



TENDER DOCUMENTATION

ACCESS REVIEW - CONCERT HALL



ABN 37 002 648 615



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Revision History:

REV	ISSUE DATE	REMARKS	AUTHORISED NAME / POSITION
-	10/12/2015	Access report prepared	Richard Seidman Director
A	11/02/2016	Access report prepared	Richard Seidman Director
B	15/04/2016	Access report prepared	Richard Seidman Director
C	1/06/2016	Access report prepared	Richard Seidman Director
D	17/09/2016	Access report prepared 50% DD stage	Richard Seidman Director
E	27/10/2017	Access report prepared 85% Tender stage	Richard Seidman Director
F	23/2/2018	Access report prepared 100% Tender stage	Richard Seidman Director
G	1/5/2018	Access report prepared Tender stage	Richard Seidman Director

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EXECUTIVE SUMMARY

This report is for the assessment of the Concert Hall portion of the Sydney Opera House Renewal Project to assess compliance with the provisions of the Disability Discrimination Act 1992, the Disability (Access to Premises – Buildings) Standard and the National Construction Code together with the relevant Australian Standards.

Concert Hall Projects

The projects covered by the Concert Hall redevelopment project include:

GF Mezzanine	Rehearsal rooms Lift access by existing Lifts 12 & 22
Level 1	Modifications to Training Room L1 TR.01 (lift 30) Modifications to Office L1 OF.02 (Lift 29) Dressing rooms L1.AM.04, L1.AM.07, L1.AM.10 Including Accessible WC Facilities Accessible WCs L1.AM.03, L1.AM.1553G/1 Access to assembly room (Performance Solution) WC upgrades Locker rooms
Level 2	Stairways Stage works Eastern Passage Stairways
Level 3	Entries to Concert Hall Accessible WC (Performance Solution)
Level 4	Accessible Seating

CONTINGENT PROJECTS

The Accessibility Master Plans nominates the following contingent projects

Project 39	New Entry Foyer (FOH Project)
Project 48	Northern Foyers access upgrade (East)

Reference Documents

This report is based on the tender architectural documentation prepared by ARM Architects for the Concert Hall refurbishment works.

A0340[F]	A4SANITARY FIXTURES & FITTINGS SCHEDULE
A1203[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - GROUND LEVEL +12
A1204[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - GROUND MEZZANINE +21
A1205[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - LEVEL 1 +30
A1206[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - LEVEL 2 +42
A1207[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - LEVEL 3 +51
A1208[F]	B1GENERAL ARRANGEMENT - FLOOR PLAN - LEVEL 4 +61
A3150[F]	B1SECTIONS – STAGE
A5010[F]	B1DETAIL AREAS - STAIRS - LEVEL 1
A5020[F]	B1DETAIL AREA - STAIRS - LEVEL 2
A5030[F]	B1DETAIL AREA - STAIRS - LEVEL 3
A5110[F]	B1DETAIL PLANS 1 - LIFT 29
A5111[F]	B1DETAIL PLANS 2 - LIFT 29
A5112[F]	B1DETAIL RCPS - LIFT 29
A5113[F]	B1DETAIL ELEVATIONS 1 - LIFT 29
A5114[F]	B1DETAIL ELEVATIONS 2 - LIFT 29
A5115[F]	B1DETAIL AREA - SECTIONS - LIFT 29
A5120[F]	B1DETAIL PLANS 1 - LIFT 30
A5121[F]	B1DETAIL PLANS 2 - LIFT 30
A5122[F]	B1DETAIL RCPS - LIFT 30
A5123[F]	B1DETAIL ELEVATIONS 1 - LIFT 30
A5124[F]	B1DETAIL ELEVATION 2 - LIFT 30
A5126[F]	B1DETAIL AREA - SECTIONS - LIFT 30
A5210[F]	B1DETAIL AREA - DRESSING ROOM 58 L1-02 - LEVEL 1 +30
A5211[F]	B1DETAIL AREA - MALE PERFORMER AMENITIES L1-AM-02 & UNISEX ACCESSIBLE WC L1-05
A5214[F]	B1DETAIL AREA - DRESSING ROOM 75 L1-AM-10, BATH L1-AM-11 & ACCESS BATH L1-AM-12 - LEVEL 1 +30
A5215[F]	B1DETAIL AREA - DRESSING ROOM 76 L1-AM-07 & ACCESS BATH L1-AM-08 - LEVEL 1 +30
A5220[F]	B1DETAIL AREA - AMENITIES - LEVEL 2
A5230[F]	B1DETAIL AREA - MALE ACCESS L3-01 & FEMALE ACCESS L3-02 - LEVEL 3 +51
A5300[F]	B1DETAIL AREA - REHEARSAL ROOM 1, 2 & STORE - GROUND MEZZANINE LEVEL +21



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A5310[F]	B1DETAIL PLAN - ORCHESTRA ASSEMBLY ROOM L1-OA-01 - LEVEL 1 +30
A5311[F]	B1DETAIL RCP - ORCHESTRA ASSEMBLY ROOM L1-OA-01 - LEVEL 1 +30
A5312[F]	B1INTERIOR ELEVATIONS 1 - ORCHESTRA ASSEMBLY ROOM L1-OA-01 - LEVEL 1 +30
A5313[F]	B1INTERIOR ELEVATIONS 2 - ORCHESTRA ASSEMBLY ROOM L1-OA-01 - LEVEL 1 +30
A5320[F]	B1DETAIL AREA - AUDITORIUM STAGE - LEVEL 2 +42
A5325[F]	B1DETAIL PLANS - EAST PASSAGEWAY - LEVEL 2 +42
A5326[F]	B1INTERIOR ELEVATIONS - EAST PASSAGEWAY - LEVEL 2 +42
A5327[F]	B1DETAIL SECTIONS - EAST PASSAGEWAY - LEVEL 2 +42
A5328[F]	B1DETAIL AREA - STALLS SEATING - LEVEL 2 +42
A5329[F]	B1DETAIL PLAN AND RCP - ACCESSIBLE THEATRE ENTRIES - LEVEL 2 +42
A5340[F]	B1DETAIL AREA - UPPER CIRCLE AND CHOIR STALLS SEATING
A5341[F]	B1DETAIL AREA - CIRCLE BOX SEATING - LEVEL 4
A5510[F]	B1DETAIL AREA - ENTRY L1 - PLATFORM LIFT 37 - LEVEL 1 +30
A5600[F]	B1DETAIL AREA - BALUSTRADES AND HANDRAILS 1 - NORTHERN FOYER
A5601[F]	B1DETAIL AREA - BALUSTRADES AND HANDRAILS 2 - NORTHERN FOYER
A5602[F]	B1DETAIL AREA - BALUSTRADES AND HANDRAILS 3 - EASTERN FOYER
A5603[F]	B1DETAIL AREA - BALUSTRADES AND HANDRAILS 4 - WESTERN FOYER
A5604[F]	B1DETAIL AREA - BALUSTRADE AND HANDRAILS 5 - CONCERT HALL
A6080[F]	B1CONSTRUCTION DETAILS - EAST PASSAGEWAY - PLAN DETAILS - SHEET 1
A6081[F]	B1CONSTRUCTION DETAILS - EAST PASSAGEWAY - PLAN DETAILS - SHEET 2
A6090[F]	B1CONSTRUCTION DETAILS - ACCESSIBLE THEATRE ENTRIES - SHEET 1
A6092[F]	B1CONSTRUCTION DETAILS - CONCERT HALL – ACCESSIBILITY
A6500[F]	B1CONSTRUCTION DETAILS - TYPICAL BOH HANDRAILS
A6600[F]	B1CONSTRUCTION DETAILS - TYPICAL DOOR PLAN DETAILS
A6601[F]	B1CONSTRUCTION DETAILS - TYPICAL DOOR SECTION DETAILS



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1. INTRODUCTION

The access review has been limited to the works associated with the Concert Hall project.

iAccess Consultants has participated in the Lead Consultant project meetings held fortnightly for the duration of the concept design phase providing input as requested by ARM Architecture.

The report prepared is based on a review of the documentation and the information provided by the client and is intended for their use only.

1.1. Current Legislation

The legislation addressing accessibility is documented in the following Act, Code and Standards:

- Disability Discrimination Act 1992
- Disability (Access to Premises - Buildings) Standards 2010
- National Construction Code (NCC 2016)
- AS1428.1:2009 Design for access and mobility - General requirements for access - New building work
- AS1428.2:1992 Design for access and mobility - Enhanced and additional requirements - Buildings and facilities
- AS1428.4.1:2009 Design for access and mobility - Means to assist the orientation of people with vision impairment - Tactile ground surface indicators
- AS1428.5:2010 Design for access and mobility - Communication for people who are deaf or hearing impaired
- AS1735.15:2002 Lifts, escalators and moving walks - Low rise passenger lifts - Non-automatically controlled
- AS1735.12:1999 Lifts, escalators and moving walks - Facilities for persons with disabilities
- HB198:2014 Guide to the specification and testing of slip resistance of pedestrian surfaces

1.2. Premises Standard

As of 1 May 2011, new buildings and existing buildings being refurbished have to comply with the Disability (Access to Premises – Building) Standards (“Premises Standards”) under the Commonwealth Disability Discrimination Act 1992.

The main requirement to come from the Premises Standard relates to the upgrading of the affected part, including the principal pedestrian entrance and the paths to the area of new works. The definition of affected part is limited to the area between (and including) the principal pedestrian entrance and the new work. This may include the requirement to upgrade the following existing areas:

- Entrances
- Accessible sanitary facilities.
- Lifts to upper storeys, either upgrade or provide lifts if they are not existing.
- Passing and turning spaces in corridors.

1.3. Assumptions

The Opera House relies on ongoing usher function to provide seating assistance for patrons to and within the Concert Hall.

The doors to the Concert Hall seating areas are operated by the ushers. As a result, there is no requirement to satisfy the latchside clearances to doors or the maximum 20N force requirement to operate these doors required by AS1428.1:2009.

In the event of an emergency the ushers will be responsible for providing assistance to those with mobility needs as part of the evacuation strategy.

1.4. Equitable Egress Strategy - NCC Clauses DP4 & DP6

The strategies for equitable egress to address compliance with the provisions of NCC Clauses DP4 & DP6 are being developed by ARUP.

For the purposes of our access assessment we have relied upon the Equitable Emergency Egress Report and the conclusions noted prepared by ARUP dated 29 April 2016.



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2. BUILDING RENEWAL DESCRIPTION

The overall project consists of a budget of \$202 million for the Stage 1 projects which are at the initial design phase. The Concert Hall represents only a portion of this proposed project budget.

The Concert Hall related works consist of:

- L1 - Extensive egress and access stair redesign, replacement and upgrades.
- L2 - Concert Hall Stage refurbishment including automated platform risers for the Orchestra members.
- L2 - Creation of accessible wheelchair paths of travel inclusive of extensive lift works and a tunnel cut into the existing Level 2 stairs connecting with the Northern Foyers,
- Refurbishment and extension to the above stage ceiling plant/access platform areas to create a new Tech Zone and allow for plant relocation.

This report is limited to a review of the Tender documentation for the Concert Hall projects only

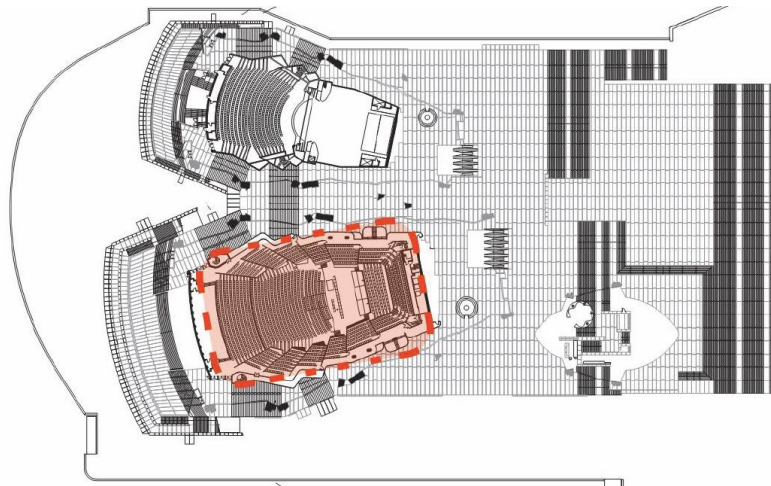


Figure 1 Location Plan - Concert Hall

2.1. Performance Solutions

This access report relies upon the following Performance Solutions to address alternative design solution to the deemed to satisfy approach. Please refer to the Performance Solutions Report prepared for the Concert Hall Project.

- Topic 3 Bronze Project – Handrail Heights
- Topic 4 Bronze Project – Handrail Details
- Topic 5 Access to Choir Stalls
- Topic 8 Ramps to Assembly Room – Concert Hall
- Topic 9 Junctions of Paving Materials Associated with the Forecourt
- Topic 11 Circulation to Wheelchair Locations within the Concert Hall
- Topic 12 Use of Threshold Ramps to Address Small Changes in Floor Levels
- Topic 14 Ambulant WC Facilities Located within USAT Facilities
- Topic 20 Handrail Terminations and TGSIs Associated with New Circulation Stairs



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2.2. Qualifications

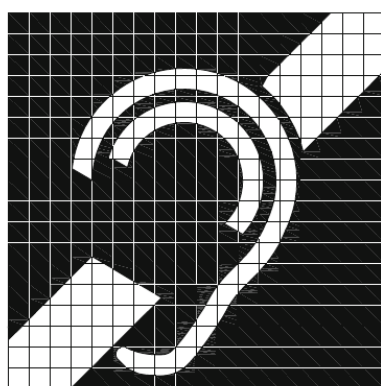
2.2.1. Hearing Augmentation

The specification of the hearing augmentation system within the Concert Hall is incorporated in to the electrical design.

The final installation will need to satisfy the requirements of NCC Clause D3.7 Hearing Augmentation as well as the requirements AS1428.5:2010 -Design for access and mobility - Communication for people who are deaf or hearing impaired.

Certification of the installation of the installed Hearing Augmentation System will need to be provided for the issue of the Installation Certificate associated with the Occupation Certificate.

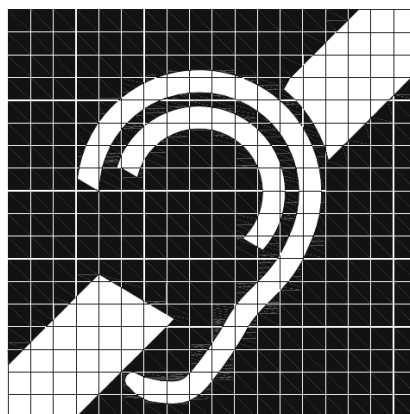
The following Braille Tactile Signage will need to be provided to identify locations where Hearing Augmentation systems have been installed.



This * is fitted with a frequency modulation (FM) assistive listening system.

To use this system, or to seek assistance, ask † for FM receiver, and use hearing aid T-switch if you have one.

**
††



This * is fitted with an Infra red (IR) assistive listening system.

To use this system, ask for IR receiver, and use hearing aid T-switch if you have one.

+

Examples of Braille Tactile Signage include:



The Australian Standard addressing design for access and mobility Clause 16 Symbols and Clause 17 Signs (AS1428.4.2:1992) specify the dimensions and placement of signage:

16.2 International symbol for deafness

The form of the international symbol for deafness shall be as follows:

- The symbol for deafness shall consist of two elements, viz. a stylized ear and diagonal slash on a plain square background.
- The proportional layout of the symbol for deafness shall be in accordance with Figure 19.
- The colour of the symbol shall be white on a blue background. The blue shall be B21, Ultra Marine of AS 2700 or similar.

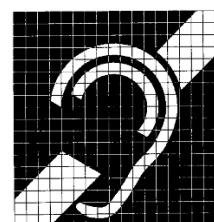


FIGURE 19 PROPORTIONAL LAYOUT FOR INTERNATIONAL SYMBOL FOR DEAFNESS

16.3 Size of international symbols for access and deafness access.

The size of the international symbols for access and deafness access shall be not less than that given in Table 1 following.



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TABLE 1
SIZE OF INTERNATIONAL SYMBOLS FOR
ACCESS AND DEAFNESS FOR VARYING
VIEWING DISTANCES

Required viewing distance m	Minimum size of symbol mm
≤7	≥ (60 x 60)
>7 ≤18	≥ (110 x 110)
>18	≥ (200 x 200)
	≥ (450 x 450)

17.2 Height of letters in signs

The height of letters in signs shall be not less than that given in Table 2 following.

TABLE 2
HEIGHT OF LETTERS FOR VARYING
VIEWING DISTANCES

Required viewing distance m	Minimum height of letters* mm
2	6
4	12
6	20
8	25
12	40
15	50
25	80
35	100
40	130
50	150

17.3 Illumination of signs

Illumination of signs shall be provided in accordance with Clause 19 for general displays.

Lighting shall be placed so that unwanted reflections shall not occur on the sign.

The luminance factor of the surface of numbers, letters or symbols shall be not less than 0.3 (30 percent) different from their background.

17.4 Location of signs

Signs including symbols, numbering and lettering shall be located so that the line of Braille is 1250mm AFFL.

Braille shall be Unified English Braille (UEB), Grade 1, uncontracted, and shall be in accordance with the technical specifications set out by the Australian Braille Authority (ABA).

2.2.2. Public Announcements

It is assumed that the existing network of monitors within the environs of the Concert Hall can be expanded to incorporate emergency warning notifications in addition to the audible warning announcements.

2.2.3. Luminous Contrast (Stairs and doorways)

The assessment of luminous contrast to doorways and stairways has yet to be finalised.

2.2.4. Vertical Transport

It is assumed that the new vertical transport systems to be introduced will satisfy the requirements of AS1735.12 and AS1735.15.



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3. Summary of Compliance

The following table provides a summary of compliance of the design as submitted with the provisions of the National Construction Code 2016.

NCC Clause	Status	Comment
D3.1 General building access requirements	Satisfied	
D3.2 Access to buildings	Satisfied	
D3.3 Parts of buildings to be accessible	Satisfied	
D3.4 Exemptions	Provisions apply	The concessional provisions of NCC Clause D3.4 apply to plant rooms, store rooms and the like.
D3.5 Accessible carparking	Not Applicable	
D3.6 Signage	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
D3.7 Hearing augmentation	Satisfied	The Electrical specification has incorporated the provision of hearing augmentation systems to locations where built in amplification systems are provided.
D3.8 Tactile indicators	Not Applicable	A Performance Solution has been prepared appropriating the use of Dome Buttons to the handrails to stairs and ramps require ring handrails.
D3.9 Wheelchair seating spaces in Class 9b assembly buildings	Satisfied	Please refer to the Performance Solutions prepared addressing this topic.
D3.10 Swimming pools	Not Applicable	
D3.11 Ramps	Satisfied	Please refer to the Performance Solutions prepared addressing this topic.
D3.12 Glazing on an accessway	Not Applicable	
E3.6 Passenger lifts	Information to be provided	Details and shop drawings of the lift installation will need to be provided as part of the detailed construction drawings. We will be reliant on the certification of the Lift manufacturer for compliance with this clause and the provisions of AS1735.12.
Table E3.6b APPLICATION OF FEATURES TO PASSENGER LIFTS	Information to be provided	Details and shop drawings of the lift installation will need to be provided as part of the detailed construction drawings. We will be reliant on the certification of the Lift manufacturer for compliance with this clause and the provisions of AS1735.12.
Specification D3.6	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
Specification D3.10	Not Applicable	

NCC Clause	Status	Comment
Specification E3.1	Information to be provided	Details and shop drawings of the lift installation will need to be provided as part of the detailed construction drawings. We will be reliant on the certification of the Lift manufacturer for compliance with this clause and the provisions of AS1735.12.
F2.4 Accessible sanitary facilities	Satisfied	Please refer to the Performance Solutions prepared for the incorporation of fold down grab rails in accessible WC facilities to address ambulant requirements.
Table F2.4(a) ACCESSIBLE UNISEX SANITARY COMPARTMENTS	Satisfied	
Table F2.4(b) ACCESSIBLE UNISEX SHOWERS	Satisfied	

The following table provides a summary of compliance of the design as submitted with the provisions of Australian Standard AS1428.1:2009.

AS1428.1:2009 Clause	Status	Comment
6 CONTINUOUS ACCESSIBLE PATHS OF TRAVEL	Satisfied	
6.1 General	Satisfied	
6.2 Heights of a continuous accessible path of travel	Satisfied	
6.3 Width of a continuous accessible path of travel	Satisfied	
6.4 Passing space for wheelchairs	Satisfied	
6.5 Circulation space for wheelchair turn	Satisfied	
6.6 Visual indicators on glazing	Not Applicable	
7 FLOOR OR GROUND SURFACES ON CONTINUOUS ACCESSIBLE PATHS OF TRAVEL AND CIRCULATION SPACES	Satisfied	
7.1 General	Satisfied	
7.2 Construction tolerances for abutment of surfaces	Satisfied	
7.3 Changes in level	Satisfied	
7.4 Fixed or recessed floor coverings—Soft floor coverings	Satisfied	
7.4.1 Carpets and other soft flexible materials	Satisfied	
7.4.2 Recessed matting	Satisfied	
7.5 Grates	Not Applicable	



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AS1428.1:2009 Clause	Status	Comment
8 SIGNAGE	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
8.1 Form of signs	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
8.2 Symbols indicating access for people with disabilities	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
8.2.1 International symbol of access	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
8.2.2 International symbol for deafness	Information to be provided	Details of the signage package will need to be provided as part of the detailed construction documentation
9 TACTILE GROUND SURFACE INDICATORS (TGSIs)	Not Applicable	
10 WALKWAYS, RAMPS AND LANDINGS		
10.1 General	Information to be provided	
10.2 Walkways	Information to be provided	Details will need to be provided as part of the detailed construction documentation
10.3 Ramps	Satisfied	The ramps accessing the Orchestra Assembly Room are addressed by way of a Performance Solution.
10.4 Curved walkways, ramps, and landings	Not Applicable	
10.5 Threshold ramps	Information to be provided	The plans do not nominate the provision of any threshold ramps. It is likely that with the completion of the works that some threshold ramps will be required.
10.6 Step ramps	Satisfied	
10.7 Kerb ramps	Not Applicable	
10.8 Landings	Satisfied	
10.8.1 Walkways and ramps	Satisfied	
10.8.2 Step ramps	Satisfied	
10.8.3 Kerb ramps	Not Applicable	
11 STAIRWAYS	Satisfied	
11.1 Stair construction	Satisfied	
11.2 Stairway handrails	Satisfied	
12 HANDRAILS	Satisfied	
13 DOORWAYS, DOORS AND CIRCULATION SPACE AT DOORWAYS	Satisfied	

AS1428.1:2009 Clause	Status	Comment
13.1 Luminance contrast	Information to be provided	
13.2 Clear opening of doorways	Satisfied	
13.3 Circulation spaces at doorways on a continuous accessible path of travel	Satisfied	
13.3.1 General	Satisfied	
13.3.2 Swinging doors	Satisfied	The latch side
13.3.3 Sliding doors	Not Applicable	
13.3.3.1 General	Satisfied	
13.3.3.2 Cavity sliding doors	Not Applicable	
13.3.3.3 Surface-mounted doors	Not Applicable	
13.3.4 Power operated doors	Not Applicable	
13.4 Distance between successive doorways in passages in an accessible path of travel	Not Applicable	
13.5 Door controls	Not Applicable	
13.5.1 General	Not Applicable	
13.5.2 Design and performance	Not Applicable	
13.5.3 Location	Not Applicable	
13.5.4 Power-operated door controls	Not Applicable	
14 SWITCHES AND GENERAL PURPOSE OUTLETS (POWER POINTS)	Information to be provided	
14.1 General	Information to be provided	
14.2 Accessible sole-occupancy units and accessible sanitary facilities	Information to be provided	
15 SANITARY FACILITIES		
15.1 General	Satisfied	
15.2 Accessible unisex sanitary facilities	Satisfied	
15.2.1 Water taps	Satisfied	
15.2.2 WC pan clearances	Satisfied	
15.2.3 Seat	Satisfied	
15.2.4 Backrest	Satisfied	
15.2.5 Flushing control	Satisfied	
15.2.6 Toilet paper dispenser	Satisfied	
15.2.7 Grabrails	Satisfied	
15.2.8 Circulation space	Satisfied	
15.2.8.1 General	Satisfied	



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AS1428.1:2009 Clause	Status	Comment
15.2.8.2 Baby change tables	Satisfied	
15.2.9 WC doors	Satisfied	
15.2.10 Washbasins for unisex accessible sanitary facilities	Satisfied	
15.3 Washbasins	Satisfied	
15.3.1 General	Satisfied	
15.3.2 Accessible sole occupancy units	Not Applicable	
15.4 Fixtures and fittings within a sanitary facility	Satisfied	
15.4.1 Mirrors	Satisfied	
15.4.2 Shelves	Satisfied	
15.4.3 Soap dispensers, towel dispensers and similar fittings	Satisfied	
15.4.4 Clothes-hanging devices	Satisfied	
15.4.5 Sanitary disposal unit	Not Applicable	
15.5 Showers	Satisfied	
15.5.1 General	Satisfied	
15.5.2 Floor and waste outlet	Information to be provided	The plans do not dimension the location of the floor waste to the shower
15.5.3 Opening shower screens	Not Applicable	Shower curtain used
15.5.4 Grabrails	Satisfied	
15.5.5 Shower head support grabrail	Satisfied	
15.5.6 Shower head	Satisfied	
15.5.7 Soap holder	Satisfied	
15.5.8 Taps	Satisfied	
15.5.9 Folding seat	Satisfied	
15.5.10 Clothes hanging devices	Satisfied	
15.6 Circulation spaces in accessible sanitary facilities	Satisfied	
16 SANITARY COMPARTMENTS FOR PEOPLE WITH AMBULANT DISABILITIES	Satisfied	A performance Solution has been prepared incorporating a fold down grabrail within the USAT to address the requirement for the provision of ambulant WC facilities
16.1 General	Not Applicable	
16.2 Grabrails	Not Applicable	
16.3 Doors	Not Applicable	
16.5 Coat hook	Not Applicable	
17 GRABRAILS	Not Applicable	

AS1428.1:2009 Clause	Status	Comment
18 ASSEMBLY BUILDINGS	Satisfied	The plans prepare indicate the ability to provide 34 Accessible seating locations.



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4. VERTICAL TRANSPORT - GENERAL

The design proposes the installation lifts and platform lifts in the following locations”

- Lift 29 located on the western side of the Concert hall connecting the Caves Level (Level 2) with the Granit Level (Level 4)
- Lift 30 located on the eastern side of the Concert hall connecting the Caves Level (Level 2) with the Granit Level (Level 4)
- A low-rise platform lift located in the BOH area to connect the Ballet Rehearsal Room to the western BOH corridor

The technical specification for the modifications to the existing lifts or the insertion of new lifts is addressed as part of the NDY specifications.

In order to satisfy the requirements of the National Construction Code the minimum lift car size for lifts that travel less than 12 m is 1100 x 1400 mm. The minimum lift car size for lifts travelling more than 12 m is 1400 x 1600 mm. The detailing of the access requirements of the lift cars is to satisfy the requirements of AS1735.12.

The sizing of the lift cars will be determined by the Lift Engineer and will incorporate the spatial requirements required by the National Construction Code such as stretcher facilities.

4.1. Vertical Transport – Northern Foyer

The design proposes the provision of two new lifts (Nos 29 & 30) located within the Northern Foyer. These lifts connect the Caves Level (Level 2) with the Granit Level (Level 4).

The travel distance of Lifts 29 & 30 is 7.41m. As the travel distance is less than 12m the minimum lift car dimension will need to be 1100 x 1400 mm. The detailing of the access requirements for the lifts will need to satisfy AS1735.12.

Shop drawings for each of the lifts will need to be provided so that an assessment of compliance with the requirements of AS1735.12 can be undertaken.

The following plans detailing the works associated with the Lift 29 and 30 installations are not dimensioned. We cannot confirm from the architectural documents that the minimum lift car dimensions have been satisfied. Our access assessment will be reliant on the certification of the Vertical Transport engineer.

- A5110[F]-B1~DETAIL PLANS 1 - LIFT 29
- A5111[F]-B1~DETAIL PLANS 2 - LIFT 29
- A5113[F]-B1~DETAIL ELEVATIONS 1 - LIFT 29
- A5114[F]-B1~DETAIL ELEVATIONS 2 - LIFT 29
- A5115[F]-B1~DETAIL AREA - SECTIONS - LIFT 29
- A5120[F]-B1~DETAIL PLANS 1 - LIFT 30
- A5121[F]-B1~DETAIL PLANS 2 - LIFT 30
- A5123[F]-B1~DETAIL ELEVATIONS 1 - LIFT 30
- A5124[F]-B1~DETAIL ELEVATION 2 - LIFT 30
- A5126[F]-B1~DETAIL AREA - SECTIONS - LIFT 30

The detail drawings provide information as to the setout of the lobby call buttons and lanterns. The architectural detail provided does not indicate any installation height information. The location of the lobby call buttons and lanterns will need to satisfy the requirements of AS1735.12. The following is an extract from The Standard indicating installation heights to be achieved.



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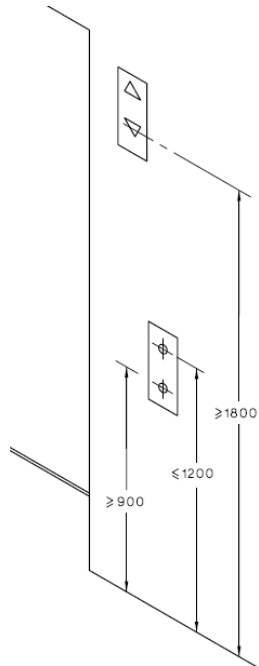


Figure 2 Extract from AS1735.12 indicating installation heights for lobby call buttons and lanterns.

Specific attention is directed to the following accessibility requirements for lift installations:

- Any carpet shall have a pile length above the carpet substrate of not more than 6 mm.
- The minimum clear width of car door openings shall be not less than 900 mm.
- A handrail shall be provided, which shall have a length of not less than 600 mm. The cross-section of handrails shall be circular for not less than 270° around the uppermost surface, with a diameter of not less than 30 mm or more than 50 mm.
- Control buttons shall contrast with their surrounding surface by one of the following means:

- (a) Continuous illumination from within the button.
 - (b) A coloured border on or around the button. Such coloured identification shall be at least 3 mm wide around the button, or the button shall be in contrast to the surrounding area, with a luminance factor of not less than 0.3, in contrast to that of the background.
- Control buttons except the stop button and the communication button, shall be identified by—
 - (a) contrasting characters not less than 10 mm high and Braille equivalent, adjacent to or on the button; and
 - (b) tactile characters not less than 12 mm high adjacent to or on the button.
 - Security or access control buttons will need to be located between 700-1250mm AFFL
 - Audible, Visible and Tactile information will need to satisfy the requirements of Section 8 of AS1735.12
 - Communication systems will need to be provided in accordance with the requirements of Section 9 of AS1735.12.
 - Lighting levels will need to satisfy the requirements of AS1680. A minimum lighting level of 100lx will need to be achieved at the floor level of the lift car.
 - The light level on the lift car buttons/controls will need to achieve a minimum 50lx



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4.2. Vertical Transport –Platform lift 37

A platform lift is proposed to connect the Ballet Rehearsal Room to the western BOH corridor. The change in level is approx. 1200mm. NCC Table E3.6(a) indicates the limitations on the types of passenger lifts.

As the change in level is more than 1m an AS1735.15 lift for persons with limited mobility will need to be installed. This lift can be the unenclosed type as the travel distance is less than 2m.

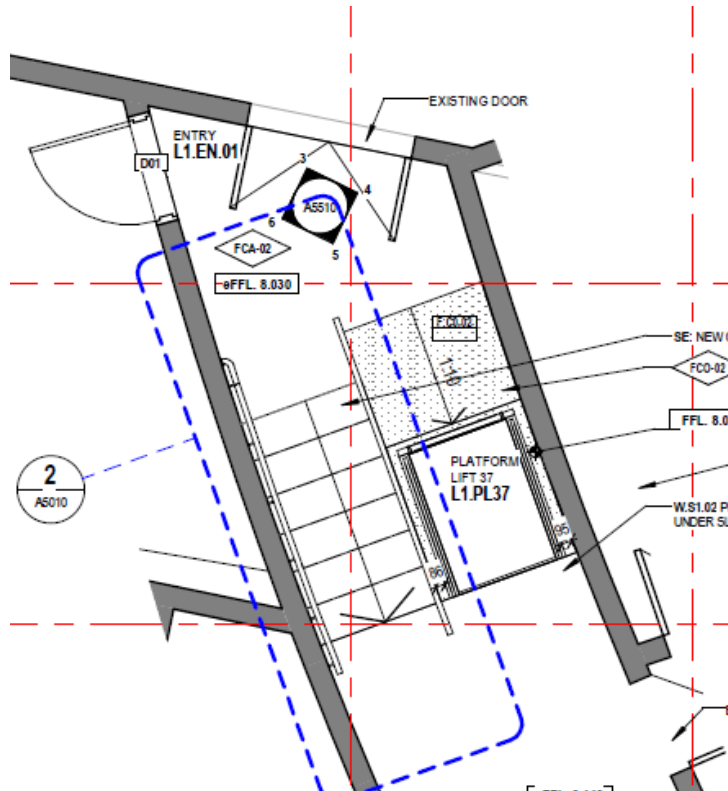


Figure 3 Extract from L1 Plan – existing Ballet Rehearsal Room

The features of this lift include:

- 1100 x 1400mm lift floor,
- handrails to AS1735.12
- Lift landing door to the upper level
- Lift landing and control buttons to AS1735.12

Details of the Platform Lift have been provided on drawing A5510[F]-B1~DETAIL AREA - ENTRY L1 - PLATFORM LIFT 37 - LEVEL 1 +30

The dimensions noted on Detail 5 of drawing A5510 will need to be revised to ensure that the platform lift has a minimum floor dimension of 1100 x 1400mm.

Detail shop drawings will need to be provided from the manufacturer to confirm compliance with the requirements of AS1735.15.

Certification from the manufacturer indicating compliance with the provisions of AS1735.15 will need to be provided as part of the documentation required for the issue of the Construction Certificate.

The image following provides an indication of this type of lift.



Figure 4 Example of AS1735.15 lift for persons with limited mobility



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5. ACCESS – REHEARSAL ROOMS (+021 MEZZANINE)

Two (2) new rehearsal rooms are proposed to be constructed on the mezzanine located adjacent to “The Studio”.

Accessible access to this level is provided by the existing Lifts 12 and 22.

The works when constructed will need to incorporate the following access requirements.

- The minimum clear width of the corridor adjacent to D01 of room GM.RR.01 will need to be not less than 1240mm clear between finishes.
- The door to room GM.RR.02 will need to be positioned in the wall to provide the minimum 530mm required latchside clearances between the door and the acoustic reflector and the door and the existing wall on the corridor side of the room.
- The doors to rooms GM.RR.01 and GM.RR.02 will need to achieve the required 30% luminance contrast between the wall and door to both sides of the doors.
- The doors to rooms GM.RR.01 and GM.RR.02 if fitted with door closers will need to be able to be operated with a maximum 20N force.
- The door hardware to both doorways will need to be located between 900-1100mm AFFL.
- The door threshold detail at both doorways is to be level (3mm max junction between floor finishes)
- If a built-in amplification system is provided to the Rehearsal Room, then a Hearing Augmentation System will need to be provided compliant to the provisions of NCC Clause D3.7 and AS1428.5:2010 will need to be provided.

The Store Room GM.ST.01 is not required to be accessible applying the concessional provisions of NCC Clause D3.4.

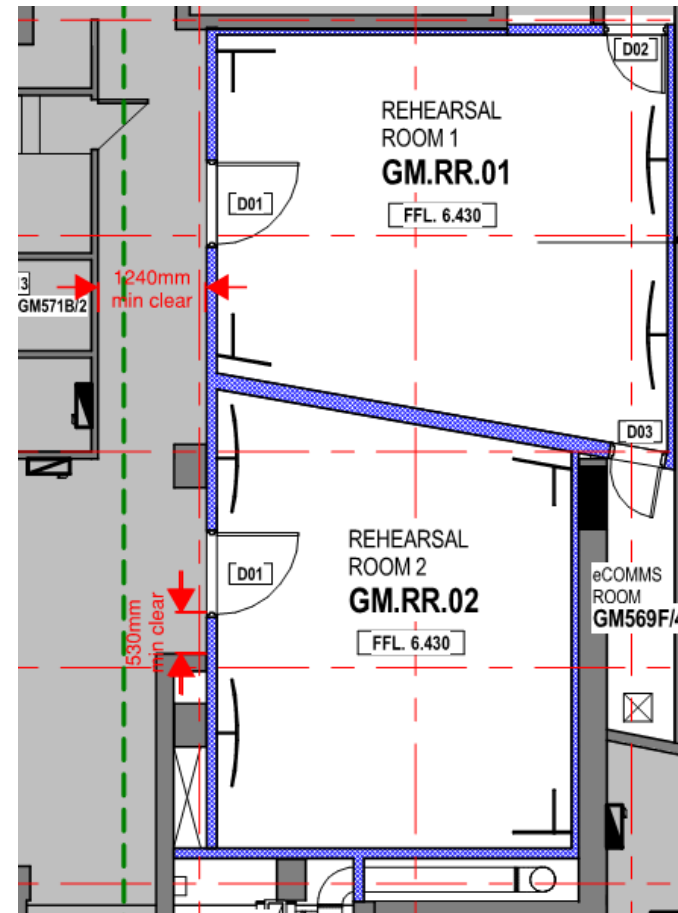


Figure 5 Extract from the plan indicating minimum clearances to be achieved.



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6. DRESSING ROOMS +030 Level 1

The design proposes changes to the following dressing rooms.

- Dressing Room 58 L1.AM.04
- Dressing Room 76 L1.AM.07
- Dressing Room 75 L1.AM.10

Accessible access has been provided to and within these rooms.



Figure 6 Extract from L1 Plan indicating the Dressings Rooms to be modified

6.1. Accessible Ensuite – L1.AM.05

The details for the layout of this accessible WC facility are nominated on drawing A5210[F]-B1~DETAIL AREA - DRESSING ROOM 58 L1-02 - LEVEL 1 +30.

The drawing provided is not dimensioned. The extract from the plan following indicates the minimum clear internal dimensions of this accessible WC facility to be achieved. The dimensions noted are the minimum clear internal dimensions between wall finishes.

The internal layout of the accessible WC and Shower will need to satisfy the minimum requirements nominated at Clause 15 of AS1428.1:2009.

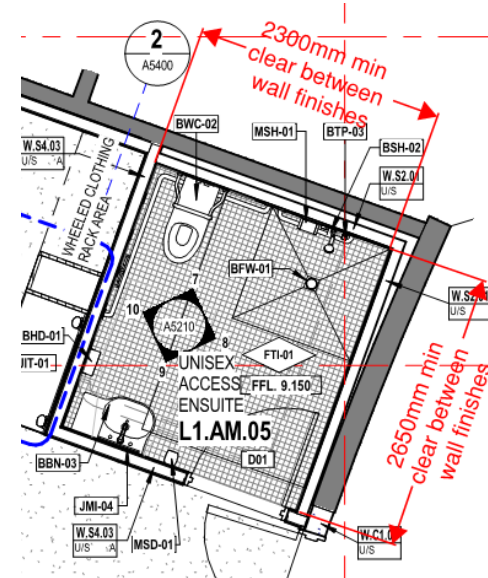


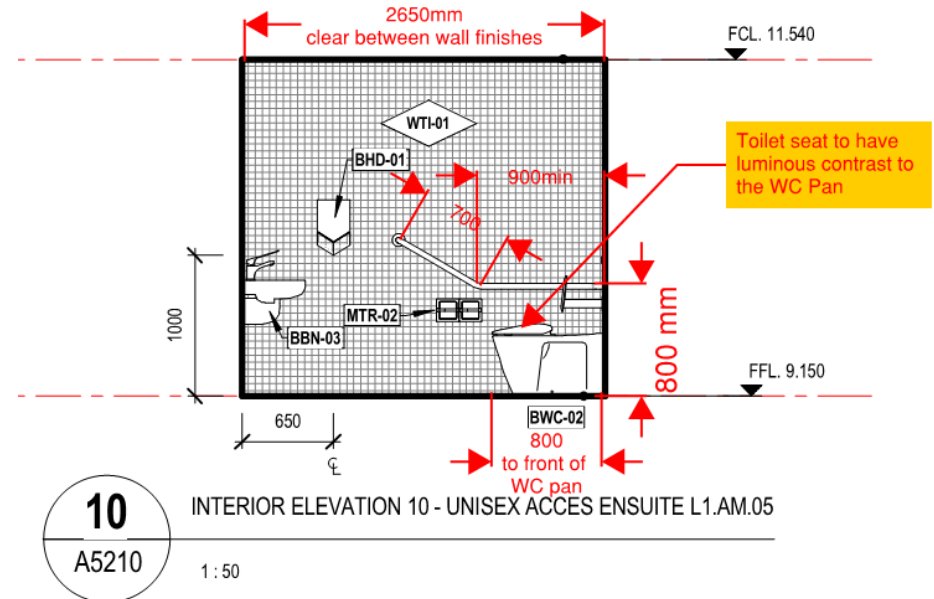
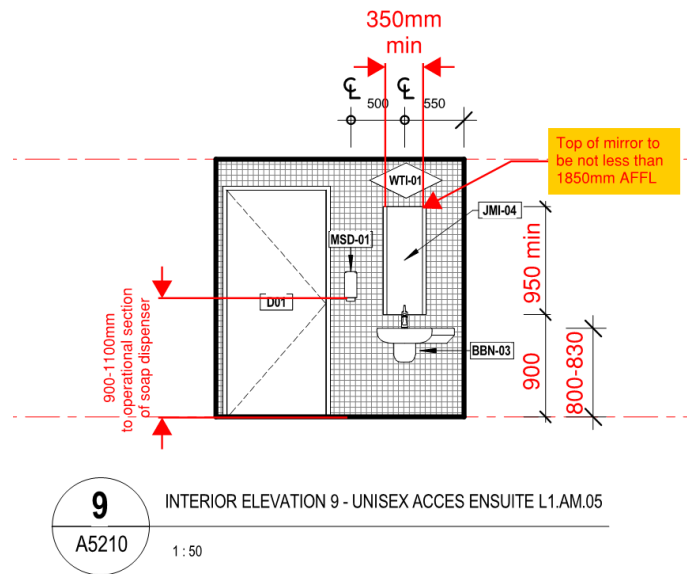
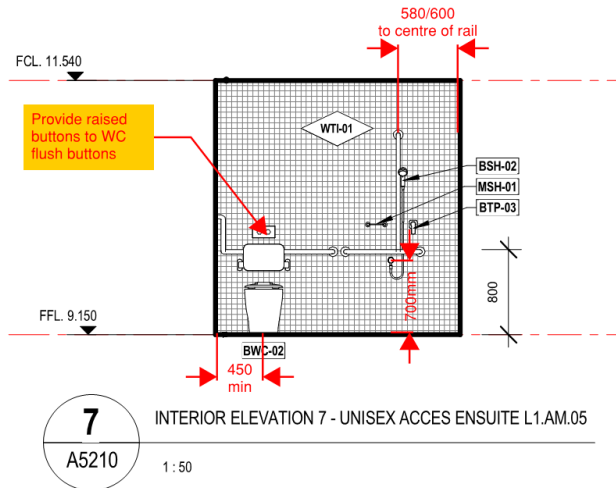
Figure 7 Extract from the L1 Plan indicating the minimum clear internal dimensions of the accessible WC to be achieved.

The following markups of the plan indicate the minimum requirements to be achieved in the setting out of the fixtures of this accessible WC.



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6.2. Accessible Ensuite – L1.AM.12

The details for the layout of this accessible WC facility are nominated on drawing A5214[F]-B1-DETAIL AREA - DRESSING ROOM 75 L1-AM-10, BATH L1-AM-11 & ACCESS BATH L1-AM-12 - LEVEL 1 +30

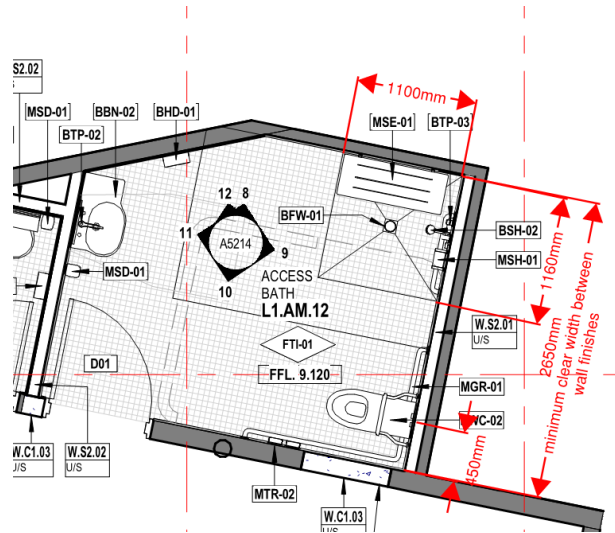
The drawing provided is not dimensioned. The extract from the plan following indicates the minimum clear internal dimensions of this accessible WC facility to be achieved. The dimensions noted are the minimum clear internal dimensions between wall finishes.

The internal layout of the accessible WC and Shower will need to satisfy the minimum requirements nominated at Clause 15 of AS1428.1:2009.

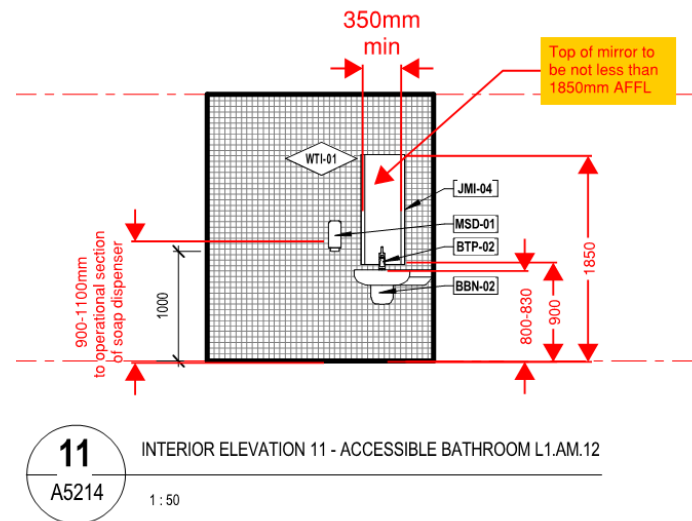
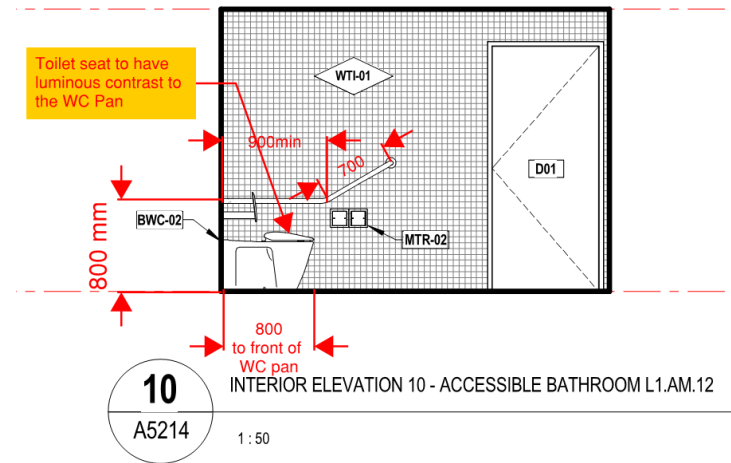
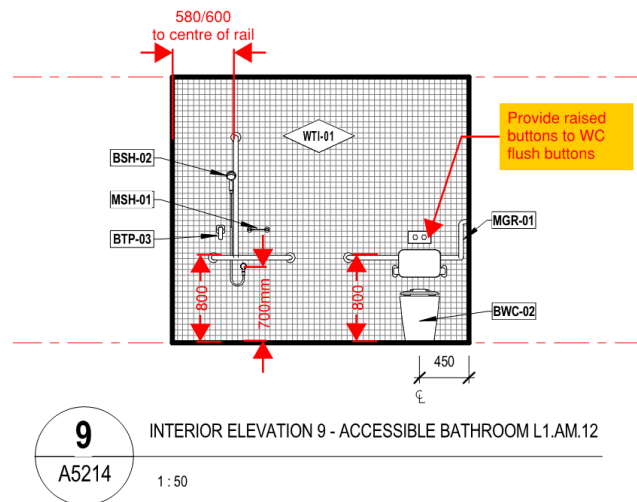


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The following markups of the plan indicate the minimum requirements to be achieved in the setting out of the fixtures of this accessible WC.





TENDER DOCUMENTATION

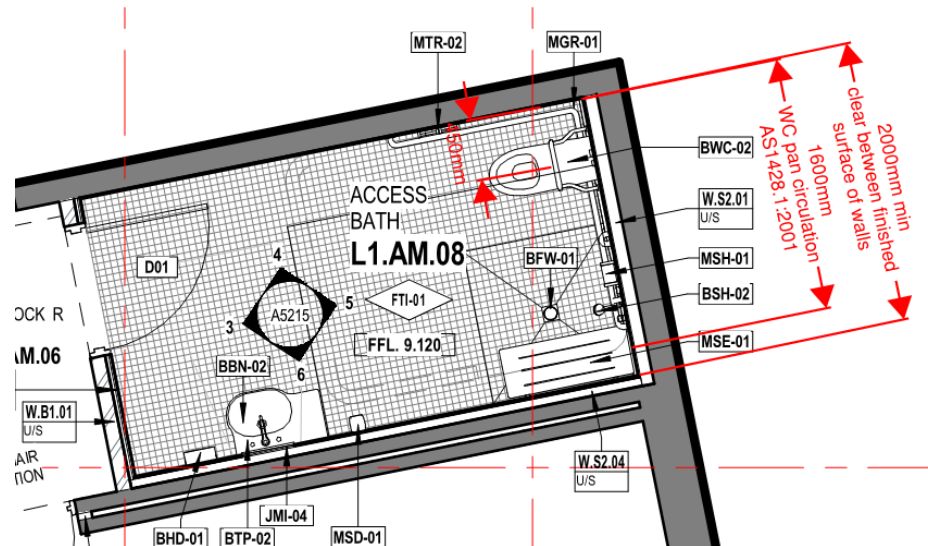
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6.3. Accessible Ensuite – L1.AM.08

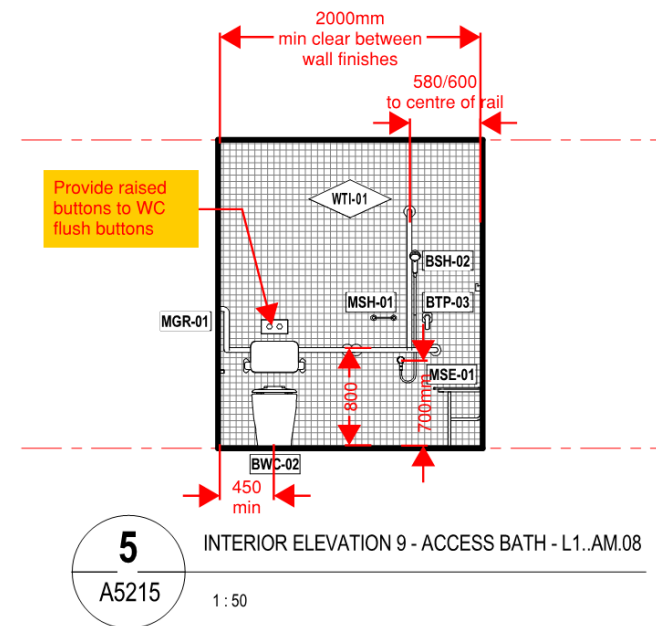
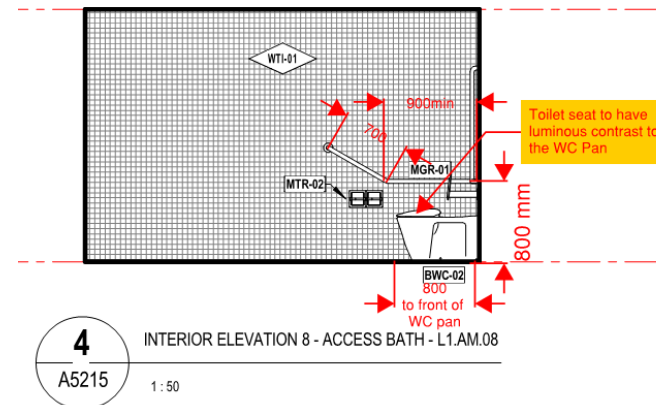
The details for the layout of this accessible WC facility are nominated on drawing A5215[F]-B1~DETAIL AREA - DRESSING ROOM 76 L1-AM-07 & ACCESS BATH L1-AM-08 - LEVEL 1 +30

The works proposed to this ensuite relate to the refurbishment of an existing ensuite. The concessional provisions noted at Clause 4.5 – Toilet Concession of the disability (Access to Premises – Building) Standard have been applied to the spatial arrangements of this accessible WC facility.

The drawing provided is not dimensioned. The extract from the plan following indicates the minimum clear internal dimensions of this accessible WC facility to be achieved. The dimensions noted are the minimum clear internal dimensions between wall finishes.



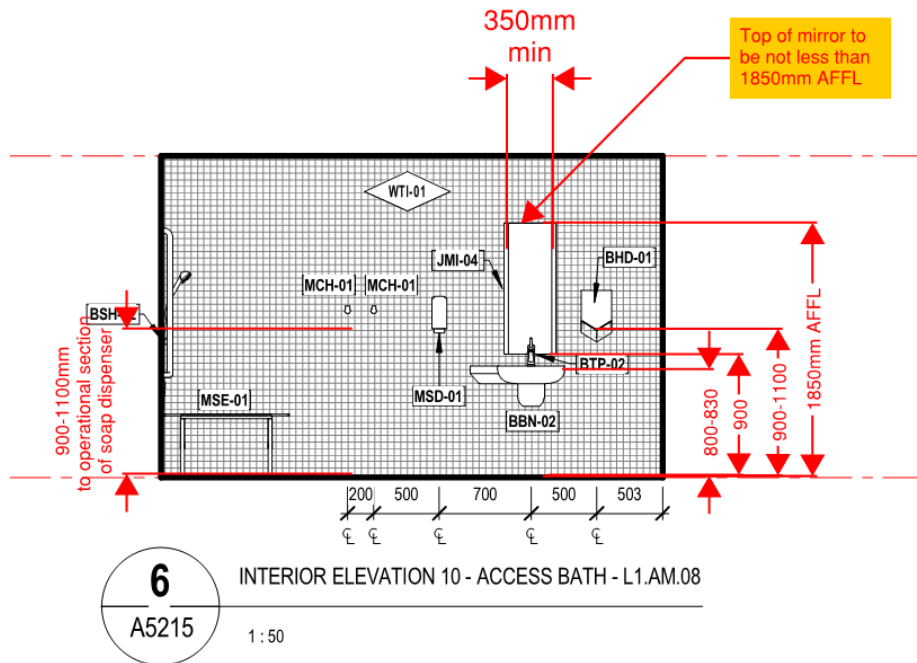
The internal layout of the accessible WC and Shower will need to satisfy the minimum requirements nominated at Clause 15 of AS1428.1:2009.





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7. OFFICE L1.TR.01 +030 Level 1

The documentation proposes a new office at this level.

The handing of the door will need to be reversed to provide compliant latchside clearances to satisfy the requirements of Clause 13.3 of AS1428.1:2009.

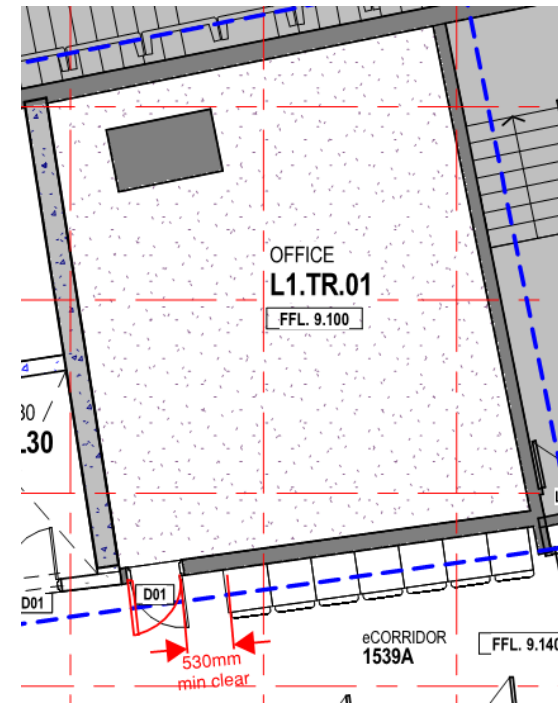


Figure 8 Extract from L1 Plan



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8. ACCESSIBLE RAMP +030 Level 1

The plan proposes to retain the existing two ramps connecting Corridor L1.CO.1539D/2 and Lobby 1552D to the Orchestra Assembly Room.

The gradients of both these ramps are 1:12 and 1:11 respectively.

A Performance Solution has been prepared to address the increased gradients of both these ramps

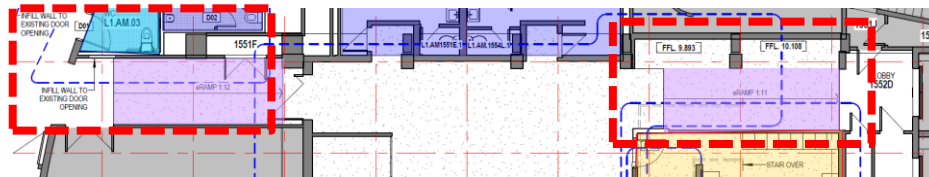


Figure 9 Location of 1:11 Ramp to Orchestra Assembly Room

9. CONCERT HALL STAGE (+042 LEVEL 2)

The stage and back of house levels are modified by these works to provide step free access to the stage.

9.1. CONCERT HALL ENTRY (+042 LEVEL 2)

As part of these works the width of the existing patron access to the Concert Hall at Level 2 is reduced to increase the available area on either side of the stage.

The doors to the Concert Hall are managed by ushers removing the need for patrons to independently operate the doors to the Concert Hall.

To address the change in levels between the Foyer areas and the entries to the Concert Hall 1:11 step ramps have been provided. The available area precludes the provision of a 1450mm landing zone immediately in front of the doors to the Concert Hall. When performances are not in progress the doors to the Concert Hall are locked. Access to the theatre is by arrangement. Visitors are escorted by Opera House personnel. The requirement for wheelchair patrons or visitors to the Opera House to

independently operate the doors to the concert Hall is not applicable in this instance. Prior and post performances the doors to the Concert Hall are opened by the Staff thereby negating the need for the horizontal circulation zones at the doors. The zone immediately within the theatre is level and acts as the landing at the top of the step ramp.

The provisions of NCC Clause D3.11 indicates that the landings for a step ramp must not overlap a landing for another step ramp or ramp. The extract from the plan following indicates that there is a slight overlap of parts of the landings associated with the step ramps entering the Concert Hall. It is not considered that the extent of the overlap is significant. It is considered that the requirement of NCC Clause D3.11 are satisfied by this design.

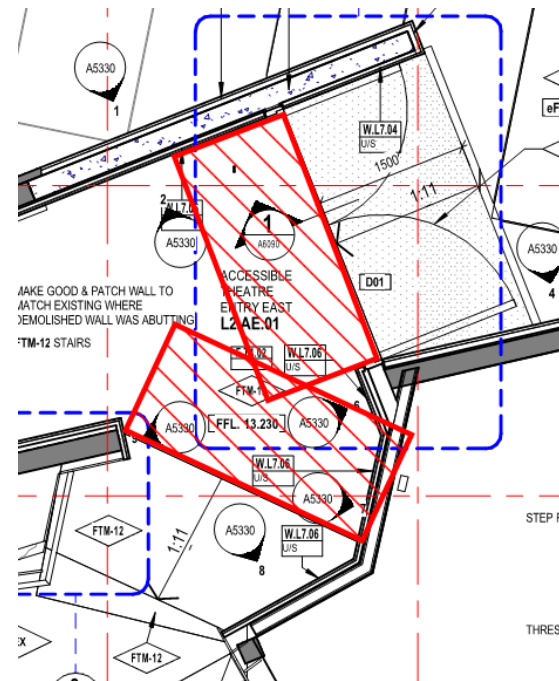


Figure 10 Extract from the plan indicating the step transitions at the entrance to the Concert Hall.



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9.2. CONCERT HALL STAGE MODIFICATIONS (+042 LEVEL 2)

The options for the new stage design include for the ability for a flat stage as well as tiered platform configuration. In the tiered arrangement accessible access is provided to the stage and the at-grade bottom platform only.

The revised seating arrangement provides for a total of 16 wheelchair seating positions within the area of Rows D & E.

As part of this development accessible access to the choir stalls located to the south of the stage is provided by the nomination of a chorister's zone at the rear of the stage. A Performance Solution has been prepared addressing this approach.

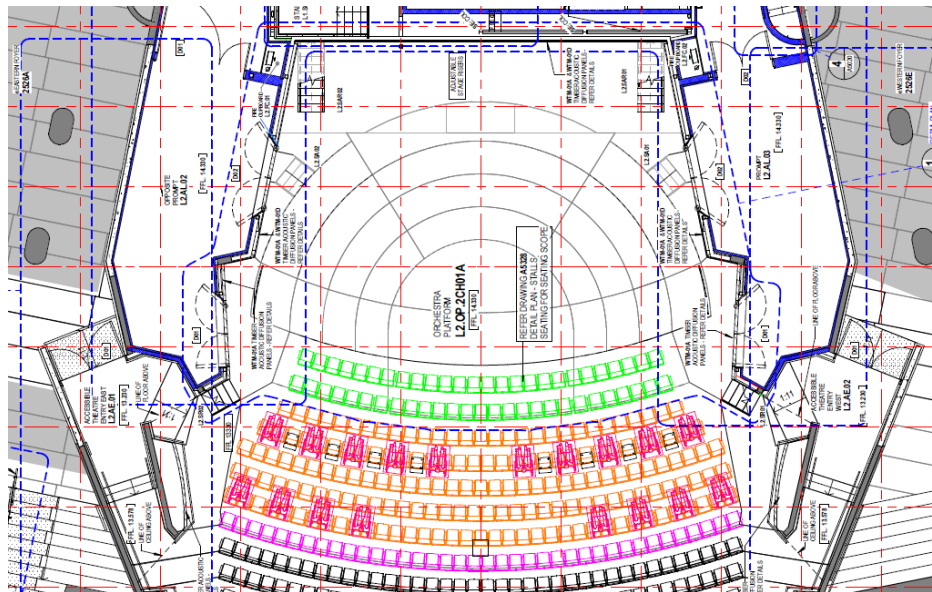


Figure 11 Extract of the seating plan indicating location of wheelchair seating adjacent to the stage and the various access point to the Concert Hall

10. LINK TO NORTHERN FOYER (+042 LEVEL 2)

A link from the eastern foyer to the East Caves is proposed.

There is no link on the western side of the Concert Hall.

The minimum clear height within the passage is to be not less than 2m.

The design as proposed satisfies requirements of Clause 10.2 of AS1428.1:2009.



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11. Stairways

The Concert Hall project includes works to the following stairways.

1. Stair L1.S01
2. Stair L1.S02
3. Stair L2.S01
4. Stair L2.S02
5. Stair L2.S90A
6. Stair L3.S01
7. Stair L3.S02
8. Removable Stair L2.SR01
9. Removable Stair L2.SR02
10. Automated Stair L2.SA01
11. Automated Stair L2.SA02

The following drawings detail the respective stairs:

- A5010[F]-B1~DETAIL AREAS - STAIRS - LEVEL 1
- A5020[F]-B1~DETAIL AREA - STAIRS - LEVEL 2
- A5030[F]-B1~DETAIL AREA - STAIRS - LEVEL 3

The plans provided are not dimensioned. The detailing of these stairs will need to satisfy the requirements of Clause 11 & 12 of AS1428.1:2009.

Specifically, the following will need to be addressed:

- The minimum clear width of the stairway between the handrails is to be a minimum of 1m
- Compliant handrail designs including handrail extensions at the top (+300) and bottom (Going+300) of the stair flights,
- The diameter of the handrail is to be 30-50mm
- Non slip nosing fixed to each going (P3/R10)
- Non slip going (P3/R10)
- Lighting levels (150lx as nominated at Clause 19 of AS1428.2:1992)
- Dome head buttons are to be installed to handrails of all stairs in lieu of providing TGSIs at the top and bottom of the stair flights. A Performance Solution has been prepared to address this alternative approach to the DTS process. The dome head button is to be installed 150mm from the top or bottom of the handrail.

12. ACCESSIBLE WCS

The detailing of the accessible WC facilities is nominated on the following drawings:

- A5210[F]-B1~DETAIL AREA - DRESSING ROOM 58 L1-02 - LEVEL 1 +30
- A5214[F]-B1~DETAIL AREA - DRESSING ROOM 75 L1-AM-10, BATH L1-AM-11 & ACCESS BATH L1-AM-12 - LEVEL 1 +30
- A5215[F]-B1~DETAIL AREA - DRESSING ROOM 76 L1-AM-07 & ACCESS BATH L1-AM-08 - LEVEL 1 +30
- A5211[F]-B1~DETAIL AREA - MALE PERFORMER AMENITIES L1-AM-02 & UNISEX ACCESSIBLE WC L1-05
- A5220[F]-B1~DETAIL AREA - AMENITIES - LEVEL 2
- A5230[F]-B1~DETAIL AREA - MALE ACCESS L3-01 & FEMALE ACCESS L3-02 - LEVEL 3 +51

The completion of the WC facilities construction documentation will need to demonstrate compliance with the provisions of Clause 15 of AS1428.1:2009. The drawings as submitted for tender are not dimensioned.

The existing accessible WC located off the Orchestra Assembly Room is not refurbished as part of these works.

12.1. Ambulant WC Requirements

The WC facilities associated with the public toilets located on Level 3 and the Performer facilities on Level 1 are considered banks of toilets and will need to satisfy the requirements of NCC Clause F2.4(c) which requires ambulant facilities compliant to Clause 16 of AS1428.1:2009 to be provided.

Space constraints within the banks of toilets at these levels preclude the provision of the required circulation required for ambulant WC cubicles.

To address this requirement fold down grabrails have been incorporated into the design of the accessible WCs provided at Levels 1 and 3 to address the provision of ambulant WC facilities. The fold down grab rails have been documented as part of these drawings. The works when completed will need to include for the provision of fold down grabrails within the accessible WC Facilities.

A Performance Solution has been prepared to address this approach.



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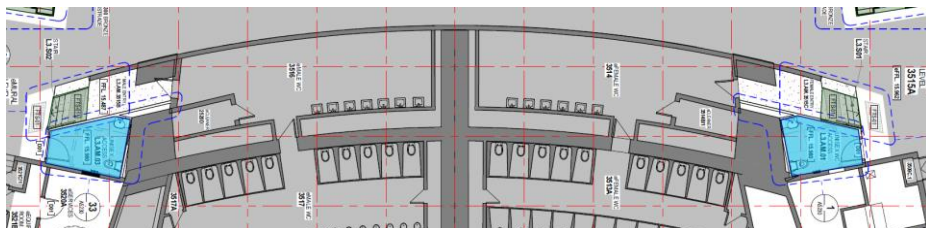


Figure 12 Extract of plan indicating location of patron accessible WCs at level 3

12.2. Accessible WC Requirements

The table following summarises the locations of accessible WC facilities associated with the Concert Hall Project.

LOCATION – PERFORMER AMENITIES	GENDER	HANDING
1. Level 1 +030 L1.AM.04 WC + Shower	Unisex	RH
2. Level 1 +030 L1.AM.07 WC + Shower	Unisex	RH
3. Level 1 +030 L1.AM.10 WC + Shower	Unisex	LH
4. Level 1 +030 L1.AM.03	Unisex	RH
5. Level 1 +030 L1.AM.1553G/1	Unisex	RH

LOCATION – PATRON AMENITIES	GENDER	HANDING
1. Level 3 +051	Male	LH
2. Level 3 +051	Female	RH

The following is a summary of requirements to satisfy the provisions of AS1428.1:2009:

- Entry Door

The detailing of the circulation at doorways shall comply with the provisions of Clause 13 of AS1428.1:2009
- Entry door

The luminance contrast provisions at the doorway shall comply with the provisions of Clause 13.1 of AS1428.1:2009
- Force required to operate door

The force required to operate the door if fitted with a door closer is a maximum of 20N. It is assumed that autodoors will not be installed
- Door hardware

The position of door hardware is to be located between 900-1100mm AFFL.
- WC pan circulation

1900x2300mm
- hand basin circulation

850x1500mm, the basin may encroach a maximum of 100 mm into the circulation space of the adjacent WC pan circulation
- WC pan offset from side wall

450/460 mm
- WC pan offset from rear wall

800±10 mm
- WC pan backrest

to code requirements
- WC pan toilet seat

The toilet seat will need to be the full round type, securely fixed in position, be rated 250 KG and have a minimum limits contrast of 30% with the background pan, wall or floor against which it is viewed.
- WC pan grab rails

Grab rail to be mounted 800 mm above finish floor level, length of grab rail to be 1050 mm from rear wall, install 300 mm grab rail to left-hand side of the WC pan. It is assumed that the walls to which the grab rails are fixed will have the required 1100N force rating wall reinforcement required by the standard
- Hand basin mounting height

Top of hand basin to be 800/830 mm above finish floor level
- Hand basin clearances

The clearances around and under the hand basin need to comply with the provisions of clause 15.3



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of AES 1428.1:2009. Specific attention is drawn to the plumbing installation where the required clearances under the hand basin necessitate special consideration of the bottle trap associated with the hand basin

- Hand basin selection

The detailing of the hand basin requires the installation of a shelf unit. It may be possible to specify a hand basin that incorporates a shelf section thereby eliminating an additional component to be installed in the USAT

- Hand basin mirror

The mirror is to be flush mounted on the wall above the sink the bottom of the mirror is to be no more than 900 mm above the finish floor level and the top of the mirror is to be a minimum of 1850 mm above the finish floor level

- Hand basin tap

It is recommended that a lever hand basin tap be installed in lieu of the capstan type

- Toilet roll holder

The position of the toilet roll holder is to be in accordance with code requirements

- Coat hooks

Coat hooks can be installed 1200 to 1350 mm above finish floor level and not closer than 500 mm from an internal corner. The coat hook can be installed on the wall or on the back of the door

- soap dispensers/hand towel

These items are to be able to be operated by one hand and shall be installed so that the tap or dispenser is not less than 900 and not more than 1100 mm above the finish floor level.

- Ambulant

It is assumed that the existing WC facilities will not be modified to include the ambulant WC cubicle required by NCC Clause F2.4(c). To comply with requirement of the NCC it is proposed that a fold down grab rail be provided as part of the accessible WC installation A performance Solution has been prepared to address this approach.

- Braille Tactile Signage

The detailing of the Braille Tactile Signage will need to comply with the provision of NCC Clause D3.6 and NCC Specification D3.6. The location of

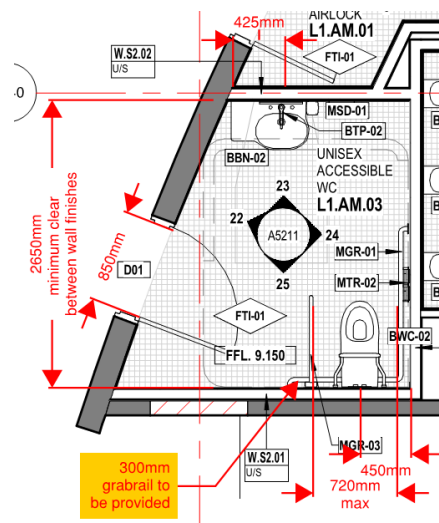
the Braille Tactile sign is to be mounted on the latchside wall. The sign is to indicate the handing of the grabrails to the WC Pan. The following is an example of the type of information to be provided in the Braille Tactile Sign.



12.3. Accessible WC – L1.AM.03

The details for the layout of this accessible WC facility are nominated on drawing A5211[F]-B1~DETAIL AREA - MALE PERFORMER AMENITIES L1-AM-02 & UNISEX ACCESSIBLE WC L1-05

The drawing provided is not dimensioned. The extracts from the plan following indicate the minimum dimensions of these accessible WC facilities to be achieved.





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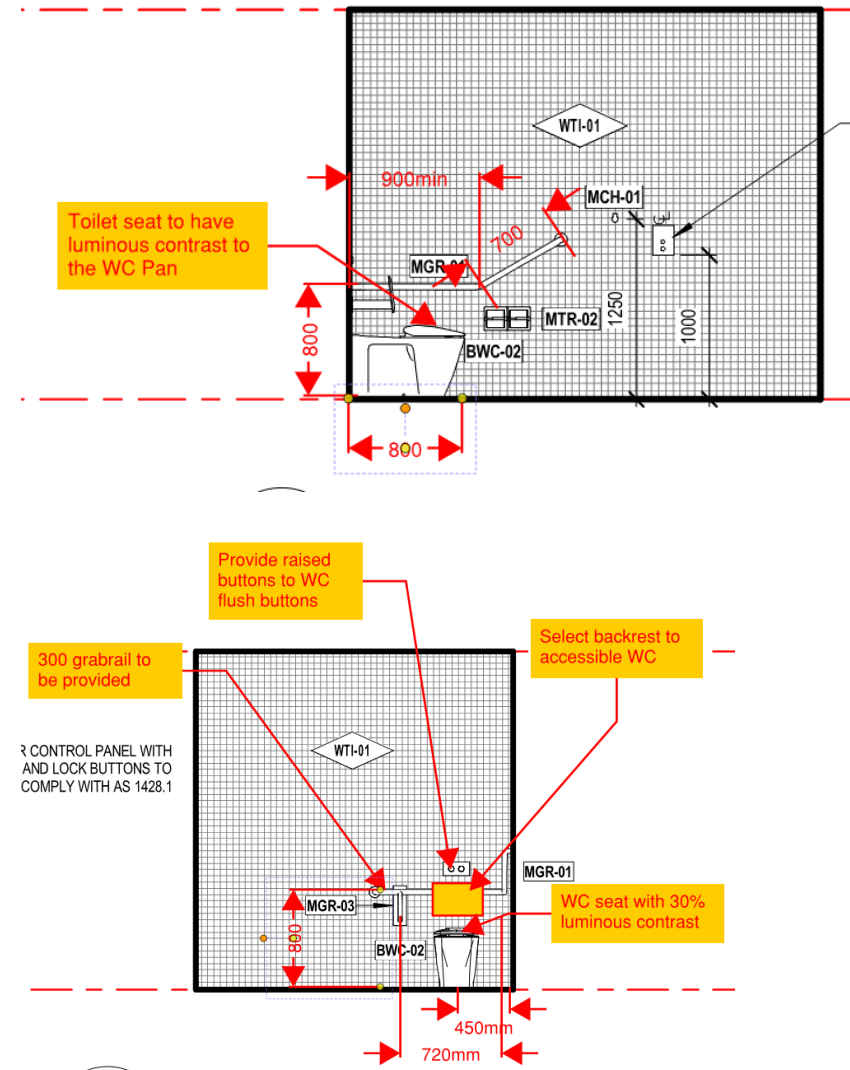
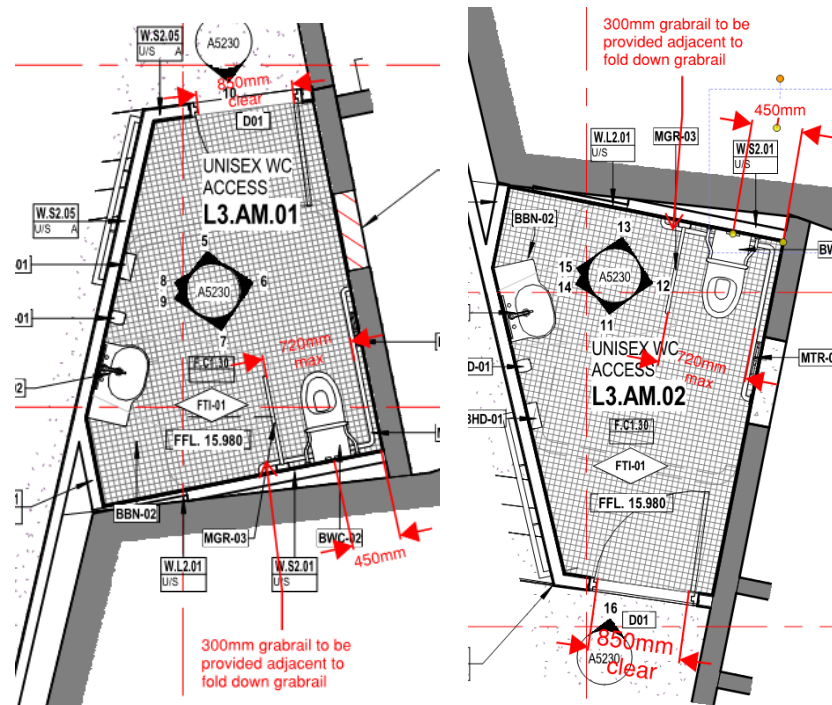


The setout of the fixtures within the accessible WC presently do not satisfy the requirements of AS1428.1:2009. The detailed construction documentation will need to satisfy the requirements of Clause 15 of ASA1428.1:2009

12.4. Accessible WC – L3.AM.01 and L3.AM.03

The details for the layout of this accessible WC facility are nominated on drawing A5230[F]-B1~DETAIL AREA - MALE ACCESS L3-01 & FEMALE ACCESS L3-02 - LEVEL 3 +51

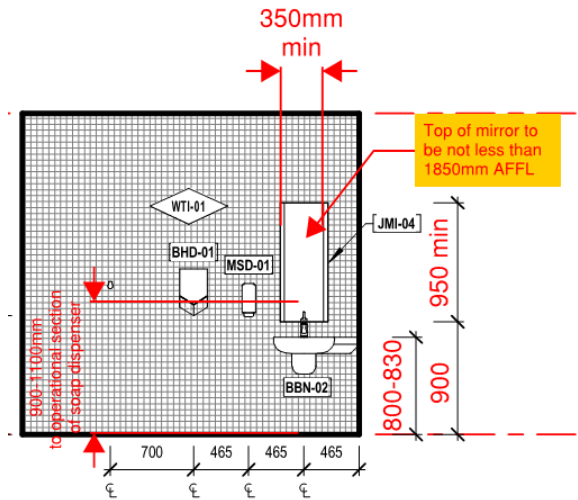
The drawing provided is not dimensioned. The extracts from the plan following indicate the minimum dimensions of these accessible WC facilities to be achieved.





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13. Ambulant WC facilities

The works propose the refurbishment of existing WC facilities located at:

- L1.AM.1551E – Amenities
- L1.AM.1554L - Amenities

These facilities include for the provision of ambulant WC facilities.

The detailing of these ambulant facilities will need to satisfy the requirements of Clause 16 of AS1428.1:2009.

Details of the scope of works associated with the refurbishment of these facilities will need to be provided.



TENDER DOCUMENTATION

ACCESS REVIEW - CONCERT HALL

14. WHEELCHAIR SEATING AREAS (+061 L4)

It has been established that 34 locations within the Concert Hall are required to be provided for wheel chair users.

Issues for consideration in the placement of wheelchair locations include:

- Accessible access to the various wheelchair seat locations
- Access to a variety of seating types
- Flexibility in the seating configuration
- Interchangeability of the location
- Maximum use of space
- Minimum loss of permanent seating arrangements
- Egress strategy

The requirements for wheelchair seating are established at NCC Clause D3.9 – *Wheelchair seating spaces in Class 9b Assembly Buildings* and Clause 18- *Assembly Buildings* of AS1428.1:2009.

NCC Clause D3.9 stipulates that the grouping and location of wheelchair seating places shall be:

- not less than 2 single spaces; and
- not less than 2 groups of 2 spaces; and
- not more than 5 spaces in any other group; and
- the location of spaces is to be representative of the range of seating provided.

The Standard permits the satisfying the requirements using removable seating. The design team is presently investigating several innovations concerning fold away seats and removable sections to allow for the quick change and storage of removed seating. System selection has yet to be finalised.

The following locations have been identified as suitable locations for wheelchair seating locations:

- Locations in the front section of the Stalls (Rows D & E)
- Locations at the rear of the Dress Circle
- The back row of the boxes on either side of the hall (Boxes A, B, C, U, V and W)

This report relies on a performance Solution addressing circulation to the accessible wheelchair locations located as part of Boxes A, B, C, U, V and W.

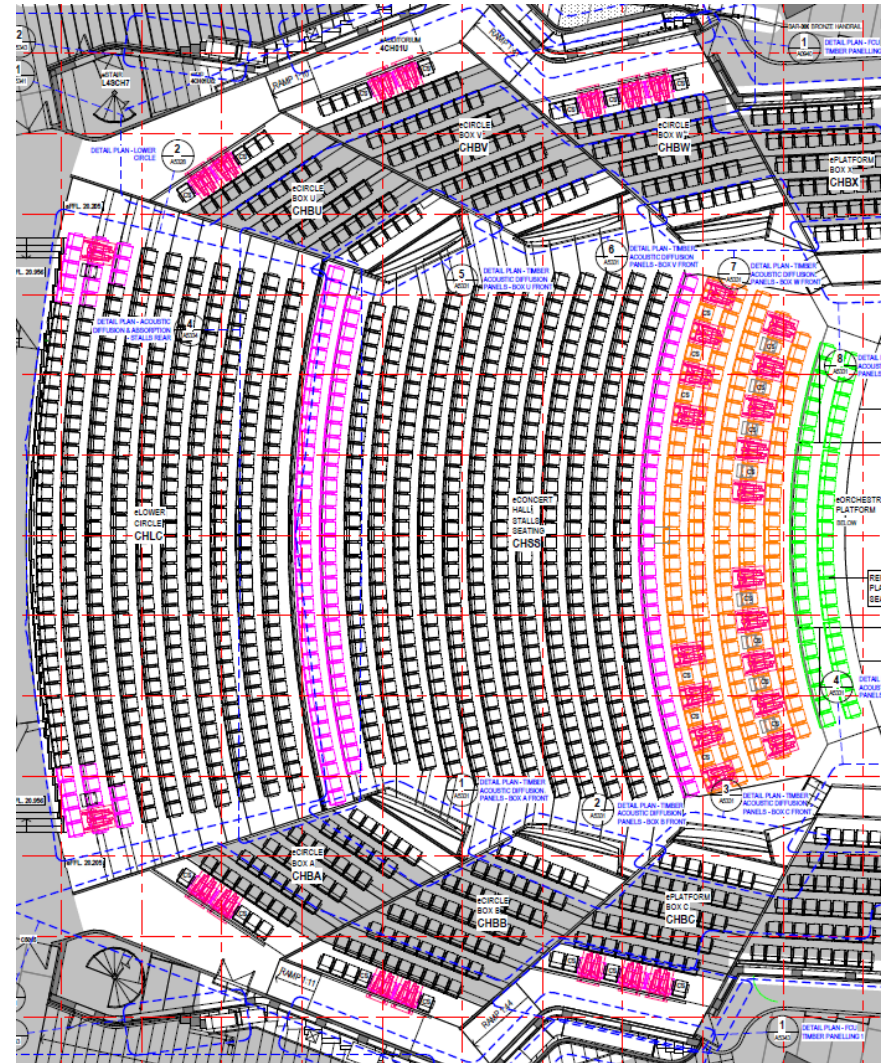


Figure 13 Plan of the Concert Hall Locating the accessible seating locations



TENDER DOCUMENTATION

ACCESS REVIEW - CONCERT HALL



The images following indicate the anticipated view of the stage when the stage in standard configuration and when the platforms are raised.



STALLS ACCESSIBLE POSITION SIGHTLINE
2nd JUNE 2016

Figure 14 View from Rows D & E - Flat Stage



STALLS ACCESSIBLE POSITION SIGHTLINE
18TH MAY 2016

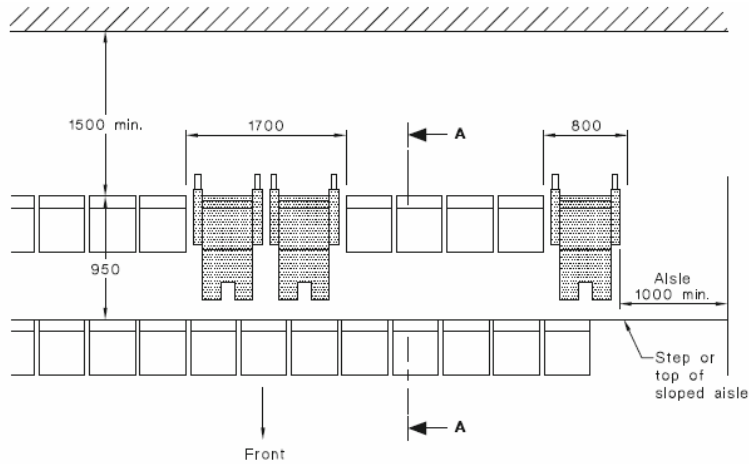
Figure 15 View from Rows D & E – Raised platforms

The spatial requirements associated with wheelchair locations are identified at Clause 18- *Assembly Buildings* of AS1428.1:2009. Those requirements are illustrated in the following extracts from the Standard.

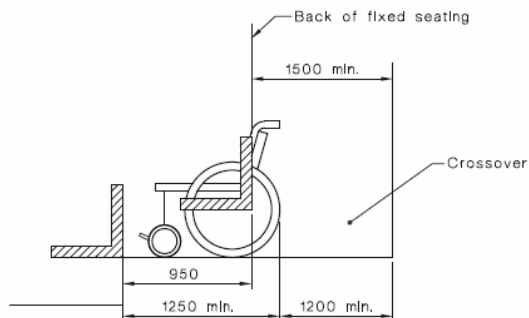


TENDER DOCUMENTATION

ACCESS REVIEW - CONCERT HALL



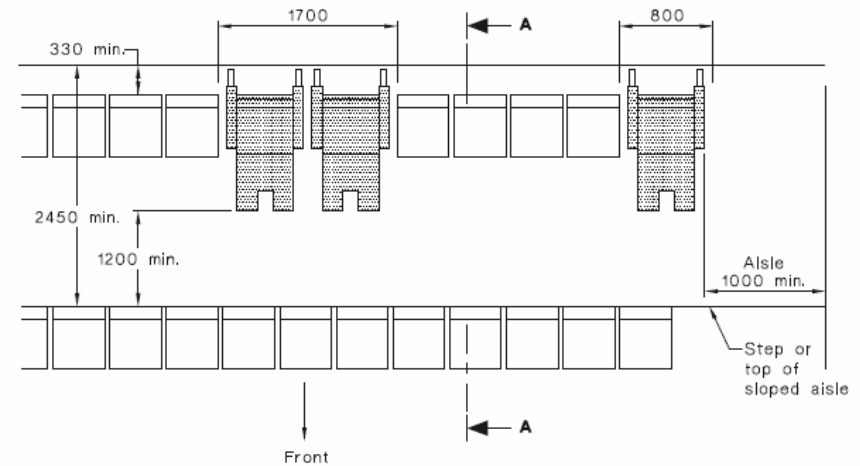
PLAN—APPROACH FROM THE REAR



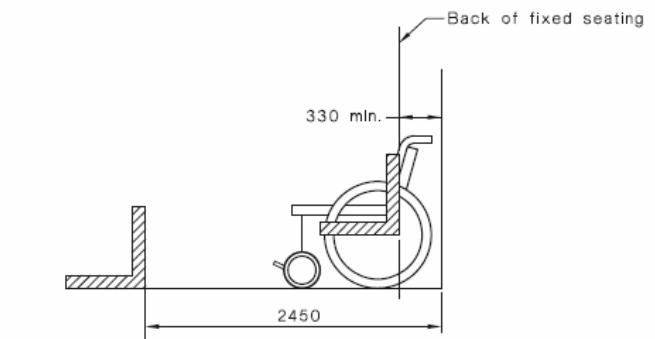
SECTION A-A

DIMENSIONS IN MILLIMETRES

FIGURE 54(A) WHEELCHAIR SEATING SPACES IN AUDITORIA WITH AISLES AND CROSSOVERS—APPROACH FROM THE REAR



PLAN—APPROACH FROM THE FRONT



SECTION A-A

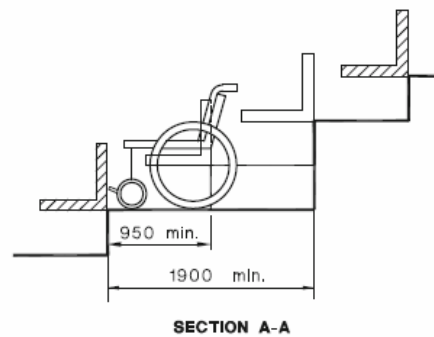
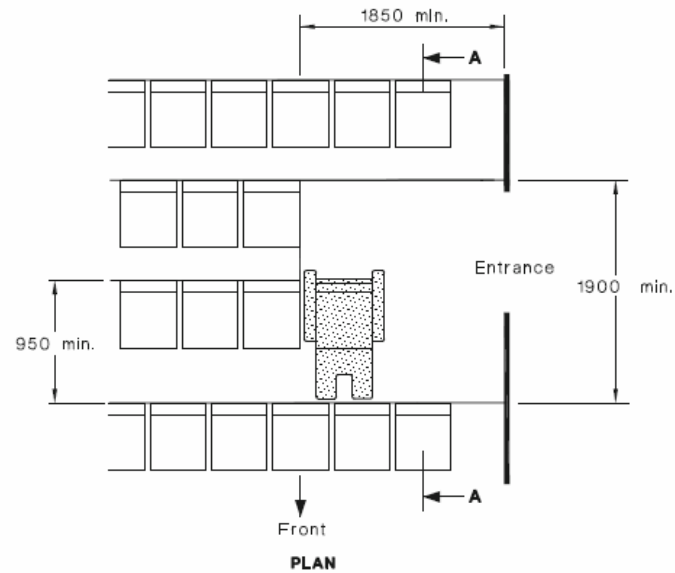
DIMENSIONS IN MILLIMETRES

FIGURE 54(B) WHEELCHAIR SEATING SPACES IN AUDITORIA WITH AISLES AND CROSSOVERS—APPROACH FROM THE FRONT



TENDER DOCUMENTATION

ACCESS REVIEW - CONCERT HALL



DIMENSIONS IN MILLIMETRES

FIGURE 54(C) WHEELCHAIR SEATING SPACES IN AUDITORIA FRONT ROW—WITH CONTINENTAL SEATING (i.e., NO AISLES OR CROSSOVERS)

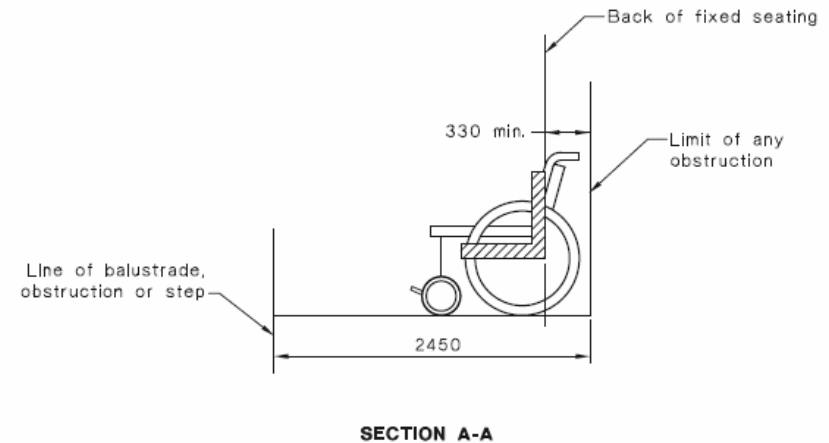
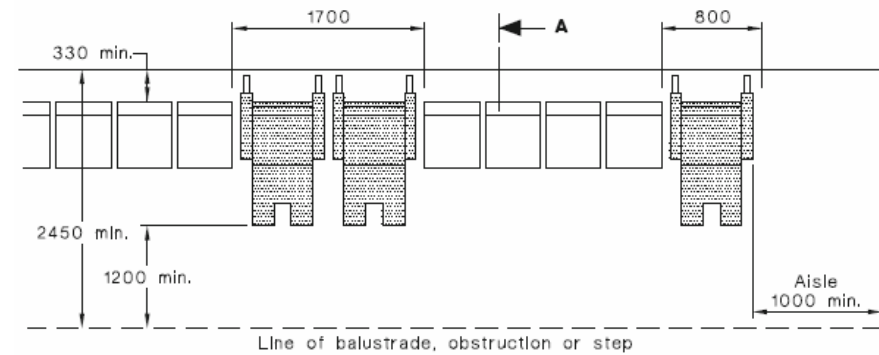


FIGURE 54(D) WHEELCHAIR SEATING SPACES IN AUDITORIA FRONT ROW—APPROACHING FROM THE FRONT