prohibit use.

Avoid all users colliding with stair landings and prevent canes going under them, cane users following a wall edge are confused when the cane goes under a stair. Open undercrofts are also cleaning and maintenance problems.

*RVIB stairs AS1428.1 9.0*

### **23. 7 Stair treads and risers**

Open stair risers are not allowed in any circumstances.

Open risers can cause trip hazards and visual stability problems.

*AS 1428.1 9.0 AS 1428.2 13.0 BCA D3.4 (b)*

### **23. 8 Tactile markers**

Tactile and contrasting markers, thin enough to avoid tripping, should be placed at the top of stairs. Markers should be laid out according to AS 1428.3 6.2

All users should be warned when approaching the tops of stairs.

*RVIB stairs AS1428.3*

### **23. 9 Tread layout**

The top and bottom treads of stairs should not impinge into circulation spaces. Preferably the first risers are well set back from the clear circulation space. Allowance should also be made for handrails lead on and lead off.

Good design should allow users to enter and leave steps and stairs without entering straight into adjacent circulation spaces. This leads to collision problems.

*RVIB stairs AS1428.1 9.0*

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## **23. 10 Tread noses**

A proprietary safety tread nosing is to be used. Nosings to be a contrasting colour, be non-slip and extend for 50-75 mm back from front of tread.

Slipping or tripping on stairs is a common problem, the inclusion of texture and contrast to the nosings makes them safer for all users.

*AS 1428.1 9.0 AS 1428.2 13.0 BCA D3.4 (b)*

## **25.0 Tactile warnings**

### **25. 1 Tactile indicators, usage**

Tactile pavers should comply with the sizes shown in AS 1428.4 for external use. For internal use a lower profile tile is preferred.

The high profile, paver type tactile tiles can cause trip hazards in places like the top of stairs when used internally.

### **25. 2 Tactile indicators, usage**

Use tactile tile patterns consistently throughout a site.

Consistency in use is essential for visually impaired users and is important for aesthetic coherence.

### **25. 3 Tactile indicators, usage**

Tactile pavers should contrast in colour with the surrounding finishes

Contrasting tiles allow a wider range of users to be warned of potential danger.

## **26.0 Telephones**

### **26. 1 Public phones**

At least one phone in each bank (or the only phone) are to accessible

## **27.0 Toilets**

### **27. 1 Access mirrors**

Mirrors should be to the side, not directly over basins.

Wheel chair users often find it easier to use mirrors at the side of basins.

*NCASL washrooms*

### **27. 2 Access WC**

Where access toilets are provided they are to be Unisex .

Unisex facilities are preferred so that helpers may assist if required.

### **27. 3 Access WC layouts**

Access toilets where required, should follow the requirements set out in AS1428.2

AS1428.2 provides more generous layouts that are more likely to satisfy the needs for motorized wheelchairs.

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#### **27. 4 Access WC, door clearances**

Ensure sinks do not encroach into the required free space on the lock side of doors  
This is included as it is a common problem in access toilets. Refer to AS 1428.2 for detail

#### **27. 5 Access WC, pan clearance**

Ensure sinks do not encroach into the required free space in front of pans ??  
This is included as it is a common problem in access toilets. Refer to AS 1428.2 for detail

#### **27. 6 Access WC, pans**

Pans to be 800 from wall to front edge and to be proprietary access pans and seats. A sealed hob is required at the back.  
This is included as it is a common problem in access toilets. Refer to AS 1428.2 for detail

#### **27. 7 Signage**

WC and rest room doors should have tactile 150mm symbols at 1500mm above FFL on a contrasting background.  
Use a consistently recognizable symbol for WC facilities, readable by visually impaired users.

*AS1428 symbols RVIB doors*

#### **27. 8 Urinal controls**

All urinal control should be automatic.  
Access users may be unable to locate or use controls. Automatic control are better for cleaning.

#### **27. 9 Urinal, support**

A handrail should be located along the top of the urinal.

#### **27. 10 Urinals, circulation**

Clear circulation space of 1500mm is required in front of urinals.

*AS 1428.2 15.5*

#### **27. 11 Urinals, steps**

Hobs or steps should not be used, a stainless steel grate with maximum 25mm openings is preferred.  
Hobs are tripping hazards and can be difficult to navigate for elderly user and those with crutches. IT is also better for maintenance and cleaning.

*AS 1428.2 15.5*

#### **27. 12 Wash basins,**

Ensure there is no sharp protrusions or pipe work under the basin in the wheelchair toe space.



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**27. 13 Washroom layout**

Arrange WC elements in a consistent logical way eg. from left to right, basins, hand towel bin, mirror.

Arranging WC elements in a consistent logical way makes them easily located by visually impaired persons.

*NCASL washrooms*

**27. 14 Water temperature**

All hot water systems must have temperature limiting valves.

This should comply with the local regulations.