Morris Goding
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North Construction & Building Pty Ltd

St Matthew's Catholic High School Mudgee School

Cnr Broadhead & Bruce Rd, Mudgee

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1 Introduction

1.1 Summary

The SSD DA seeks consent for the construction of a new multi-purpose secondary education facility within the Mudgee Region that meets future demands for the developing region.

The new secondary school to be known as St Matthews Catholic High School Mudgee School will cater for 680 secondary school students (4-Stream Year 7-12) and will comprise of a cluster of five low-rise school buildings (1-2 storeys) including;

- Block A - Professional Hub (office and administration)
- Block B - Spiritual Hub (Chapel)
- Block C - Community Hub (Multi purpose hall, Music/Dance Studio and canteen)
- Block D – STEM Research Hub (teaching spaces)
- Block E - Knowledge and Learning Hubs (General Teaching spaces)
- Yarning Circle (Outdoor learning area)
- Outdoor Student Assembly Area and COLA
- Student free play area
- Staff and student amenities
- Associated site landscaping and public domain improvements
- On-site parking and access arrangements off Bruce Road, including:
    - On-grade car park for staff, students and visitors (75 spaces – including 2 accessible spaces)
    - A 12 bay student drop-off and pick-up area
    - A 3-bay bus drop-off and layover area
    - Bus turning area and servicing access
    - Dedicated separate driveway for service vehicles
    - Bicycle parking for 30 bicycles
- Associated earthworks, civil works, perimeter roadworks, fencing, services and utilities connections and augmentation, including:
    - Roadworks to Broadhead Road and Bruce Road to the full extent of the site frontages
    - Roadworks to the Broadhead Road and Bruce Road intersection to cater for bus movements
    - Footpath along the site frontage of Broadhead Road and suitable pedestrian crossing to connect to existing footpath.
    - Stormwater infrastructure upgrades adjacent to and within the site, including new culverts and drains, levee, and bioswale.
    - Connection to existing sewer line within the site
    - Electrical and water connections into the site

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Morris Goding Access Consulting (MGAC) has reviewed the Detailed Design Documentation for St Matthew's Catholic School, Mudgee.

In general, the Detailed Design highlights a high degree of functional and technical compliance to the Access to Premises Standard, AS 1428 series and the Disability Discrimination Act (DDA), as the pathways, entrances, circulation spaces and sanitary facilities have all considered accessibility.

This report highlights key recommendations and/or items for clarification that have been identified to ensure functional compliance to the premises, with the consideration of Universal Design.

1.2 Documentation

This correspondence is specific to the following key stage drawings:

SSDA review 200407 Binder issued via Dropbox to MGAC 08/04/20.

1.3 Legislation

The Access to Premises Standards as detailed within the National Construction Code 2019 and highlights the minimum level compliance requirements for Accessibility or Deemed to Satisfy Provisions. The Standard references the technical requirements of the built environment through the Australian Standard 1428 series. Achieving compliance to the Access to Premises Standard goes a significant way to achieving compliance with the requirements of the Disability Discrimination Act (DDA).

A registered Building Surveyor/PCA is required prior to issuing permits, to confirm compliance with the requirements. Where the Deemed to Satisfy provisions are unable to be met, the Registered Building Surveyor/PCA can seek a Performance Solution from a relevant expert to detail Performance Compliance Solutions. For existing buildings these are increasing important as the cost and structural constrains to modify an existing building could make the modification unviable.

The key elements of the Access to Premises Standard include:

- Part D3 – Access for People with a Disability.
- Part E3 – Passenger Lifts.
- Part F2 – Sanitary and Other Facilities.

1.4 Other Applicable Standards & Legislation

- Disability Discrimination Act (DDA) 1992.
- National Construction Code 2019.
- AS1428.1 – 2009, Part 1: General Requirements for Access – New Building Work.
- AS1428.2 – 1992, Part 2: Enhanced and Additional Requirements – Buildings and Facilities.
- AS1428.4.1 – 2009, Part 4.1: Means to Assist the Orientation of People with Vision Impairment – TGSI.
- Disability (Access to Premises – Buildings) Standards 2010 (DAPS 2010).
- AS2890.1 – 2004, Part 1: Off-Street Car Parking.
- AS2890.6 – 2009, Part 6: Off-Street Parking for People with Disabilities.
- AS1735.12 – 1999: Lift Facilities for People with Disabilities.

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2 Non-Compliances/Clarifications

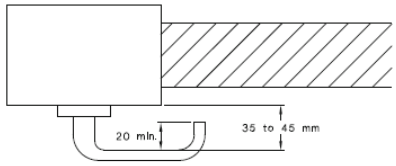
This section of the report identifies non-compliances requiring attention by the design team and are to be read in conjunction with the MGAC issued drawing mark-ups (Section 6 of the report) that identify the locations and extent of the non-compliances. This section also highlights additional information, which will need to be provided for review to ensure appropriate accessibility.

Where items are identified as being covered by a Performance Solution, these will be listed in Section 3 of this report. A listed Performance Solution is optional. It can be resolved by a redesign according to a recommendation and in doing so comply with Deemed to Satisfy Provisions.

For additional design guidance during future design development, the design checklist in Section 4 of this report should be consulted.

ELEMENT / NON-COMPLIANCE		RESOLUTION	STATUS
1. External Linkage			
1.1.	Not enough information has been provided to assess the path of travel. Refer mark-up	The path of travel needs to be designed in accordance with AS1428.1. Drawing's show paths that have clear a width that can achieve compliance using ramps, walkways, and standard 1:40 paths of travel. Client has acknowledged this and will use the rear Sections 1, 2, & 3 of the DDv.2 checklist to ensure full compliance with AS1428.1 requirement. Architect to design and send for review the external paths of travel at the CC stage for review showing elevations and gradients.	**OPEN**
2. Ingress and Egress			

2.1.	Several buildings provide double doors as their main entrance. These doors have less than 850mm on 1 side of the doors.	Recommend increasing all double doors that achieve 850mm clearance as a combination of both doors together to achieve the 850mm clearance with one door.	**OPEN**
3. Paths of Travel			
3.1.	The ends of corridors do not have sufficient turning areas for wheelchair users. Refer to mark ups.	Corridors deeper than 2m require 1540mm x 2070mm so a wheelchair can perform a 180 degree turn. - Block A - Ground floor corridors for the bathrooms and outside 'Meeting 1' room. - Block D 'WIP Store 3' room. - Block E Level 1 'Booth's'. There are several rooms that are potentially 'services only' or for non-accessible users. These rooms need to be addressed by the client with clarification of intent so MGAC can continue to provide correct advice on access to this area/rooms.	**OPEN**
4. Doors			
4.1.	530mm latch side clearances and door depths not achieved for all front on door approaches compliant with Fig 31 of AS1428.1-2009. Drawing's don't provide "door labels" to be specific, refer to mark-ups.	Majority of doors can achieve the latch side clearance required if the doors are shifted. Please see mark-ups and use the rear design checklist and ensure doors are amended for CC stage review. Amend door schedule.	**OPEN**

4.2.	Any double doors that don't achieve 850mm clearance with "1 door" needs to be amended so that wheelchair users can achieve the clearance required without the hardship of operating 2 doors.	Amend door schedule with the use of "cat and kitten" doors, combining double doors into 1x larger door, or increasing the double doors to achieve 850mm clearance with both double doors. Compliance can be achieved.	**OPEN**
4.3.	Drawings don't provide door componentry for review.  (a) Isometric view  (b) Plan view	Ensure all doors for accessible users have handle returns for those with low dexterity or hook hands. To be reviewed at CC stage.	**OPEN**
4.4.	Ensure all doors provide 30% luminance contrasting for the vision impaired in line with AS1428.1. Any fully glazed panels/doors are required to provide 75mm horizontal strip. Refer to rear checklist as design guide for the future details.	Provide elevation details for doors and fully glazed panels for review. These can be a typical elevation views for review. To be reviewed at CC stage.	**OPEN**
5. Stairs			
5.1.	Stair TGSI, handrails, step nosing, riser documentation has not been provided.	Refer to design checklist for further design information. In general structural special circulations indicate compliance can be achieved. Client has acknowledged and will amend	**OPEN**

		for CC stage review by using the rear design checklist as guidance. To be reviewed at CC stage.	
5.2.	Any stairs that create a void (or any void in general) underneath 2000mm FFL are a head height clearance issue for vision impaired users.	Ensure any voids beneath stairs (or other areas that are less than 2000mm FFL) provide barriers (natural or balustrades) are used to block vision impaired users from injury. Alternatively, warning tactiles to be setback 300mm from the vertical head height collision issue to warn users that a hazard is ahead. Drawings at CC stage to provide elevation details showing that compliance is achieved or the intent to mitigate this issue.	**OPEN**
6. Walkways			
6.1.	Not enough information has been provided to assess the path of travel and specifically walkways. Refer to the rear design checklist and provide updated information for review.	Any paths of travel steeper than 1:40, but by not more than 1:20, constitute as a "walkway" and should provide compliance. Client has acknowledged this and will provide drawings for MGAC to review showing compliant paths of travel at CC. Use the rear checklist.	**OPEN**
7. Ramps			
7.1.	Not enough information has been provided to assess the path of travel and specifically "ramps" Refer to the rear design checklist and provide updated information for review.	Any paths of travel steeper than 1:20, but by not more than 1:14, constitutes as a "ramp" and should provide compliance. Client has acknowledged this and will provide	**OPEN**

		drawings for MGAC to review showing compliant paths of travel at CC. Use the rear checklist.	
8. Doorway Threshold Ramps			
8.1.	Drawings don't provide door elevation changes. Recommend providing a typical transition elevation from inside to out.	Threshold ramps are commonly used for waterproofing for doors that transition from inside to out. Client has acknowledged this and will provide drawings for MGAC to review showing compliant paths of travel at CC. Use the rear checklist.	**OPEN**
9. Step Ramps			
9.1.	Not enough information has been provided to assess the path of travel and specifically "step ramps" Refer to the rear design checklist and provide updated information for review.	The Chapel looks like it provides a step ramp for the stage however elevation details aren't provided for review. Please provide any elevation details for 1:10 step ramps. Client has acknowledged this and will provide drawings for MGAC to review showing compliant paths of travel at CC. Use the rear checklist.	**OPEN**
10. Kerb Ramps			
10.1.	Not enough information has been provided to assess the path of travel and specifically "step ramps" Refer to the rear design checklist and provide updated information for review.	Refer to design checklist for further design information. Client has acknowledged this and will provide drawings for MGAC to review showing compliant paths of travel at CC. Use the rear checklist.	**OPEN**

11. Handrails			
11.1.	Stair handrail details not provided. Please provide elevations showing extensions, heights, and a profiles complaint with AS1428.1.	Refer to design checklist for further design information. In general structural special circulations indicate compliance can be achieved. Client has acknowledged and will amend for CC stage review by using the rear design checklist as guidance. To be reviewed at CC stage. MGAC has discussed potetnial omitting handrails on 1 side of the Stage stairs under a perforamance solution. This si to be worked throug hwith certifer and client for amicable soltuion.	**OPEN**
12. Tactile Ground Surface Indicators (TGSI's)			
12.1.	TGSI details not provided.	Warning tactiles required at; - Top and bottom of all communication stairs. - Top and bottom for all walkway ramps. - Any kerb ramps that cross into the traffic aisles. - To be used as an alternative to barriers for any head height collisions to warn the vision impaired. Please review rear design checklist and provide details for review.	**OPEN**
13. Passenger Lifts			

13.1.	Documentation has not been issued.	Drawing show 2x lifts for review. - Block E shows a lift that has carriage size that can achieve compliance for a lift that travels less than 12m vertically. Please provide internal carriage details for review. - Block C Multipurpose Hall shows a platform lift for access to the Stage. Footprint allocated indicates that compliance can be achieved. Please provide make and model for review so MGAC can review. Refer to design checklist for further design information.	**OPEN**
14. Accessible Toilets			
14.1.	Accessible bathroom provided show compliance circulation spaces with AS1428.1-2009 around the toilet pan. Documentation for toilet fixtures and fittings have not been provided.	Architect to provide updated plans. Refer to design checklist for further design information.	**OPEN**
15. Accessible Showers			
15.1.	BCA requires an accessible shower provided in any development where standard shower facilities are provided.	Block A shows 2x standard showers however no provision for an accessible shower. Layouts indicate compliance can be achieved by including an accessible shower int eh accessible bathrooms. Drawing to be updated to show compliance.	**OPEN**

16. Ambulant Cubicles			
16.1.	Comments have been made on the gender allocations of the bathrooms in the development. BCA requires that ambulant facilities are male and female unless; - The facilities are allocated for less than 10 users. - The facilities are dominated by particular gender due to the developments nature.	Block A shows a bank of standard toilet cubicles but only 1x ambulant facility. Please provide allocation and gender breakdowns for these toilets. Knock-on comment will be that male and female facilities are likely required here. This will be driven by your BCA certifier as the gender allocation of facilities isn't a DDA issue, it just has knock-on effects. Drawings don't provide finer details on the ambulant facilities details. Provide elevation details and componentry for review.	**OPEN**
17. Hearing Augmentation			
17.1.	Documentation has not been issued.	There's several separate hearing augmentation requirements in this development. - The school has several classrooms and meeting rooms that would naturally provide tv's or potentially in-built AV for lessons or similar. It's common of schools to adopt portable hearing augmentation units so teachers can use them to transmit their voice to student with a headset. Client to confirm classroom AV details for DDA comment. - Chapel and Block C multipurpose hall will both likely have an AV system for presentation purposes. Both will be subject to hearing augmentation requirements.	**OPEN**

		Refer to design checklist for further design information. Architect to send package for review	
18. Signage			
18.1.	Signage documentation has not been reviewed	Architect to send signage package for review. Refer to rear checklist for signage requirements for sanitary facilities, hearing augmentation, accessible paths of travel where there's non-accessible ones for wayfinding.	**OPEN**
19. Wheelchair Seating Spaces			
19.1.	Chapel development shows seating allocations. BCA requires seating allocations of up to 150 to provide 3 wheelchair spaces.	These seats should be grouped in 2 and 1, but not all 3 together. Please clearly allocate wheelchair seating locations unless all the seating is provided loose.	**OPEN**
20. Car Parking			
20.1.	Documentation does not show vertical heights at car bays.	Under AS2890.6, 2.5 metre vertical clearance is required at accessible car bay and shared zone. There needs to be 2.2 metre vertical clearance leading to accessible car bays.	**OPEN**
20.2.	Drawing need to provide higher details showing car allocation breakdowns. See MGAC drawing comments.	Provide allocations for staff, students, visitors, and any other breakdowns, and ensure 1x accessible car space is provided per 100 spaces (or part thereof) for each type of car space breakdown/allocation greater than 5. Drawings indicate compliance can be achieved however finer details	

		need to provide. Refer to rear design checklist and ensure compliance is shown clearly for the CC stage.	

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Performance Solutions

The following items are departures from BCA and have been identified that could be covered under *Performance Solution*. It is noted that these can be resolved by a redesign according to a recommendation and in doing so comply with Deemed to Satisfy Provisions.

Non-Compliance Item Number / Description	**Justification**	**Key Recommendations to be Implemented**
Block C doesn't provide 2x sets of compliant stairs for access on either side of the Stage.	The 2 sets of stairs are local to one another and provide handrails on opposite sides to one another that would still offer diverse support on both sides for impaired users that require it.	Use of stairs is to be managed along with any guests who use the stage for presentations. Accessible traffic will be directed to the platform lift or rear stairs primarily which are both fully compliant.
Block E "Booths" don't provide circulations spaces compliant with AS14281.	Recommend that ideally 50% of these rooms are accessible. As they a duplicated amenity and local to one another this could be acceptable.	The rooms can be booked and appropriated labelled so that accessible users can reserve them and standards users know to reserve them last.

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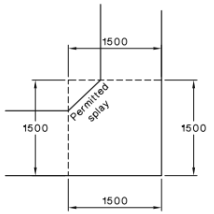
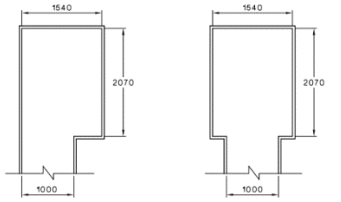
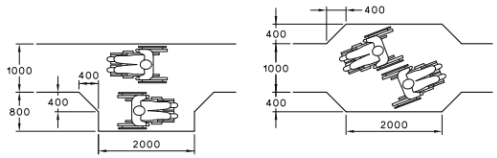
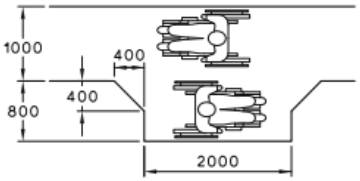
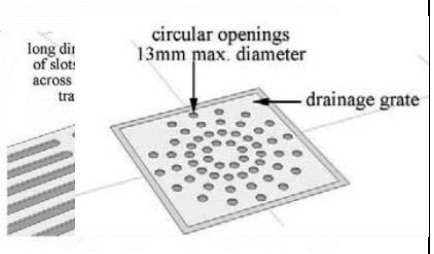
Design Checklist

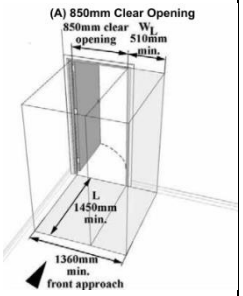
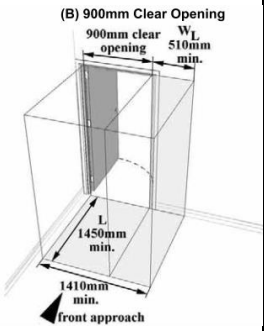
1. External Linkage	
1.1.	Provide an accessible path of travel compliant with AS1428.1 from all main pedestrian entry points at the site boundary to the principal pedestrian entrance/s of the building.
1.2.	For multiple building entries, ensure an accessible path of travel, compliant with AS1428.1 to and through 50% of entrances including the principal pedestrian entrance.
1.3.	Ensure any direct pedestrian linkages (i.e. not public footpath) from associated accessible buildings are compliant with AS1428.1.
1.4.	Provide an accessible path of travel, compliant with AS1428.1 from accessible car parking space/s on the site to the main entrance.
2. Ingress and Egress	
2.1.	Ensure a non-accessible entry is no more than 50 metres from an accessible entry (buildings >500m2).
2.2.	Provide level landing areas (1:40 max. gradient/crossfall) at doorway circulation areas and changes in direction to ensure safety when turning.
2.3.	Door operational forces to be lightweight (20N max.) suitable for people with disabilities. If this cannot be achieved an automatic or power operated main entry door to be provided, compliant with AS1428.1. Refer to Door section for door control details.

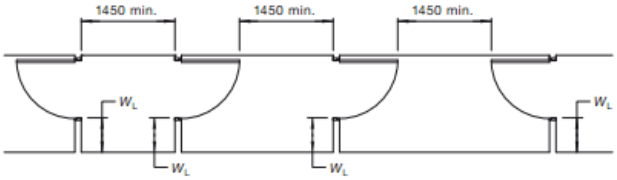
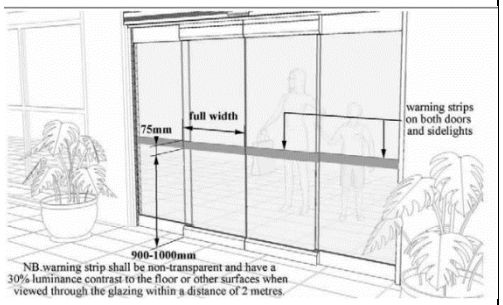
3. Paths of Travel	
3.1.	Provide 1000mm min. width paths of travel compliant with AS1428.1.
3.2.	Corridors less than 1500mm wide that turn between 60-90 degrees need increased (1500mm) width at turn with 45 degree splay on internal side, compliant with AS1428.1 fig. 4.  Turn 90° in path of travel Corridor less than 1500 mm wide requires widening at turn
3.3.	Turning spaces (1540mm W x 2070mm L) to be provided along pathways at 20m intervals and within 2m of corridor ends, to enable a wheelchair user to turn 180 degrees.  (a) Space required in corridor (b) Space required in corridor

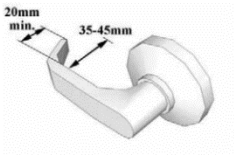
3.4.	Provide at least one wheelchair passing bay (1800mm W x 2000 L) outside passenger lifts  DIMENSIONS IN MILLIMETRES FIGURE 3 EXAMPLES FOR PASSING SPACE FOR WHEELCHAIRS
3.5.	When a direct line of sight is not available additional wheelchair passing bays (1800mm W x 2000 L) are to be provided at 20m max, intervals. 
3.6.	Ensure the slip resistance of flooring systems used within areas required to be accessible (including ramps, stairs and landings) are traversable by a wheelchair or walking frame, tested in accordance with wet pendulum test method of AS4586:2013/HB198. This is needed to satisfy AS1428.1 Clause 7.1. Test certificates required at OC Stage. **NB. All wet pendulum testing issued after 1 May 2014 must use 2013 test method. Test results issued prior to 1 May 2014 using 2004 method (HB197 Table 3) are still valid under BCA and for compliance purposes the slip ratings V, W, X (under 2004 method) can be considered equivalent to P5, P4, P3 (under 2013 method).*
3.7.	Ensure that any overhead hazards in areas with less than 2m min. vertical clearance (e.g. angled wall/columns or exposed underside of any stairs/escalators) will have access impeded by suitable physical barrier or have handrail and kerb rail or warning TGSI's installed, compliant with AS1428.4.1 fig. 2.6.

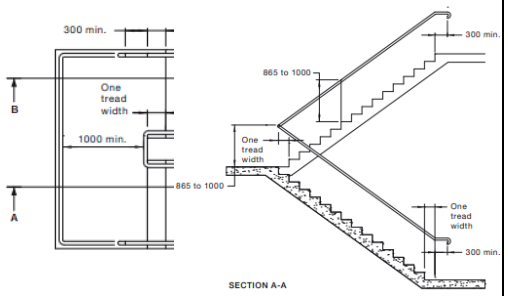
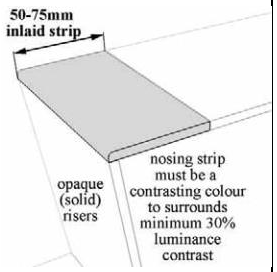
3.8.	Should carpet or similar soft flexible flooring surface be used, ensure pile height is no more than 11mm with 4mm max backing surface, compliant with DDA Premises Standard.
3.9.	Ensure drainage grates on accessible path of travel have openings no more than 13mm wide x 150mm long, with greater dimension transverse to main direction of travel to assist wheelchair users. 
4. Emergency Egress – Fire Isolated Stairs	
4.1.	Ensure that all ramps, stair treads/nosings and stair landings on required egress paths are slip resistant in accordance with BCA Table D2.14 (tested to AS4586:2013/HB198, Table 3A).
4.2.	All stair treads require contrasting step nosing strips by DDA Access Code 2010 clause D3.3 (a)(iii), compliant with AS1428.1 as follows: Step nosing strips to be across full width of stair, between 50-75mm wide, in a continuous colour solid strip with 30% luminance contrast to background surface. Step nosing strips to be located on edge of tread (15mm max. setback if applied) and not to extend onto risers more than 10mm max. if exposed.
4.3.	Provide at least one accessible handrail as required under BCA part D2.17 within all fire-isolated stairs/ramps serving areas required to be accessible. The handrail profile, fixing and installation height is to be compliant with AS1428.1 clause 12.

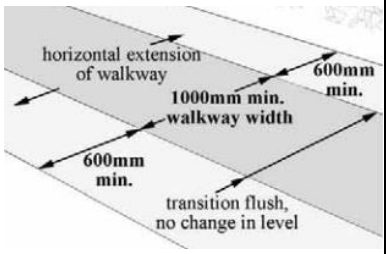
4.4.	Clarification from BCA consultant/PCA is required to satisfy BCA Part D2.17 for the height of the top of the handrail to be at a consistent height (AS1428.1 clause12e), in particular throughout stair flights and if provided as inner handrail over landings Note: In our opinion, this could be achieved by including an off-set tread at base of each stair flight or by increasing stair landings by 300mm min. length (more than required egress path) to allow space for handrail to extend and continue at consistent height.
4.5.	All doors required to have “Exit” signs (under BCA clause 4.5) to also include accessible identification signs to identify each door for people with vision impairment. The signage to include appropriate raised tactile pictogram, raised text (in title case) and Braille. The sign is to state “Exit” and “Level” followed by either: The floor level number (where sign located), or; A floor level descriptor (where sign located), or; A combination of both of the above. The signage to be located on the wall, adjacent to latch side of door between 1200-1600mm height from FFL (with first line of braille to be located between 1250-1350mm from FFL).
4.6.	Provide 30% min. luminance contrast between egress doorways and adjacent surface/s. The contrasting area (e.g. wall, architrave etc.) must be 50mm min. width to effectively assist people with vision impairment.
4.7.	Where fire isolated stairs (base build only) are also used as communication stairs between levels ensure they are designed to comply with AS1428.1. Refer to general Stair section.

5. Doors	
5.1.	Doors (common use) require greater clear width to ensure 850mm min. (generally 920mm door leaf) to comply with AS1428.1:
5.2.	Hinged doors (common use) require greater latch side clearance to ensure 510mm min. width on latch side (door opens away from user) to comply with AS1428.1. 
5.3.	Hinged doors (common use) require greater latch side clearance to ensure 530mm min. width on latch side (door opens toward user) to comply with AS1428.1. 

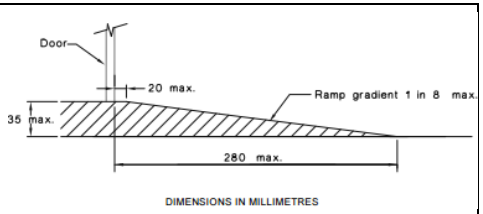
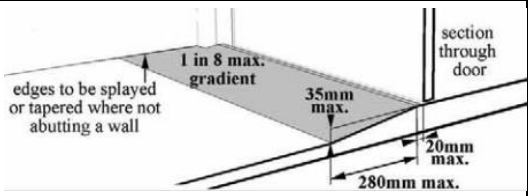
5.4.	Corridors require increased clear depth in front of doorways to ensure access for wheelchair users, compliant with AS1428.1.
5.5.	Provide 1450mm length between successive door swings in airlocks/vestibules on accessible path of travel. 
5.6.	Provide 30% min. luminance contrast between all doorways and adjacent surface/s. The contrasting area (e.g. wall, architrave etc.) must be 50mm min. width to effectively assist people with vision impairment. NB. Frameless glazed doorways will not meet this requirement.
5.7.	Ensure all fully glazed doors and surrounding glazing (including glazed walls with no transom or similar), are clearly marked with 75mm min. wide, solid, non-transparent, contrasting line across their full width. The lower edge of line must be between 900-1000mm FFL and have 30% luminance contrast when viewed against floor or background surface within 2m of glazing. NB. Opaque strips to be used. 

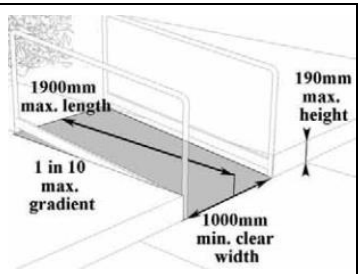
5.8.	Provide lever action handles on hinged doors with returns or similar to assist people with dexterity impairment. The handle to be placed between 900-1100mm above FFL, compliant with AS1428.1. 
5.9.	Door operational forces to be lightweight (20N max.) suitable for people with disabilities, compliant with AS1428.1.
5.10.	The use of any intercom and/or door release to be placed between 900-1250mm FFL on the latch side of doorway and no less than 500mm from any internal corner or obstruction, compliant with AS1428.1.
5.11.	The control buttons for power operated doors to be raised, 25mm min. diameter, installed in accessible location i.e. between 1-2m from hinged door leaf in open position, between 900-1250mm height from FFL and at least 500mm from internal corner, compliant with AS1428.1.
6. Stairs	
6.1.	Ensure stairs located at site boundary are recessed (900mm min. from boundary) to allow required handrail extensions and TGSI's to not protrude into transverse path of travel, compliant with AS1428.1 fig. 26a.
6.2.	Ensure stairs adjacent to internal corridors are recessed (1 tread width plus handrail extension /turn down, approx. 650mm) to allow required handrail extensions to not protrude into transverse path of travel, compliant with AS1428.1 fig. 26b.
6.3.	Ensure all stairs have closed risers to assist people with ambulant and sensory disabilities, in accordance with AS1428.1.

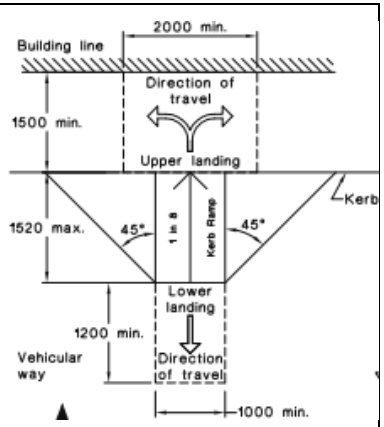
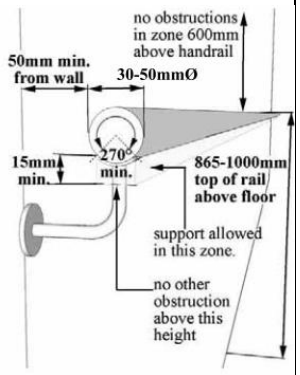
6.4.	The stair design to provide an <u>off-set tread at base</u> of all stair flights to enable the continuous handrail provision at consistent height, compliant with AS1428.1 fig. 28a below: 
6.5.	Provide handrails on both sides of stairs compliant with AS1428.1 (see below).
6.6.	Provide warning tactile ground surface indicators (TGSI's) at top and bottom of all stairs in accordance with AS1428.4.1 (see below).
6.7.	Provide contrasting step nosing strips on all stair treads compliant with AS1428.1 as follows: Step nosing strips to be across full width of stair, between 50-75mm wide, in a continuous colour <u>solid strip</u> with 30% luminance contrast to background surface. Step nosing strips to be located on edge of tread (15mm max. setback if applied) and not extend onto risers more than 10mm. (if exposed). 
7. Walkways	
7.1.	Ensure 1:20 walkways have suitable landings at 15m max. intervals, compliant with AS1428.1 (see Landings section).

7.2.	Ensure walkway landings are 1200mm min. length, (no change in direction) or 1500mm x 1500mm min. length (internal splay permitted), for 90 degree turn, compliant with AS1428.1.
7.3.	Provide a suitable height wall (450mm min. height) or kerbing along open walkway sides, compliant with AS1428.1 fig. 19: Kerbing to be between 65-75mm height above FFL, or; At least 150mm height above FFL. NB. The top of kerbing must not be within 75-150mm range above FFL to minimise risk of wheelchair footplate entrapment. If kerbing extends within 75-150mm range between it must be continuous with no gap greater than 20mm.
7.4.	Without walls or kerbing, walkways (1:20 - 1:33 gradients) need to extend at least 600mm min. width at same grade in firm and level surface of different material compliant with AS1428.1. 
7.5.	Ensure curved walkways have 1500mm min. clear width with appropriate min. inside curve radius compliant with AS1428.1 fig. 20.
7.6.	Ensure the threshold of 1:20 walkway has smooth level transition between surfaces. Alternatively, provide wall or handrail and kerbing compliant with AS1428.1 to minimise potential trip hazards.
8. Ramps	
8.1.	Ensure ramps that are adjacent to site boundary are recessed 900mm from boundary to ensure handrail extensions and TGSI's can be provided without protruding into the transverse pedestrian path of travel, compliant with AS1428.1.

8.2.	Ensure ramps that are adjacent to a corridor/walkway are recessed 400mm to ensure handrail extensions and TGSI's can be provided without protruding into the transverse pedestrian path of travel, compliant with AS1428.1.
8.3.	Ensure ramps have 1:14 gradient and appropriate level landings at top and bottom and at 9m. max intervals (see landings section).
8.4.	Ensure ramp landings are 1200mm min. length, (no change in direction) or 1500mm W x 1500mm min. L (internal splay permitted), for 90 degree turn, or 1540mm W x 2070mm L for 180 degree turn, compliant with AS1428.1. These min. landing dimensions are required clear of handrails and kerb rails.
8.5.	Ensure there are handrails on both sides of all ramps compliant with AS1428.1 (see below).
8.6.	Ensure curved ramps have 1500mm min. clear width with appropriate min. inside curve radius compliant with AS1428.1 fig. 20.
8.7.	Provide a suitable height wall (450mm min. height) or kerbing along open ramp sides, compliant with AS1428.1 fig 19: Kerbing to be between 65-75mm height above FFL, or; At least 150mm height above FFL. NB. The top of kerbing must not be within 75-150mm range above FFL to minimise risk of wheelchair footplate entrapment. If kerbing extends within 75-150mm range between it must be continuous with no gap greater than 20mm.
8.8.	The kerb to be suitably located in relation to handrail (and vertical supports if provided) i.e. Internal face of kerb in line with internal face of handrail or up to 100mm max. off-set inside the ramp, compliant with AS1428.1 fig. 19.
8.9.	Provide warning tactile ground surface indicators (TGSI's) at top and bottom of ramps in accordance with AS1428.4.1.
9. Doorway Threshold Ramps	

9.1.	Under BCA Part D2.15, an AS1428.1 threshold ramp is generally only permitted at external doorways i.e. connects to a road or open space clarification needs to be sought from PCA on this issue as there may be concessions for some building classifications e.g. 9a, 9c. 
9.2.	Ensure doorway threshold ramps have 1:8 gradient, 35mm max. height and 280mm max. length, compliant with AS1428.1 fig. 21. NB. Where ramp edges are not enclosed by walls/other side barrier, ensure ramp edges are splayed at 45 degrees. 
9.3.	There needs to be sufficient area available to satisfy AS1428.1 door circulation requirements in addition to threshold ramp dimensions e.g. an external door threshold ramp with side approach, requires 1240mm min. wide access way (no steeper than 1:40 gradient/crossfall) before base of the threshold ramp commences.
10. Step Ramps	
10.1.	Provide a step ramp leading to doorways as the height variation between internal and external RL's is greater than 35mm. NB. A level landing is also required to enable door circulation space, compliant with AS1428.1 fig. 31.

10.2.	Ensure step ramps have 1:10 gradient, 190mm max. height and 1900mm max. length. 
10.3.	Provide suitable barriers on step ramp sides (450mm min. height wall or balustrade and kerbing), or splayed edge if there is transverse pedestrian traffic.
10.4.	Ensure that consecutive step ramps (i.e. when landings between step ramps/ ramps overlap) are not used, compliant with DDA Access Code D3.11b.
11. Kerb Ramps	

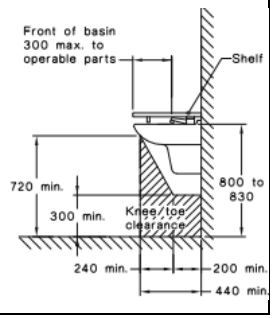
11.1.	Ensure kerb ramps have 1:8 gradient, 190mm max. height, 1000mm min. width and 1520mm max. length, compliant with AS1428.1 fig. 23 and 24. NB. Under AS1428.4.1 kerb ramps with gradients less steep than 1:8.5 are not generally detectable by people with vision impairment.	
12. Handrails		
12.1.	Ensure circular/elliptical handrails have 30-50mm diameter, with 270 degree clear arc around top of handrail (extending for 600mm min. height) compliant with AS1428.1 fig. 29.	
12.2.	Ensure handrails are installed at a consistent height between 865-1000mm height above step nosing or FFL ramp surface, compliant with AS1428.1 Clause 12d.	

	NB. The specified height should allow for construction tolerance as outside of this range will be non-compliant.
12.3.	Ensure handrails are installed no less than 50mm away from an adjacent side wall, compliant with AS1428.1 Clause 12h.
12.4.	Ensure the handrail at the top of the stair extends 300mm (horizontal) past the step tread then turns 180 degrees downwards or returns fully to post/wall, compliant with AS1428.1 Clause 11.2e, fig. 26.
12.5.	Ensure the handrail at the base of the stair extends one tread width (at same angle) plus 300mm (horizontal) from last riser, then turns 180 degrees downwards or returns fully to post/wall compliant with AS1428.1 Clause 11.2d, fig. 28b.
12.6.	Ensure that the handrail at the top or bottom of a ramp extends (on the horizontal) 300mm past ramp then turns 180 degrees downwards or returns fully to post /wall, compliant with AS1428.1 Clause 10.3h, fig. 14 and 15.
12.7.	For situations (e.g. class 9a and 9c buildings) where domed buttons are permitted by BCA Part 3.8a and 3.8c to be used instead of TGSI's at stairs/ramps, ensure handrails have suitable tactile warning i.e. domed button (4-5mm height and 10-12mm diameter) provided on top of handrail, 150±10mm from handrail end compliant with AS1428.4.1.
13. Tactile Ground Surface Indicators (TGSI's)	
13.1.	Ensure that TGSI's are slip-resistant and have the following minimum luminance contrast values against back ground surface, compliant with AS1428.4.1: Integrated TGSI's (i.e. tiles) require 30% min. luminance contrast. Discrete TGSI's (i.e. buttons) require 45% min. luminance contrast. Composite TGSI's with 2 materials/colours requires 60% min. luminance contrast.

13.2.	Ensure that warning TGSI's extend across the full width of the path of travel and commence 300mm from the edge of stairs, ramps etc. compliant with AS1428.4.1.
13.3.	Ensure that warning TGSI's have between 600-800mm depth at open areas, or at landings (>3m length) and/or when handrail is discontinuous, compliant with AS1428.4.1.
13.4.	Ensure that warning TGSI's have between 300-400mm depth at enclosed landings (<3m) or when external handrail is discontinuous, compliant with AS1428.4.1.
14. Passenger Lifts	
14.1.	Passenger lifts travelling less than 12m (except stair platform lifts) require 1100mm W x 1400mm L min. dimensions.
14.2.	Stairway platform lifts (previous AS1735.7) require 810mm W x 1200mm L min. dimensions, compliant with BCA Part E3.6. NB. They cannot be used where another type of lift can be used or in high traffic public areas.
14.3.	Low-rise platform lifts (previous AS1735.14), require 1100mm W x 1400mm L min. dimensions compliant with BCA Part E3.6 and must not travel more than 1000mm height variation.
14.4.	Low rise, low speed constant pressure lifts, unenclosed type (previous AS1735.15), require 1100mm W x 1400mm L min. dimensions compliant with BCA Part E3.6 and must not travel more than 2m. They cannot be used high traffic public areas.
14.5.	Low rise, low speed constant pressure lifts, enclosed type (previous AS1735.15), require 1100mm x 1400mm min. dimensions compliant with BCA Part E3.6 and must not travel more than 4m. They cannot be used high traffic public areas.

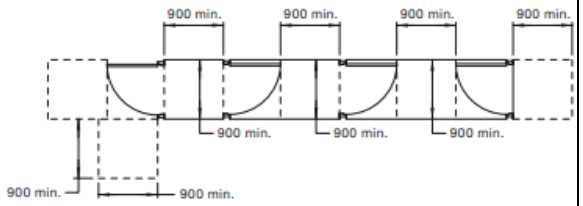
14.6.	Any low rise lifts (previous part AS1735.14 or 15) that require constant pressure to be applied to the lift control buttons to either call and/or operate the lift (i.e. Press and Hold) are to include signage to explain operations of use.
14.7.	Small size low-speed automatic lifts (previous AS1735.16), require 1100mm W x 1400mm L min. dimensions and must not travel more than 12m.
14.8.	Ensure all passenger lifts (except stair platform lifts) have 900mm min. clear door opening, compliant with AS1735.12.
14.9.	Ensure all Low-rise platform and Low rise, low speed constant pressure lifts with manual door opening (previous AS1735.14, 15 and 16) have suitable door circulation areas compliant with AS1428.1.
14.10.	Ensure the centre line of standard lift call buttons in all lift lobbies are located at height of 900-1200mm and at least 500mm distance from an internal corner to be accessible to people using wheelchairs, compliant with AS1735.12.
14.11.	Ensure all passenger lifts (except stair platform and low rise platform lifts) include an internal lift control panel with centre line of control buttons located at a height no less than 700mm and no greater than 1250mm above FFL. The components of the floor level buttons shall possess Braille, raised tactile symbols and numbers, visual and auditory indicators, compliant with AS1735.12. Note: horizontal lift control panels are preferred over vertical panels for ease of reach as they generally can be positioned with control buttons within 900-1100mm FFL which is the preferred range for most wheelchair users (advisory/DDA).
14.12.	Ensure all passenger lifts (except stair platform and low rise platform lifts) include 2 x lift control panels when the width/length dimension is less than 1400mm.
14.13.	Ensure all passenger lifts (except stair platform and low rise platform lifts) include an internal handrail installed at a height 850-950mm. The handrail ends shall be no more than 500mm away from any operating device or button, compliant with AS1735.12.

14.14.	Ensure all passenger lifts (except stair platform lifts) include emergency hands free communication, including a button to alert call centre of a problem and a signal light to confirm that call has been received.
14.15.	Ensure all lifts serving more than 2 levels provides automatic audible information within the lift car to identify each level the lift stops.
14.16.	Ensure all lifts serving more than 2 levels provides appropriate visual and audible arrival signals of the lift car in all lift lobbies.
14.17.	Ensure all lifts serving more than 2 levels provides appropriate audible range and frequency, (between 20-80dbA at maximum frequency of 1500 Hz), compliant with DDA Access Code Table E3.6b.
14.18.	The lighting in all enclosed lift cars must be at least 100 lux, compliant with AS1735.12.
14.19.	All visible information to provide 30% min. luminance contrast to background surface.
15. Accessible Toilets	
15.1.	Provide 1 unisex accessible toilet at each bank of male/female toilets on each storey compliant with BCA Table F2.4a. NB. Where more than 1 toilet bank on each storey provide at 50% of banks.
15.2.	Ensure a balance of left and right handed WC pans within the building.
15.3.	Ensure accessible toilet is compliant with AS1428.1. This requires 2300mm x 1900mm clear area around pan with basin to sit outside the area (max. encroachment of 100mm at basin front).
15.4.	Ensure the centreline of the accessible toilet pan to be between 450-460mm from side wall.

15.5.	Ensure all accessible toilets have 800mm±10mm clearance between front of WC pan to rear wall.
15.6.	Ensure the height to top of pan seat to be between 460-480mm above FFL.
15.7.	Ensure the pan seat to have 30% luminance contrast against background tiled floor surface.
15.8.	Provide grabrails on wall of toilet at a height of between 800-810mm (to top of grabrail) from FFL. NB. If concealed cistern used, WC grab-rails are to be continuous across side and rear walls. If exposed cistern used, rear grabrail to commence 50mm max. from cistern edge.
15.9.	Provide angled toilet backrest (350-400mm W x 150-200mm H) installed between 120-150mm height from top of pan seat and 50mm max. distance from seat bolt hole. NB. No toilet lid to be provided as this impedes use of back rest.
15.10.	Ensure the centreline of the basin to be at least 425mm from side wall.
15.11.	The height of the basin to be between 800-830mm from FFL with lever action taps and insulation of water pipes.
15.12.	Provide basin with a 430-440mm min. depth projection and suitable wheelchair knee/toe height clearance, compliant with AS1428.1 fig. 44 below: 

15.13.	The front of basin to be 300mm max. distance to the operable part of taps.
15.14.	Provide separate fixed shelf (120-150mm W x 300-400mm L) next to wash basin, installed at 900–1100mm above FFL.
15.15.	Toilet roll holder to be installed on adjacent wall to toilet at 600mm centre-line height from FFL within 300mm max. length from front of pan and no closer than 50mm to grabrail. The toilet roll holder type to have an exposed toilet roll for ease of use.
15.16.	Provision of soap dispenser, hand drier or paper towel dispenser at a dispensing height, between 900-1100mm. Ensure these fixtures are within arm's reach when directly in front of the wash basin.
15.17.	Provide mirror, with base installed at 900mm max. above FFL.
15.18.	1 x clothes hanging device to be installed between 1200-1350mm from FFL and at least 500mm from an internal corner.
15.19.	Door operation force to be lightweight (20N max.) suitable for people with disabilities.
15.20.	Door to include an in-use indicator and a bolt/catch that can be opened from outside in an emergency. If snib turn is used the handle to be 45mm min from centre.
15.21.	The baby change table cannot impede into required circulation space (when folded up). The top of table to be installed at 820mm height with 720mm min. under bench clearance above FFL, compliant with AS1428.1.
15.22.	Light switches to be installed between 900-1100mm above FFL and 500mm min. from internal corner.
15.23.	GPO's to be installed between 600-1100mm above FFL and 500mm min. from internal corner

15.24.	Rocker action/toggle type switches at least 30mm x 30mm dimensions are required to assist people with dexterity impairment.
16. Accessible Showers	
16.1.	Ensure all accessible showers have shower rail/curtain installed.
16.2.	Ensure the height of the top of shower seat to be between 470-480mm FFL.
16.3.	Provide a horizontal grab rail (660mm min), to be placed beneath the vertical shower support rail, between 390-400mm from side wall, installed between 800-810mm height from FFL.
16.4.	Provide vertical shower support rail to start between 1000-1100mm from FFL. The top of the shower support rail to finish between 1880-1900mm FFL. The rail to be placed between 580-600mm from the side wall.
16.5.	Ensure the shower taps and soap holders to be placed between 900-1100mm from FFL. Ensure the taps/soap holders are 50mm min. width from the shower support rail and no further away than 800mm from side wall.
16.6.	Ensure the height of the hose wall outlet to be 700mm height above FFL, compliant with AS1428.1 fig. 48 to ensure suitable hose length when showering. To also include suitable back-flow prevention device.
16.7.	The 2 x clothes hanging devices required outside the shower recess to be between 400-600mm length from the seat, installed between 1200-1350mm from FFL.
17. Ambulant Cubicles	
17.1.	Provide an ambulant cubicle for people with disabilities in male/female toilet banks, (adjacent to an accessible toilet facility) to satisfy the DDA Access Code.

17.2.	Provide minimum 900mm x 900mm circulation area between successive door swings in airlocks/vestibules on path of travel leading to ambulant toilets compliant with AS1428.1 fig. 34. 
17.3.	Provide minimum 900mm x 900mm circulation area outside the ambulant cubicles compliant with AS1428.1 fig. 53b.
17.4.	The cubicle to be between 900-920mm clear width with WC pan centred (i.e. 450-460mm set out).
17.5.	Ambulant cubicles to have 900mm x 900mm clear area in front of (standard projection from wall) WC pan and clear of door swing.
17.6.	Ensure ambulant cubicles have 700mm clear width cubicle door with 900mm x 900mm clear area outside the door.
17.7.	Ensure the height to top of pan seat to be between 460-480mm above FFL.
17.8.	Ambulant cubicle door needs in-use indicator and bolt/catch that is able to be opened from outside (in emergency). If snib catch used, the handle to be 45mm min. length from centre.
17.9.	Grabrails provided on both sides of cubicle at 800-810mm height (to top of grabrail) from FFL.
17.10.	Toilet roll holder to be placed at 700mm max. height from FFL and 300mm max. distance from front of pan on adjacent wall, no closer than 50mm to grabrails. The toilet roll holder type to have exposed toilet roll for ease of use.
17.11.	Clothes hook to be installed between 1350-1500mm from FFL on the back of door.

18. Hearing Augmentation	
18.1.	Provide hearing augmentation in the following areas if an inbuilt amplification system is installed (except one used for emergency warning systems only): Rooms in Class 9 buildings; Auditoriums, conference and meeting rooms.
18.2.	Hearing loops are required to at least 80% of floor area with inbuilt amplification system. These areas are required to be signed.
18.3.	For Class 9b buildings, any screen or scoreboard that can display public announcements, to be capable of supplementing the public address system (excluding emergency warning only).
19. Signage	
19.1.	All male, female and accessible toilet identification signs to include appropriate raised tactile pictogram, raised text (in title case) and Braille. The signage to be located on the wall, adjacent to latch side of door between 1200-1600mm height from FFL (with single lines of tactile text located between 1250-1350mm above FFL).
19.2.	Entry doors to airlocks to sanitary facilities also require raised tactile pictogram, raised text (in title case) and Braille to identify each sanitary facility within.
19.3.	Accessible toilet sign to include international symbol of access (wheelchair logo) in white on blue background, compliant with AS1428.1.

	Sign to also include 'LH' or 'RH' to indicate a left-hand or right-hand transfer onto toilet pan. Min. font size to be 20mm san serif, compliant with AS1428.1.
19.4.	All male and female ambulant cubicle signs to include appropriate raised tactile pictogram, raised text (in title case) and Braille. The signage to be located on the ambulant cubicle door between 1200-1600mm height from FFL (with single lines of tactile text located between 1250-1350mm above FFL).
19.5.	Provide directional signage, e.g. at any toilet banks (without accessible toilet) to show path of travel to nearest accessible toilet and/or at the non-accessible entry to show path of travel to the accessible entrance. The directional signage for these items to include: appropriate raised directional arrow, raised tactile pictogram, raised text (in title case) and Braille and international symbol of access, compliant with AS1428.1. The signage to be located on the wall, adjacent to latch side of door between 1200-1600mm height from FFL (with single lines of tactile text located between 1250-1350mm above FFL). If the sign can be temporarily obscured consideration for additional overhead directional signage located above 2m height (advisory).
19.6.	Ensure that all signage is designed to be detectable, with raised symbols, providing 30% luminance contrast with sign background that in turn contrasts with background wall surface.
19.7.	Areas with hearing augmentation require identification signs that include international symbol of hearing (ear logo) in white on blue background, compliant with AS1428.1 and appropriate raised tactile pictogram, raised text (in title case) and Braille. These are required: At doorway entrances to room (latch side of door between 1200-1600mm height from FFL) or if an open area suitably located to designate the area and;

	Within the room/area to identify the hearing augmentation system, the area covered and how to use and/or gain assistance.
20. Wheelchair Seating Spaces	
20.1.	Provide 3 wheelchair seating spaces (for up to 150 seats) and 1 additional space for each additional 50 seats or part thereof (from 150-800 seats).
20.2.	Ensure the grouping and location of all wheelchair seating spaces is in accordance with DDA Access Code Table D3.9.
20.3.	Ensure all wheelchair seating spaces are: Designed in accordance with AS1428.1 fig. 54; Adjacent to and on same level as other seating in the row; Connected on accessible path of travel to main entry, accessible toilet and common facilities, and; Equitably located with comparable sight lines and not obstructed by handrails/balustrades.
21. Car Parking	
21.1.	Provide 1% of total car bays to be designated as accessible car bays
21.2.	Accessible car bays (angle) to have 2400mm min. W x 5400mm min. L adjacent to shared zone with 2400mm min. W x 5400mm min. L with bollard installed at start of shared zone in accordance with AS2890.6 fig. 2.2 and 2.3.
21.3.	Ensure accessible car space and adjacent shared zone are at the same grade and no steeper than 1:40 (1:33 for external bitumen surfaces).

21.4.	Accessible car bays (parallel) to have 3200mm min. W x 7800mm min. L adjacent to shared zone with 1600mm min. W x 7800mm min. L in accordance with AS2890.6 fig. 2.4.
21.5.	Accessible car bays to be located adjacent to passenger lifts or building main entry points.
21.6.	All accessible car parking spaces (and shared zones) must have vertical clearance of not less than 2500mm, compliant with AS2890.6 fig. 2.7.
21.7.	The vertical clearance leading to the accessible car bays may not be less than 2200mm.
21.8.	Provide appropriate accessible car parking (wheelchair logo) signage on pavement and vertical signage to designate the area for people with disabilities. Sign to include “international access symbol ONLY”, compliant with AS2890.6 and AS1428.1.

Morris Goding
Access Consulting

Drawing Mark-Ups