BCA LOGIC

Building Regulation, BCA,
Fire, Access and Energy Consultants

To:	Jake Burgess Sydney Zoo 3 Wills Avenue Waverley NSW
Project:	Sydney Zoo- Western Sydney Parklands
Report:	BCA Assessment Report
Date:	2nd November 2015
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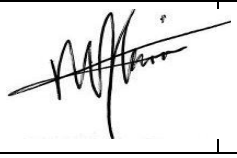
		Signature:			

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1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is known as the Sydney Zoo- Western Sydney Parklands and will be located within Bungarribee Park, Doonside. The zoo will comprise of various animal habitat enclosures, administration facilities, services and retail buildings, plus restaurant and sanitary facilities which makes of total twenty three (23) buildings.

Note: For the purposes of this report Buildings 1-6 will be assessed against the provisions of the BCA2015 only. These buildings are as follows:

1) Entry Pavilion
2) Boma Restaurant
3) Administration Building
4) Nocturnal Habitat
5) Reptile and Insect Habitat
6) Aquatic Habitat

The zoo is bounded by three major roads, with vehicular access to the site via the new road that is connected to the Great Western Highway

1.2 Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2015, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2015. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3 Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2015 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate Application to the Accredited Certifying Authority. The BCA is updated generally on the 1st of May each year.

1.4 Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

(a) the structural adequacy or design of the building;

(b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and

(c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the National Construction Code – Plumbing Code of Australia Volume 3

(b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (

(c) The deemed to satisfy provisions of Part D3 and F2.4 of BCA2015;

(d) Demolition Standards not referred to by the BCA;

(e) Work Healthy and Safety Act 2011;

(f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Roads and Transport Authority, Local Council, ARTC, Department of Planning and the like; and

(g) Conditions of Development Consent issued by the Local Consent Authority.

1.5 Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1 Rise in Storeys (Clause C1.2)

The buildings have a rise in storeys of one (1)

2.2 Classification (Clause A3.2)

The building has been classified as follows.

Class	Level	Description
6	Ground Floor	Building 1- Entry/Retail
6	Ground Floor	Building 2- Boma Restaurant
5	Ground Floor (Note: This building has three (3) split levels	Building 3- Administration
9b	Ground Floor	Building 4- Nocturnal Habitat
9b	Ground Floor	Building 5- Reptile and Insect Habitat
9b	Ground Floor	Building 6- Aquatic Habitat

2.3 Effective Height (clause A1.1)

The buildings have an effective height of less than 12 metres.

2.4 Type of Construction Required (Table C1.1)

The buildings are to be of Type C Construction.

2.5 Floor Area and Volume Limitations (Table C2.2)

The building is subject to maximum floor area and volume limits of:-

Class 5/9b	Maximum Floor Area	3,000m^2
	Maximum Volume	18,000m^3
Class 6	Maximum Floor Area	2,000m^2
	Maximum Volume	12,000m^3

2.6 Exits

The following points in the building has been considered as the exits:

(a) All buildings have external doors opening direct to open space

2.7 Climate Zone (Clause A1.1)

The building is located within Climate Zone 6

3 ESSENTIAL FIRE SAFETY MEASURES

The following fire safety measures are required to be installed in the building, this table may be required to be updated as the design develops and options for compliance are confirmed.

Item	Proposed Essential Fire Safety Measure	Minimum Standard of Performance
1.	Automatic fail safe devices	BCA2015 Clauses D2.21, AS1670.1-2004 and Manufacturer's Specification.
2.	Emergency lighting	BCA2015 Clauses E4.2 & E4.4, AS2293.1-2005
3.	Exit signs	BCA2015 Clauses E4.5, E4.6 & E4.8, AS2293.1-2005
4.	Fire hose reel system	BCA2015 Clause E1.4, AS2441-2005
5.	Fire hydrant system	BCA2015 Clause E1.3, AS2419.1-2005
6.	Paths of travel, stairways, passageways or ramps	BCA2015 Section D
7.	Portable fire extinguishers	BCA2015 Clause E1.6, AS2444-2001
8.	Required (automatic) exit doors	BCA2015 Clause D2.19, AS1670.1-2004

4 FIRE RESISTANCE LEVELS

Due to the size of the buildings and the setbacks to the boundary then there are no FRLs relevant to the buildings.

5 STATEMENT OF COMPLIANCE

The architectural design documentation as referred to in this report has been assessed against the applicable provision of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying (as outlined in Annexure B) with that Code, subject to the following:-

5.1 BCA Compliance Specification

The following BCA matters are to be addressed by specific BCA Design Certificate to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

Architectural Design Certification:

1. Materials, floor and wall linings/coverings, surface finished and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10 and Specification C1.0 of BCA2015.
2. The electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having a FRL of 120-120-120 and provided with self-closing -/120/130 fire doors in accordance with Clause C2.13 of BCA2015.
3. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2015.
4. The discharge points of exits will be in accordance with Clause D1.10 of BCA2015.
5. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D1.16 of BCA2015.
6. The construction of EDB's will be in accordance with Clause D2.7 of BCA2015 with the enclosure bounded by a non-combustible or fire protective covering and smoke seals provided around the perimeter of the doors at each level.
7. New pedestrian ramps will comply with AS1428.1-2009, Clause D2.10 and Part D3 of BCA2015. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
8. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2015. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.
9. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2015. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 where the edge ledge to a flight below.
10. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2015.
11. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plant-room, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS1657-2013 in lieu of Clause D2.12, D2.14, D2.16 and D2.17 of BCA2015.
12. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2015.
13. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 of BCA2015.

14. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2015, and with AS1428.1-2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2015.
15. Accessible carparking will be in accordance with Clause D3.5, and table D3.5 of BCA2015.
16. Braille and tactile signage will in accordance with Clause D3.6, and specification D3.6 of BCA2015.
17. Hearing augmentation system will be provided in accordance with Clause D3.7 of BCA2015.
18. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2015 and AS1428.41-2009.
19. Fixed wheel chair seating will be in accordance with Clause D3.9, and table D3.9 of BCA2015.
20. The ramps associated with the accessway will not have a combined vertical rise of more than 3.6m and a landing for a step ramp will not overlap a landing for another step ramp of ramp in accordance with Clause D3.11 of BCA2015.
21. On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS1428.1-2009 and Clause D3.12 of BCA2015.
22. Fire precautions whilst the building is under construction fire precautions will be in accordance with Clause E1.9 of BCA2015.
23. External above ground waterproofing membranes must comply with AS 4654 Parts 1 and 2.
24. The new roof covering will be in accordance with Clause F1.5 of BCA2015.
25. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2015.
26. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F1.7 of BCA2015 and AS3740.
27. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2015.
28. Sub-floor ventilation will be provided in accordance with Clause F1.12 of BCA2015.
29. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2015 and AS1288 / AS2047.
30. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table 52.3 of BCA2015.
31. Accessible sanitary facilities will be provided in the building in accordance with Clause F2.4, Table F2.4 (a) ofBCA2015 and AS1428.1-2009.
32. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2015.
33. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2015.
34. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2015
35. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2015.
36. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2015.
37. The pools associated with development which are greater than 300mm deep will comply with Clause G1.1 of the BCA2015 and The Swimming Pools Act 1992, Swimming Pools Regulation 2008, and AS1926 parts 1 and 2.
38. The refrigerated or cooling chamber, strongroom or vault will be in accordance with Clause G1.2
39. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
40. Glazing will be in accordance with Part J2 of BCA2015.
41. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2015.

Electrical Services Design Certification:

42. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2015 and AS2293.1 – 2005

43. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2015 and AS2293.1.

44. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2015 and AS/NZS 1680.0.

45. Lighting power and controls will be installed in accordance with Part J6 of BCA2015.

Hydraulic Services Design Certification:

46. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2015 and AS3500.3

47. Fire hydrants will be installed in accordance with Clause E1.3 of BCA2015 and AS2419.1-2005 as required to serve buildings greater than 500m2.

48. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2015 and AS2441-2005.

49. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2015 and AS2444-2005.

50. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2015.

Mechanical Services Design Certification:

51. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2015, and AS/NZS 1668.1.

52. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2015 and AS1668.2-2012.

53. The commercial kitchen will be provided with a kitchen exhaust hood in accordance with Clause F4.12 of BCA2015, and AS/NZS 1668.1 and AS1668.2.'

54. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2015.

Structural Engineers Design Certification:

55. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2015 as follows:
    - Dead and Live Loads – AS1170.1
    - Wind Loads – AS1170.2
    - Masonry – AS3700
    - Concrete Construction – AS3600
    - Steel Construction AS4100
    - Aluminium Construction – AS/NZS1664.1 or 2
    - ABCB Standard for Construction of Buildings in Flood Hazard Areas.

56. The FRL's of the structural elements for the proposed works have been designed in accordance with table 5 for a building of Type C construction of Specifications C1.1 of BCA2015.

ANNEXURE A - DESIGN DOCUMENTATION

This report has been based on the following design documentation prepared by Misho & Associates dated October 2015

Architectural Drawing Schedule

No.	Drawing	Scale	Issue
DA 01	Cover Sheet / Locality Plan	N.T.S	C
DA 02	Master Plan For The Site	NA	C
DA 03	DA Areas Calculations - Building 1	NA	C
DA 04	DA Areas Calculations - Building 2	NA	C
DA 05	DA Areas Calculations - Building 3	NA	C
DA 06	DA Areas Calculations - Buildings 4,5,6,20,21,22 + 23	NA	C
DA 100	Site & Floor Plan Of Building 1 - Entry / Retail Pavilion	1:200	C
DA 101	Floor Plan Of Building	1:100	C
DA 102	Roof Plan	1:100	C
DA 103	3D Image / Enviromental	NA	C
DA 104	Elevations	1:100	C
DA 105	Section	1:100	C
DA 106	Section A	1:50	C
DA 107	Section B	1:50	C
DA 108	Section C	1:50	C
DA 109	Section D	1:50	C
DA 110	Section E	1:50	C
DA 111	Section F	1:50	C
DA 200	Site & Floor Plan Of Building 2 - Restaurant	1:200	C
DA 201	Floor Plan Of Building	1:100	C
DA 202	Roof Plan	1:100	C
DA 203	3D Image / Enviromental	NA	C
DA 204	Elevations	1:100	C
DA 205	Elevations	1:100	C
DA 206	Sections	1:100	C
DA 300	Site & Floor Plan Of Building 3 - Administration / Curatorial / Vet	1:200	C
DA 301	Floor Plan Of Building	1:100	C
DA 302	Roof Plan	1:100	C
DA 303	3D Image / Enviromental	NA	C
DA 304	Elevations	1:100	C
DA 305	Sections	1:100	C
DA 400	Site & Floor Plan Of Building 4 - Nocturnal Habitat	1:200	C
DA 401	Floor Plan Of Building	1:50	C
DA 402	Reflected Ceiling Plan	1:50	C
DA 403	3D Image / Enviromental	NA	C
DA 404	Elevations	1:50	C
DA 405	Sections	1:50	C
DA 406	Sections	1:50	C
DA 500	Site & Floor Plan Of Building 5 - Insects Habitat	1:200	C
DA 501	Floor Plan Of Building	1:50	C
DA 502	Reflected Ceiling Plan	1:50	C
DA 503	3D Image / Enviromental	NA	C
DA 504	Elevations	1:50	C
DA 505	Sections	1:50	C
DA 506	Sections	1:50	C
DA 600	Site & Floor Plan Of Building 6 - Aquatic Habitat	1:200	C
DA 601	Floor Plan Of Building	1:50	C
DA 602	Reflected Ceiling Plan	1:50	C
DA 603	3D Image / Enviromental	NA	C
DA 604	Elevations	1:50	C
DA 605	Sections	1:50	C
DA 606	Sections	1:50	C
DA 700	Site & Floor Plan Of Building 20,21,22 + 23 - Kiosk	1:50	C
DA 701	Floor Plan Of Building	1:50	C
DA 702	3D Image / Enviromental	NA	C
DA 703	Elevations		C
DA 704	Sections		C
DA 800	Site & Floor Plan Of Building 7 - Back Of House	1:200	C
DA 801	Elevations & Sections	1:100	C
DA 810	Site & Floor Plan Of Building 8 - Back Of House	1:200	C
DA 811	Elevations & Sections	1:100	C
DA 820	Site & Floor Plan Of Building 9 - Back Of House	1:200	C
DA 821	Elevations & Sections	1:100	C
DA 830	Site & Floor Plan Of Building 10 - Back Of House	1:200	C
DA 831	Elevations & Sections	1:100	C
DA 840	Site & Floor Plan Of Building 11 - Back Of House	1:200	C
DA 841	Elevations & Sections	1:100	C
DA 850	Site & Floor Plan Of Building 12 - Back Of House	1:200	C
DA 851	Elevations & Sections	1:100	C
DA 860	Site & Floor Plan Of Building 13 - Back Of House	1:200	C
DA 861	Elevations & Sections	1:100	C
DA 870	Site & Floor Plan Of Building 14 - Back Of House	1:200	C
DA 871	Elevations & Sections	1:100	C
DA 880	Site & Floor Plan Of Building 15 - Back Of House	1:200	C
DA 881	Elevations & Sections	1:100	C
DA 890	Site & Floor Plan Of Building 16 - Back Of House	1:200	C
DA 891	Elevations & Sections	1:100	C
DA 900	Site & Floor Plan Of Building 17 - Back Of House	1:200	C
DA 901	Elevations & Sections	1:100	C
DA 910	Site & Floor Plan Of Building 18 - Back Of House	1:200	C
DA 911	Elevations & Sections	1:100	C
DA 920	Site & Floor Plan Of Building 19 - Back Of House	1:200	C
DA 921	Elevations & Sections	1:100	C

ANNEXURE B

DETAILED ASSESSMENT OF THE DEEMED-TO-SATISFY PROVISIONS OF BCA2015

BUILDING ASSESSMENT

Outlined below is a detailed assessment of the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) including the State variations where applicable.

All Deemed-to-Satisfy clauses that are applicable to the subject building have been referred to below, including a comment adjacent to each clause of the proposal's ability to satisfy each respective clause. The abbreviations outlined below have been used in the following table.

N/A	Not Applicable. The Deemed-to-Satisfy clause have been satisfied by the proposed design.
Complies	The relevant provisions of the Deemed-to-Satisfy clause have been satisfied by the proposed design.
CRA	'COMPLIANCE READILY ACHIEVABLE'. It is considered that there was not enough information included in the documentation to accurately determine strict compliance with the individual clause requirements. However, subject to noting the requirements of each clause, compliance can be readily achieved. See Part 5 for Specification.
FI	Further Information is necessary to determine the compliance potential of the building design.
AS	Alternative Solution with respect to this Deemed-to-Satisfy Provision is necessary to satisfy the relevant Performance Requirements.
DNC	Does Not Comply.
Noted	BCA Clause simply provides a statement not requiring specific design comment or confirmation.

DEEMED TO SATISFY CLAUSE ASSESSMENT SUMMARY

Clause	Comment	Status
SECTION B: STRUCTURE		
PART B1 – STRUCTURAL PROVISIONS		
B1.0: Deemed-to-Satisfy Provisions	Noted	-
B1.1: Resistance to Actions	For Information Only – Structural Engineer to certify at CC stage.	CRA Refer Part 5.1 of Report
B1.2: Determination of Individual Actions	No details of loads imposed upon the building – Structural Engineer to certify at CC stage.	CRA Refer Part 5.1 of Report
B1.4: Determination of Structural Resistance of Materials and Forms of Construction	No details of materials and forms of construction – Structural Engineer, Architect and Manufacturers to certify at CC stage.	CRA Refer Part 5.1 of Report
B1.5 Structural Software	Structural software used in computer aided design of a building or structure within the geometrical limits of (b) of this Clause must comply with the ABCB Protocol for Structural Software. Structural Engineer to certify.	CRA Refer Part 5.1 of Report
SECTION C: FIRE RESISTANCE		
PART C1 – STRUCTURAL PROVISIONS		
C1.0: Deemed-to-Satisfy Provisions	Noted	-
C1.1: Type of Construction Required	Building 1 is to be of Type C Construction. Building 2 is to be of Type C Construction. Building 3 is to be of Type C Construction. Building 4 is to be of Type C Construction. Building 5 is to be of Type C Construction. Building 6 is to be of Type C Construction.	CRA Refer Part 5.1 of Report
C1.2: Calculation of Rise in Storeys	Building 1 has a rise in storeys of one (1). Building 2 has a rise in storeys of one (1). Building 3 has a rise in storeys of one (1). Building 4 has a rise in storeys of one (1). Building 5 has a rise in storeys of one (1). Building 6 has a rise in storeys of one (1).	CRA Refer Part 5.1 of Report
C1.3: Buildings of Multiple Classification	Each building is its own classification.	CRA Refer Part 5.1 of Report
C1.4: Mixed Types of Construction	Each building is of Type C construction.	CRA Refer Part 5.1 of Report
C1.8: Lightweight Construction	Lightweight construction may be used to achieve required fire resistance levels. Should lightweight construction be proposed it is to comply with Specification C1.8.	CRA Refer Part 5.1 of Report
C1.10: Fire Hazard Properties	No details of the fire hazard properties of the materials and assemblies in the proposed building. Fire hazard indices to comply with Specification C1.10.	CRA Refer Part 5.1 of Report
C1.11: Performance of External Walls in Fire	For information only.	Noted
C1.12: Non-combustible Materials	For information only.	Noted
PART C2 – COMPARTMENT AND SEPARATION		
C2.0: Deemed-to-Satisfy Provisions	Noted	-
C2.1: Application of Part	Noted	-

C2.2: General Floor Area and Volume Limitations	The floor area and volume calculations are well within the general floor area and volume limitations of this clause for each building.	
C2.6: Vertical Separation of Openings in External Walls	Vertical Separation not applicable.	N/A
C2.7: Separation by Fire Walls	No fire walls proposed.	N/A
C2.8: Separation of Classifications in the Same Storey	Each storey is its own classification.	Complies
C2.9: Separation of Classifications in Different Storeys	All buildings are single storey.	N/A
C2.10: Separation of Lift Shafts	No Lifts proposed	N/A
C2.12: Separation of Equipment	Equipment including lift motor rooms, emergency generators sustaining emergency equipment operating in emergency mode, central smoke control plant, boilers or battery areas with a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours are required to be fire separated from the remainder of the building in accordance with this clause.	CRA Refer Part 5.1 of Report
C2.13: Electricity Supply System	In any switch room, if the main switch room sustains emergency equipment required to operate in emergency mode, is required to be separated from the building with construction having a FRL of 120/120/120, and doorways protected with self-closing -/120/30.	CRA Refer Part 5.1 of Report
PART C3 – PROTECTION OF OPENINGS		
C2.0: Deemed-to-Satisfy Provisions	Noted	-
C3.1: Application of Part	Noted	-
C3.2: Protection of Openings in External Walls	Openings within 3m of a fire source feature or 6m to the far side of a road require protection. No openings require protection.	Complies
C3.3: Separation of External Walls and Associated Openings in Different Fire Compartments	Each building is its own fire compartment and located greater than 6m from another building.	Complies
C3.4: Acceptable Methods of Protection	Where protection is required, doorways, windows and other openings must be protected in accordance with this clause. Acceptable methods of doorway protection – a. Internal or external wall-wetting sprinklers used with doors that are self-closing or automatic closing; b. -/60/30 fire doors that are self-closing or automatic closing. Acceptable methods of window protection: a. Internal wall wetting sprinklers where the windows are self-closing; or b. -/60/- fire windows that are automatic closing or permanently fixed in the closed position; or c. -/60/- automatic closing fire shutters. Fire doors, fire windows and fire shutters must comply with Specification C3.4	Noted
C3.5: Doorways in Fire Walls	Doorways in fire walls are to have the same FRL as the fire wall except that each door can have an insulation level of 30.	N/A
C3.12: Openings in Floors and Ceilings for Services	No floors required to maintain an FRL.	N/A
C3.13: Openings in Shafts	No fire rated Shafts proposed.	N/A

C3.15: Openings for Service Installations	Services will need to be treated in accordance with this Clause where they penetrate fire resistant elements such as fire walls, floors and other fire resistant walls. Services to be within fire resistant shafts or treated in accordance with C3.15.	Noted
C3.16: Construction Joints	Joints are to have the required FRL with respect to integrity and insulation relative to the building element they are joining. Structural Engineer to certify.	CRA Refer Part 5.1 of Report
C3.17: Columns Protected with Lightweight Construction to Achieve an FRL	It Any columns protected by lightweight construction to maintain the required FRL. Structural Engineer to certify.	CRA Refer Part 5.1 of Report
SPECIFICATION C.1.1 – FIRE-RESISTING CONSTRUCTION		
2.0: General Requirements	Noted	-
2.1: Exposure to Fire-Source Features	No openings or external walls located within 3m of a fire source feature.	Complies
2.2: Fire Protection for a Support of Another Part	Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL not less than that required by other provisions of this Specification; and if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required for the supporting part itself and for the part it supports.	Noted
2.3: Lintels	Lintels must have the FRL required for the part of the building in which it is situated unless it spans particular openings outlined within this Clause.	Noted
2.4: Attachments Not to Impair Fire-resistance	Any new attachments proposed to the external facade of the building are to be of non-combustible materials only. The combustibility of the proposed attachment is to have been tested to AS1530.1 and shown to be non-combustible. Care is to be taken with regards to any composite or sandwich panels as the entire panel is to be shown to be non-combustible. Details are to be provided. Any proposed linings are to be non-combustible and in compliance with this Clause. To be further assessed at CC stage once any external attachments have been defined.	CRA Refer Part 5.1 of Report
2.5: General Concessions	The applicable concession under this clause to the subject building is that any structures located on the roof of the building can be of a non-combustible material.	Noted
5.0: Type C Fire-resisting Construction	Noted	
5.1: Fire-resistance of Building Elements	The FRL's of all elements are to be in accordance with the FRL's detailed in the Table contained within Part 4.0 of this report	Complies
5.2: Carparks	Open carpark area external to the buildings is provided.	N/A

SECTION D: ACCESS AND EGRESS		
PART D1 – PROVISION FOR ESCAPE		
D1.0: Deemed-to-Satisfy Provisions	Noted	-
D1.1: Application of Part	Noted	-
D1.2: Number of Exits Required	There are sufficient numbers of exits provided on every storey. Every storey serving each building has access to at least one exit.	CRA Refer Part 5.1 of Report

SECTION D: ACCESS AND EGRESS		
	It is assumed that the Class 9b exhibition buildings (B4,B5 and B6) are provided with two exits where more than 50 persons can occupy an exhibition at any one time.	
D1.3: When Fire-Isolated Stairways and Ramps are Required	No fire isolated exits required.	Complies
D1.4: Exit Travel Distances	Exit travel distances within the buildings comply with the requirements of this clause. In a class 5 and 6 building, exit travel distances can be extended to 30m where a single exit serves ground floor. No point on the floor is to be greater than 20m to a point in choice where an additional 20m is to be provided to at least a single exit where two or more exits are provided. We note that consideration to the back of house area in building 1's travel distances will be required. Egress through the entry hall and the retail shop portion will be required in order to maintain compliance. To be further assessed as the design develops. An exit will need to be incorporated into Building 2 leading to the northern service road or to either the western or eastern side door where the exhibits are labelled. This is to ensure travel distances are complied with.	CRA Refer Part 5.1 of Report
D1.5: Distance Between Alternative Exits	Alternative exits at basement level are spaced more than 9m apart and no greater than 60m apart.	Complies
D1.6: Dimensions of Exits and Paths of Travel to Exits	A required exit is to maintain a minimum unobstructed exit width of 1m. Exit width is to be calculated by the proposed population outlined in BCA Clause D1.13. At this stage, exit width is sufficient.	CRA Refer Part 5.1 of Report
D1.10: Discharge from Exits	The discharge points of the exits are to be suitably protected from being blocked by vehicles parked adjacent to the main entry door. The pathway from the open space is to maintain an unobstructed width of 1 metre.	CRA Refer Part 5.1 of Report
D1.13: Number of Persons Accommodated	Building 1 – Based on the main entry being a pay area where large volumes of persons are expected to be within this area for a short period of time to pay for the zoo services prior to entering the outdoor exhibits. In accordance with this clause we have determined the occupancy of the entry area (183m^2), group check-in (87m^2) and retail area (253m^2) to be 175 patrons based on 3m^2 per patron at any one time. A maximum of 20 employees will be located within this building as advised by the design team. Building 2 – The population is based on seating of 330 patrons. Based on sanitary facilities provided, a maximum of 20 staff can be employed in the restaurant.	CRA Refer Part 5.1 of Report

SECTION D: ACCESS AND EGRESS		
	Building 3 – The maximum population of this building is determined by the sanitary facilities provided. Therefore, up to 120 staff can utilise this area. Building 4 – Approximately 87 persons within the walkway. Building 5 – Approximately 115 persons within the walkway. Building 6 – Approximately 88 persons within the walkway. The above populations are subject to change as the design develops and further input from the design team is provided. It is note that the maximum population within the zoo is limited to the sanitary facilities provided. The current sanitary facilities provided for patrons are within Buildings 1 and 2. These combined provide a total patron population of 1580. The maximum number of Patrons can increase by providing additional sanitary facilities.	
D1.14: Measurement of Distances	Information only.	Noted
D1.15: Method of Measurement	Information only.	Noted
D1.16: Plant Rooms, Lift Motor Rooms and electricity network substations: Concession	Plant room access will be directly via ground floor: Concession is not required.	Noted
PART D2 – CONSTRUCTION OF EXITS		
D2.0: Deemed-to-Satisfy Provisions	Noted	-
D2.1: Application of Part	Noted	-
D2.7: Installations in Exits and Paths of Travel	Services or equipment comprising electricity meters, distribution boards or ducts or central telecommunications distribution boards or equipment or electrical motors or other motors serving equipment in the building installed within the corridors and hallways are to be enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.	CRA Refer Part 5.1 of Report
D2.10: Pedestrian Ramps	Ramps are to have suitable gradients for egress. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586.	CRA Refer Part 5.1 of Report
D2.13: Goings and Risers	Stair geometry to comply with this clause. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586 or a nosing strip with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586.	CRA Refer Part 5.1 of Report

<table>
<tr><th colspan="3">SECTION D: ACCESS AND EGRESS</th></tr>
<tr><td>D2.14: Landings</td><td>Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS4586 or a strip at the edge of the landing with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586 where the edge leads to a flight below.

<table><tr><th rowspan="2">Application</th><th colspan="2">Surface Condition</th></tr><tr><th>Dry</th><th>Wet</th></tr><tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr><tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr><tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr></table></td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.15: Thresholds</td><td>Threshold ramps and step ramps in a building are required to be accessible in accordance with part D3.</td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.16: Barriers to Prevent Falls</td><td>Barriers are required to be 1m above the floor of any balcony, path or the like. Details of the dimensions and configurations of the barriers to all levels to be nominated as being 1000mm in height.

FIS barriers are to be detailed as required with a bottom rail 150mm above the stair nosing’s, a mid-rail and a top rail 865mm above the stair nosing’s and 1.0m above the landings. Further specific details of barriers to be provided at CC Stage.</td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.17: Handrails</td><td>A required exit (fire isolated or non-fire isolated) serving an area required to be accessible must be fitted with handrails in accordance with Clause 12 of AS1428.1.</td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.18: Fixed Platforms, Walkways Stairways and Ladders</td><td>Access to all plant rooms is to either be direct from a floor level or stairs, ladders or the like are to be provided in accordance with AS1657.</td><td></td></tr>
<tr><td>D2.19: Doorways and Doors</td><td>All required exit doors nominated as doors swinging in the direction of egress. The entry door within Buildings 4, 5 and 6 will be required to also swing outwards as part of the requirement to provide 2 exits in a Class 9b building. This can be further assessed as the design develops.</td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.20: Swinging Doors</td><td>All required exit doors swing in the direction of egress. It will need to be ensured that the door does not encroach at any part of its swing on the required stairway width by more than 500mm. In addition when fully open it must not encroach by more than 100mm on the required width. These measurements include door handles and other furniture.</td><td>CRA Refer Part 5.1 of Report</td></tr>
<tr><td>D2.21: Operation of Latch</td><td>Doors in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily open able without a key from the side that faces a person seeking egress, by a single hand downward action or pushing action on a single device which is located between 900 mm and 1.1m from the floor.</td><td>CRA Refer Part 5.1 of Report</td></tr>
</table>

SECTION D: ACCESS AND EGRESS		
	Lever action door handles are to have an end return to prevent a person who cannot grip the handle from slipping off during operation. All clearances to be maintained between 35-45mm measured from the door face to the centre grip section of the handle.	
D2.23: Signs on Doors	Required signage is to be located on all fire and smoke doors stating "Fire Safety Door, Do Not Obstruct, Do Not Keep Open" and the discharge door from the fire isolated stairways are to state "Fire Safety Door – Do Not Obstruct" in capital letters not less than 20mm in height.	CRA Refer Part 5.1 of Report
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
A separate accessibility report has been undertaken by BCA Logic Pty Ltd under separate cover.		

SECTION E: SERVICES AND EQUIPMENT		
PART E1 – FIRE FIGHTING EQUIPMENT		
E1.0: Deemed-to-Satisfy Provisions	Noted	-
E1.3: Fire Hydrants	Buildings 1, 2 and 3 have a floor area greater than 500m^2 and are therefore required to be provided with a Fire Hydrant System that complies with AS2419.1-2005. A hydrant booster is required to be provided within site of the main entrance. It is recommended that the hydrant booster is located a minimum 10m from a building otherwise shielding construction will need to be provided and achieve an FRL of 120/120/120 and continue 2m either side and 3m above the hose connections within the enclosure in accordance with Clause 7.3 of AS2419.1-2005. Hydraulic Engineer to confirm at CC stage.	CRA Refer Part 5.1 of Report
E1.4: Fire Hose Reels	Buildings 1, 2 and 3 are required to be provided with fire hose reels in accordance with this clause and AS2441. Hydraulic engineer to certify design at CC stage.	CRA Refer Part 5.1 of Report
E1.5: Sprinklers	The building is not required to be sprinkler protected.	N/A
E1.6: Portable Fire Extinguishers	PFE's are to be installed in accordance with AS 2444 throughout the entire development.	CRA Refer Part 5.1 of Report
E1.8: Fire Control Centres	The buildings are not required to have a fire control centre.	N/A
E1.9: Fire Precautions During Construction	Information only. Whilst the building is under construction there is to be not less than one fire extinguisher provided at all times to each storey. Once the building has reached an effective height of over 12m the hydrants and hose reels and booster connections must be operational to all levels except the 2 uppermost storeys under construction.	Noted
PART E2 – SMOKE HAZARD MANAGEMENT		
E2.0: Deemed-to-Satisfy Provisions	Noted	-
E2.1: Application of Part	Noted	-
E2.2: General Requirements (including Tables E2.2a and E2.2b)	As the buildings are not greater than 2 storeys, there are no smoke hazard management requirements within the buildings in accordance with BCA Table E2.2a. In accordance with Table E2.2b, Buildings 4, 5 and 6 are noted as exhibition buildings and are therefore required to be provided with automatic shutdown of any-air handling system is required on activation of a Clause 4 smoke detector system in accordance with Specification E2.2a.	CRA Refer Part 5.1 of Report

SECTION E: SERVICES AND EQUIPMENT			
PART E3 – LIFT INSTALLATIONS			
No Lifts provided			
PART E4 – EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS			
E4.0:	Deemed-to-Satisfy Provisions	Noted	-
E4.2:	Emergency Lighting Requirements	Emergency lighting is to be installed in every fire-isolated exit, each floor level, common corridor and the like.	CRA Refer Part 5.1 of Report
E4.3:	Measurement of Distance	Information Only	CRA Refer Part 5.1 of Report
E4.4:	Design and Operation of Emergency Lighting	To comply with AS2293.1-2005.	CRA Refer Part 5.1 of Report
E4.5:	Exit Signs	Exits signs are to be provided above or adjacent to a door providing egress as well as directional signage throughout the entire development where necessary.	CRA Refer Part 5.1 of Report
E4.6:	Direction Signs	Where an exit is not readily apparent a directional sign is to be installed indicating the direction of egress being primarily within the carpark areas.	CRA Refer Part 5.1 of Report
E4.7:	Class 2 and 3 Buildings and Class 4 Parts: Exemptions	For Information Only	CRA Refer Part 5.1 of Report
E4.8:	Design and Operation of Exit Signs	To comply with AS2293.1-2005 and/or Specification E4.8.	CRA Refer Part 5.1 of Report
E4.9:	Sound Systems and Intercom Systems for Emergency Purposes		CRA Refer Part 5.1 of Report
SPECIFICATION E4.8 – Photoluminescent Exit Signs			
1.	Scope	Noted	-
2.	Application	If used photoluminescent exit signs are to comply with this clause.	CRA Refer Part 5.1 of Report
3.	Illumination	If used photoluminescent exit signs are to comply with this clause.	CRA Refer Part 5.1 of Report
4.	Pictorial Elements	If used photoluminescent exit signs are to comply with this clause.	CRA Refer Part 5.1 of Report
5.	Viewing Distance	If used photoluminescent exit signs are to comply with this clause.	CRA Refer Part 5.1 of Report
6.	Smoke Control Systems	If used photoluminescent exit signs are to comply with this clause.	CRA Refer Part 5.1 of Report

SECTION F: HEALTH AND AMENITY			
PART F1 – DAMP AND WEATHERPROOFING			
F1.0:	Deemed-to-Satisfy Provisions	Noted	-
F1.1:	Stormwater Drainage	Stormwater drainage to comply with AS3500.3.	CRA Refer Part 5.1 of Report
F1.4:	External Above Ground Membranes	Waterproofing membranes for external above ground use to comply with AS4654 Parts 1 and 2.	CRA Refer Part 5.1 of Report
F1.5:	Roof Coverings	Roof coverings to comply with this clause.	CRA

SECTION F: HEALTH AND AMENITY			
			Refer Part 5.1 of Report
F1.6:	Sarking	The sarking is to comply with AS4200.	CRA Refer Part 5.1 of Report
F1.7:	Water Proofing of Wet Areas in Buildings	Waterproofing to wet areas to comply with AS3740.	CRA Refer Part 5.1 of Report
F1.9:	Damp-proofing	Moisture is to be prevented from reaching the walls above a damp-proof course, and the underside of the suspended floors.	CRA Refer Part 5.1 of Report
F1.10:	Damp-proofing of Floors on the Ground	A vapour barrier in accordance with AS2870 must be installed.	CRA Refer Part 5.1 of Report
F1.12:	Sub-floor Ventilation	Subfloor ventilation is required to beneath timber floors	CRA Refer Part 5.1 of Report
F1.13:	Glazed Assemblies	Glazed assemblies are to comply with AS2047 and AS1288.	CRA Refer Part 5.1 of Report
PART F2 – SANITARY AND OTHER FACILITIES			
F1.0:	Deemed-to-Satisfy Provisions	Noted	-
F2.1:	Facilities in Residential Buildings (including Table F2.1)	N/A	N/A
F2.2:	Calculation of Number of Occupants and Facilities	The calculation of sanitary facilities is to be undertaken in accordance with the populations determined in accordance with Clause D1.13 of BCA or any other method deemed acceptable. Where multiple accessible toilets are provided then they can only be counted once for each sex a single time for each building.	Noted
F2.3:	Facilities in Class 3 to 9 Buildings (including Table F2.3)	<u>Building 1</u> It is a client requirement to provide sanitary facilities in the entry area for patrons to use prior to paying to enter the zoo. There are no proposed maximum population figures known at this stage. To provide a rationale for alternate assessment method, the population will be calculated based upon equivalency to 1. A Retail mall type development; and 2. Spectator requirements to a sporting venue which this type of use is most similar. 1.Retail Mall Facility Assessment (based upon floor area of buildings a population of less than 1200 patrons has been determined). 1200 patrons require the following facilities:- Male Patrons 1WC (1200) 1Urinal (600) 1Handwash (600)	Complies

SECTION F: HEALTH AND AMENITY		
	Female Patrons 2WC (600) 1Handwash (600) It is clear that retail mall is an unrealistic method of assessment and therefore, will not be relied upon. 2a. Sporting Facility Spectator Assessment (Unpaid side of building) Male Patrons 2WC (500) 2Urinal (200) 2Handwash (300) Female Patrons 4WC (190) 3Handwash (350) Based upon equal numbers and limiting factor of 190 to female WCs then a population of up to 380 patrons will be served by the proposed facilities on the unpaid side which will accommodate bus loads turning up which has a peak usage period similar (or less) to sporting events. 2b. Sporting Facility Spectator Assessment (Paid side of building) Male Patrons 3WC (1000) 4Urinal (400) 4Handwash (600) Female Patrons 9WC (540) (2 x parent rooms have been counted here) 4Handwash (500) Based upon equal numbers and limiting factor of 400 to male urinals then a population of up to 800 patrons will be served by the proposed facilities. In conclusion, it is considered that the combination of the paid and unpaid facilities will serve up to **1180** patrons when calculated separately and added together. Note1: If all facilities were counted together then the benefits of larger number of facilities included within table F2.3 of the BCA would increase the population served by these facilities. Note2: The total number of patron facilities would be 1580 when the facilities to the restaurant are added to the entry building facilities. <u>Building 2</u> Male Patrons 4WC (700) 4Urinal (200) (2nd Access WC counted as a urinal)	

SECTION F: HEALTH AND AMENITY			
		2Handwash (400) Female Patrons 7WC (350) 3Handwash (350) Based upon equal numbers and limiting factor of 200 to male urinals then a population of up to 400 patrons will be served by the proposed facilities which is greater than the 330 seats proposed to the restaurant Note: Parents room toilets were not utilised in the above count and will add further facilities for overall zoo patrons. Male Staff 1WC (20) 0Urinal (10) 1Handwash (30) Female Patrons 1WC (15) 1Handwash (30) Based upon equal numbers and limiting factor of 10 to male urinals then a population of up to 20 staff will be served by the proposed facilities which is potentially less than the likely maximum staff. But overall there are additional toilets available in other buildings and surplus toilets such as the parent toilets that were not counted towards patrons that could be allocated to staff once accurate staff numbers are known. To be further assessed at CC stage. <u>Building 3</u> Male Staff 3WC (60) 4Urinal (150) 2Handwash (60) Female Staff 4WC (60) 3Handwash (90) Based upon equal numbers and limiting factor of 60 male/female WCs then a population of up to 120 staff will be served by the proposed facilities which is greater than that calculated for the administration/vet building and overall zoo. Buildings 4/5/6 These buildings are considered to be ancillary to the overall zoo development and do not warrant facilities to be provided. See above building 1 which houses the sanitary facilities for the zoo.	
F2.4:	Accessible Sanitary Facilities (including Table F2.4)	Included within Access Report	Noted
F2.5:	Construction of Sanitary Compartments	The door to a fully enclosed sanitary compartment must open outwards or slide or be readily removable from the outside of the sanitary compartment unless there is a clear	CRA Refer Part 5.1 of Report

SECTION F: HEALTH AND AMENITY			
		space of at least 1.2m between the closet pan within the sanitary compartment and the doorway.	
F2.6:	Interpretation: Urinals and Washbasins	Information Only.	Noted
F2.8:	Waste Management	N/A	N/A
PART F3 – ROOM SIZES			
F3.0:	Deemed-to-Satisfy Provisions	Noted	-
F3.1:	Height of Rooms and Other Spaces	Based upon the available section drawings it would appear that the ceiling height throughout is not less than 2400mm as required. To be further assessed at CC stage	CRA Refer Part 5.1 of Report
PART F4 – LIGHT AND VENTILATION			
F4.0:	Deemed-to-Satisfy Provisions	Noted	-
F4.1:	Provision of Natural Light	Natural light is not required	N/A
F4.2:	Methods and Extent of Natural Lighting	N/A	N/A
F4.3:	Natural Light Borrowed From Adjoining Room	N/A	N/A
F4.4:	Artificial Lighting	Lighting to the all areas is to comply with AS 1680.0.	CRA Refer Part 5.1 of Report
F4.5:	Ventilation of Rooms	The building is required to be provided with a system of natural ventilation comply with Clause F4.6 or mechanical ventilation or air-conditioning system complying with AS 1668.2.	CRA Refer Part 5.1 of Report
F4.6:	Natural Ventilation	Where natural ventilation is provided then this is required to be provided by not less than 5% opening. To be further assessed at CC stage once mechanical ventilation system locations are known.	CRA Refer Part 5.1 of Report
F4.7:	Ventilation Borrowed From Adjoining Room	N/A	N/A
F4.8:	Restriction on Position of Water Closets and Urinals	The location of the toilets either have airlocks or do no open to rooms	N/A
F4.9:	Airlocks	Airlocks have been provided	Noted
F4.11:	Carparks	Mechanical Ventilation complying with AS1668.2-2012 or Natural Ventilation complying with AS1668.4-2012 is to be provided to the carpark.	CRA Refer Part 5.1 of Report
F4.12:	Kitchen Local Exhaust Ventilation	Exhaust to be provided to Building @ Restaurant	CRA Refer Part 5.1 of Report
PART F5 – SOUND TRANSMISSION AND INSULATION			
F5.0:	Deemed-to-Satisfy Provisions	N/A	N/A

SECTION G: ANCILLARY PROVISIONS			
PART G1 – MINOR STRUCTURES AND COMPONENTS			
G1.0:	Deemed-to-Satisfy Provisions	Noted	-
G1.1:	Swimming Pools	Swimming pools (and man made water bodies greater than 300mm deep) in NSW are to be provided with safety fencing compliant with AS1926. Parts 1 and 2; and, as required by the Swimming Pools Act 1992 and the Swimming Pools Regulation 2008; and, a water recirculation system in a swimming pool must comply with AS1926.3, with the exception of spas which must comply with AS1926.3 except that the specified distance between two outlets connected to a common line may be not less than 600mm.	CRA Refer Part 5.1 of Report

SECTION G: ANCILLARY PROVISIONS		
G1.2: Refrigerated Chambers, Strong-Rooms and Vaults	No details of coolrooms at this stage but are assumed to be needed to the restaurant	CRA Refer Part 5.1 of Report
G1.3: Outdoor Play Spaces	N/A	N/A
NSW G1.101: Provision for Cleaning Windows	N/A	N/A
PART G2 – HEATING APPLIANCES, FIREPLACES, CHIMNEYS AND FLUES		
G2.0: Deemed-to-Satisfy Provisions	N/A	N/A
PART G3 – ATRIUM CONSTRUCTION		
G3.1: Atriums Affected by the Part	N/A	N/A
PART GD- CONSTRUCTION IN ALPINE AREAS		
G4.0: Deemed-to-Satisfy Provisions	N/A	N/A
PART G5 – CONSTRUCTION IN BUSHFIRE PRONE AREAS		
G5.0: Deemed-to-Satisfy Provisions	Noted	-
G5.1: Application of Part	Noted	-
NSW G5.2: Protection	The buildings are not special fire protection purpose buildings	N/A

SECTION H: SPECIAL USE BUILDINGS		
PART H1 – THEATRES, STAGES AND PUBLIC HALLS		
NSW H1.1: Application of Part	N/A	N/A

SECTION I: MAINTENANCE
PART I1 – EQUIPMENT AND SAFETY INSTALLATIONS
This Part has been deleted in BCA2015.

SECTION J: ENERGY EFFICIENCY (Class 5, 6, 7b, 8, 9)		
PART J0 – ENERGY EFFICIENCY		
J0.1: Application of Section J	Noted	-
J0.2: Heating & Cooling Loads of SOU's to Class 2 & 4 parts	Not applicable in NSW.	Noted
J0.3: Ceiling Fans	Not applicable in NSW.	Noted
PART J1 – BUILDING FABRIC		
J1.0: Deemed-to-Satisfy Provisions	Noted	-
J1.1: Application of Part	Applies to the parts of the subject building forming the envelope.	CRA Refer Part 5.1 of Report
J1.2: Thermal Construction General	Where required insulation is to comply with AS4859.1 and be installed in accordance with this clause.	CRA Refer Part 5.1 of Report
J1.3: Roof and Ceiling Construction	The roof or ceiling that is part of the envelope is to achieve an R-value in accordance with this clause which requires R-values of between 3.2 and 4.8 dependant on location and construction, with additional insulation required where there are uninsulated areas of the ceiling or roof.	CRA Refer Part 5.1 of Report
J1.4: Roof Lights	Any roof lights required to comply with this clause are to represent less than 5% of the area of the roof and are to achieve a SHGC and u-value for the roof light system in accordance with this clause.	CRA Refer Part 5.1 of Report
J1.5: Walls	The walls that are part of the envelope are to achieve an R-value in accordance with this clause which requires R-values of between 1.4 and 3.3 dependant on location and construction.	CRA Refer Part 5.1 of Report

SECTION J: ENERGY EFFICIENCY (Class 5, 6, 7b, 8, 9)			
J1.6:	Floors	The floors that are part of the envelope are to achieve an R-value in accordance with this clause which requires R-values of between 0 and 2.75 dependant on location and construction.	CRA Refer Part 5.1 of Report
PART J2 – GLAZING			
J2.0:	Deemed-to-Satisfy Provisions	Noted	-
J2.1:	Application of Part	This part applies to all glazing located in the envelope of the building.	CRA Refer Part 5.1 of Report
J2.4:	Glazing	Glazing to comply with this clause, it is noted that this assessment does not include an assessment with the glazing calculator.	CRA Refer Part 5.1 of Report
J2.5:	Shading	Shading is to be considered as per this clause.	CRA Refer Part 5.1 of Report
PART J3 – BUILDING SEALING			
J3.0:	Deemed-to-Satisfy Provisions	Noted	-
J3.1:	Application of Part	This part applies to all glazing located in the envelope of the building.	CRA Refer Part 5.1 of Report
J3.2:	Chimneys and Flues	Chimneys and flues where provided are to comply with this clause in that they are to be provided with a damper or flap that can be closed to seal the chimney or flue.	CRA Refer Part 5.1 of Report
J3.3:	Roof Lights	Roof lights are to be sealed or capable of being sealed in accordance with this clause.	CRA Refer Part 5.1 of Report
J3.4:	External Windows and Doors	External windows and doors are to be sealed in accordance with this clause.	CRA Refer Part 5.1 of Report
J3.5:	Exhaust Fans	The exhaust fans to the sanitary facilities in this portion of the building, and any other miscellaneous exhaust fans to other conditioned spaces, are to be pre-fitted with a sealing device, such as a self-closing damper of the like.	CRA Refer Part 5.1 of Report
J3.6:	Construction of Roofs, Walls and Floors	The roof, walls, floors and any other openings, such as window or doors, are to be constructed to minimise air leakage by being enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions or are sealed by caulking, skirting, architraves, cornices or the like.	CRA Refer Part 5.1 of Report
J3.7:	Evaporative Coolers	Where provided an evaporative cooler is to be fitted with a self-closing damper in accordance with this clause.	CRA Refer Part 5.1 of Report
PART J4 – AIR MOVEMENT			
Deleted		Part J4 deleted in BCA2015	-
PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS			
J5.0:	Deemed-to-Satisfy Provisions	Noted	-
J5.2:	Air-conditioning and Ventilation Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA Refer Part 5.1 of Report
J5.3:	Time Switch	Compliance required, design certification to be provided by Mechanical Engineer.	CRA Refer Part 5.1 of Report
J5.4:	Heating and Chilling Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA Refer Part 5.1 of Report
J5.5:	Miscellaneous Exhaust Systems	Compliance required, design certification to be provided by Mechanical Engineer.	CRA

SECTION J: ENERGY EFFICIENCY (Class 5, 6, 7b, 8, 9)			
			Refer Part 5.1 of Report
PART J6 – ARTIFICIAL LIGHTING AND POWER			
J6.0:	Deemed-to-Satisfy Provisions	Noted	-
J6.1:	Application of Part	Applies to all buildings except a Class 8 electricity network substation.	CRA Refer Part 5.1 of Report
J6.2:	Artificial Lighting	Artificial lighting to comply with this clause, design certification to be provided by the electrical designer.	CRA Refer Part 5.1 of Report
J6.3:	Interior Artificial Lighting and Power Control	Lighting controls are to be in accordance with this clause, which sets requirements on location of switching and sets limits on floor areas controlled by a switch.	CRA Refer Part 5.1 of Report
J6.4:	Interior Decorative and Display Lighting	Lighting falling under this clause is to be separately switched from other lighting, be under a manual switch and controlled with a time switch.	CRA Refer Part 5.1 of Report
J6.5:	Artificial Lighting Around the Perimeter of a Building	Perimeter lighting is to be controlled by a daylight sensor or time switch and where it exceeds 100W have an average light source density of 60 Lumens/W or be controlled by a motion sensor complying with Specification J6.	CRA Refer Part 5.1 of Report
J6.6:	Boiling Water and Chilled Water Storage Units	The power supply to a fixed boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.	CRA Refer Part 5.1 of Report
PART J7 – HEATED WATER SUPPLY			
J7.0:	Deemed-to-Satisfy Provisions	Noted	-
J7.2:	Heated Water Supply	The hot water supply systems must be designed and installed in accordance with Section 8 of AS3500.4.	CRA Refer Part 5.1 of Report
J7.3:	Swimming Pool Heating and Pumping	Any heating for a swimming pool must be in accordance with this clause which sets out requirements for heating sources.	CRA Refer Part 5.1 of Report
J7.4:	Spa Pool Heating and Pumping	Spa pool heating and pumping is required to be in accordance with this clause.	CRA Refer Part 5.1 of Report
PART J8 – FACILITIES FOR ENERGY MONITORING			
J8.0:	Deemed-to-Satisfy Provisions	Noted	-
J8.1	Application of Part	Applies to all buildings except within a SOU of a Class 2 or 4 building and a Class 8 electricity network substation.	CRA Refer Part 5.1 of Report
NSW J8.2: Deleted		Part J8.2 deleted in BCA2015	CRA Refer Part 5.1 of Report
J8.3	Facilities for Energy Monitoring	A building with a floor area of more than 500m^2 must have an energy monitoring facility to record the consumption of gas and electricity. A building with a floor area of more than 2500m^2 must have the facility to individually record the consumption of air conditioning plant, artificial lighting, appliance power, central hot water supply, lifts, escalators and other ancillary plant.	CRA Refer Part 5.1 of Report
Specification J1.2 – MATERIAL PROPERTIES			
1.	Scope	Noted	-
2.	Construction Deemed-to-Satisfy	Methods noted.	Noted
SPECIFICATION J1.3 – ROOF AND CEILING CONSTRUCTION			
1.	Scope	Noted	-

SECTION J: ENERGY EFFICIENCY (Class 5, 6, 7b, 8, 9)			
2.	Construction Deemed-to-Satisfy	Methods noted.	Noted
SPECIFICATION J1.5 – WALL CONSTRUCTION			
1.	Scope	Noted	-
2.	Construction Deemed-to-Satisfy	Methods noted.	Noted
SPECIFICATION J1.6 – FLOOR CONSTRUCTION			
1.	Scope	Noted	-
2.	Construction Deemed-to-Satisfy	Methods noted.	Noted
SPECIFICATION J5.2 – DUCTWORK INSULATION AND SEALING			
1.	Scope	Noted	-
2.	Ductwork Sealing	Methods noted.	Noted
3.	Ductwork Insulation	Methods noted.	Noted
SPECIFICATION J5.4 – INSULATION PIPING, VESSELS, HEAT EXCHANGERS AND TANKS			
1.	Scope	Noted	-
2.	Insulation	Methods noted.	Noted
SPECIFICATION J6 – LIGHTING AND POWER CONTROL DEVICES			
1.	Scope	Noted	-
2.	Corridor Lighting Timer	Methods noted.	Noted
3.	Time Switch	Methods noted.	Noted
4.	Motion Detectors	Methods noted.	Noted
5.	Daylight Sensor and Dynamic Lighting Control Device	Methods noted.	Noted
NSW PART J(B) – ENERGY EFFICIENCY – CLASS 3 BUILDINGS			
NSW J(B)1:	Compliance with BCA Provisions	Noted	-
NSW J3.1:	Application of Part	NSW variation noted.	Noted

Building Regulation, BCA,
Fire, Access and Energy Consultants

To:	Jake Burgess Sydney Zoo 3 Wills Avenue Waverley NSW
Project:	Sydney Zoo- Western Sydney Parklands
Report:	Access Assessment Report
Date:	2nd November 2015
Client Contact:	Jake Burgess
Email:	Jake.burgess@thezoo.sydney
From:	Beau Zaia
Direct:	8484 4033
Email:	bzaia@bcalogic.com.au

DOCUMENT CONTROL

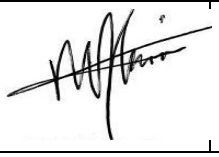
Revision	Date	Filename:			
106535-Access-r1	2 November 2015	Description:	Access Assessment Report		
			Prepared by	Checked by	Approved by
		Name:	Beau Zaia Assistant Building Regulations Consultant	Matthew Harriman Building Regulations Consultant	Warwick Hunter Manager Building Regulations
		Signature:			
		Filename:			
		Description:			
			Prepared by	Checked by	Approved by
		Name:			
		Signature:			

TABLE OF CONTENTS

1 BASIS OF ASSESSMENT

1.1 Location and Description

The building development, the subject of this report, is known as the Sydney Zoo- Western Sydney Parklands and will be located within Bungarribee Park, Doonside. The zoo will comprise of various animal habitat enclosures, administration facilities, services and retail buildings, plus restaurant and sanitary facilities which makes a total of twenty three (23) buildings.

Note: For the purposes of this report Buildings 1-6 will be assessed against the provisions of the BCA2015 only. These buildings are as follows:

1) Entry Pavilion
2) Boma Restaurant
3) Administration
4) Nocturnal Habitat
5) Reptile and Insect Habitat
6) Aquatic Habitat

The zoo is bounded by three major roads, with vehicular access to the site via the new road that is connected to the Great Western Highway

1.2 Purpose

The purpose of this report is to assess the existing building against the following Deemed-to-Satisfy provisions of BCA2015 to clearly outline those areas where compliance is not achieved and provide recommendations to upgrade such areas to achieve relevant compliance:

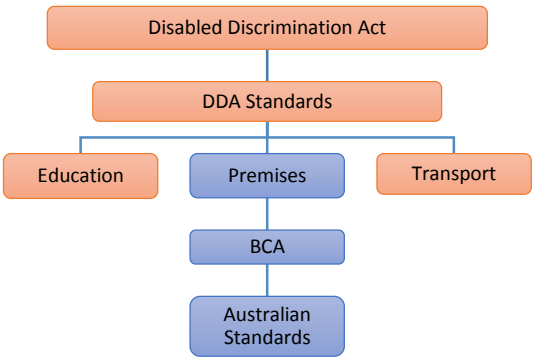
1. Part D3- Access for Persons with a Disability;
2. Clause E3.6 – Passenger Lifts;
3. Clause F2.4 – Accessible Sanitary Facilities; and
4. Related Australian Standards as applicable including AS1428.1-2009
5. Disability (Access to Premises - Buildings) Standards 2010

1.3 Limitations

This report is limited to an assessment of the access and amenity provisions for people with a disability against the provisions of the BCA as outlined in 1.2 above. It is not an assessment of the proposal against all provisions of the BCA and if this is required, a separate report will be necessary.

1.4 Relationship of the DDA

The Disability Discrimination Act 1992 (DDA) applies nationally and is complaint based. While the BCA is recognised as a design standard to satisfy certain aspects of the DDA, compliance with the BCA and the referenced standards does not guarantee that a complaint will not be lodged. The graph below indicates the current relationship of the BCA to the DDA.



1.5 Organisational Responsibilities - Disability Discrimination Act 1992 (DDA)

All organisations have a responsibility, under the Federal Disability Discrimination Act (DDA), to provide equitable, dignified access to goods and services and to premises used by the public. Premises are broadly defined and would include all areas included within the subject development.

The DDA provides uniform protection against unfair and unfavourable treatment for people with a disability in Australia. It also makes it unlawful to discriminate against a person who is an "associate" (such as a friend, carer or family member).

Disability is broadly defined and includes disabilities which are:

- physical;
- intellectual;
- psychiatric;
- neurological;
- cognitive or sensory (a hearing or vision impairment);
- learning difficulties;
- physical disfigurement; and
- the presence in the body of disease causing organisms.

This broad definition means that everyone with a disability is protected. The Act supports the principle that people with a disability have the same fundamental rights as the rest of the community. Provisions apply to a wide range of life activities including:

- access to premises used by the public;
- education;
- provision of goods and services;
- employment;
- administration of Commonwealth laws and programs.

When a person with a disability wants to utilise premises including all buildings, outdoor spaces, car parking areas, pathways and facilities, then equitable, dignified access must be provided. The DDA requires that appropriate changes be made to provide access. A complaint can be made under the DDA if appropriate access is not provided.

1.6 Design Documentation

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

1.7 Limitations

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- the structural adequacy or design of the building;
- the inherent derived fire-resistance ratings of any existing or proposed structural elements of the building (unless specifically referred to); and

- the design basis and/or operating capabilities of any existing or proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

(a) the Disability Discrimination Act (it cannot be guaranteed that that a complaint under the DDA will not be made, however should the building comply with BCA2015 and the Premises Standard then those responsible for the building cannot be subject to a successful complaint);

(b) BCA Sections B, C, E (except Clause E3.6), F (except Clause F2.4), G, H, I, J and Parts D1 and D2;

(c) Demolition Standards not referred to by the BCA;

(d) Work Health and Safety Act;

(e) Construction Safety Act;

(f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Roads and Transport Authority, Local Council, ARTC, Department of Planning and the like;

(g) Previous conditions of Development Consent issued by the Local Consent Authority; and

(h) this report does not assess the safety of the particular aspects of the building but merely the minimum standards called up by the Access provisions of BCA2015.

1.8 Disability (Access to Premises – Buildings) Standards 2010 (Premises Standard)

On 15 March 2010 the Disability (Access to Premises - Buildings) Standards 2010, was tabled in Federal Parliament. These Standards have been under development for many years and significant public consultation has occurred during their development. The Premises standard has now been introduced on 1st May 2011 in line with an updated National Construction Code which will incorporate the Building Code of Australia and the National Plumbing Code.

The aim of the Standards is to provide the building and design industry with detailed information regarding the required access provisions associated with the design and construction of new buildings and upgrade to existing buildings. They do not apply to existing buildings that are not undergoing upgrade. They will only apply to elements addressed within the Standards. All other elements related to premises will still be subject to the existing provisions of the DDA.

The Standards will generally align with the BCA (see below) and reference a range of Australian Standards relating to access and other associated matters. The Disability (Access to Premises - Buildings) Standards aim to provide certainty for the building industry in relation to meeting the requirements for access in new and upgraded buildings.

This Access Appraisal incorporates the key elements of the Standards as well as additional access requirements to assist in achieving best practice in the provision of access for all to buildings.

The Building Code of Australia 2015, in conjunction with the DDA, applies to all new buildings, new building works to existing buildings and buildings undergoing significant refurbishment or alteration.

Provision of access for a person using a wheelchair or mobility aid is often considered to be an indication of effective design to the built environment. However the majority of users of car parks, buildings and outdoor areas are pedestrians who also benefit greatly from wheelchair accessible design. Conversely, they can also be denied appropriate access if barriers are incorporated into designs.

In addition, older persons and people with disabilities within the community have a wide range of access needs that are not necessarily satisfied by just providing access for a person using a wheelchair. People also experience the effects of disability through impairment to:

- Sight;
- Hearing;
- Motor ability;
- Dexterity;

- Balance;
- Mental functioning etc.

Examples of a range of access challenges include:

- People who use wheelchairs face difficulties such as abrupt changes in levels (e.g. steps and steep slopes/gradients) and limited access under basins, benches and tables. They also need an increased circulation area, particularly at doorways and changes in direction.
- People who experience difficulty walking may have stiff hips, balance problems or uncoordinated movements which require attention to stairs and handrails, seating in waiting areas, slip resistant floor finishes and ramps with a gentle slope/gradient.
- People with manipulatory difficulties (finger or hand control) require appropriately selected handles, switches, buttons (in lifts) and taps to enable usage
- People with sensory disabilities, which affect either their hearing or vision, require clear, easy to understand signage and tactile indicators. This requires attention to a variety of factors including colour, contrast, print size, levels of illumination and the provision of appropriate communication systems in public areas.
- People with intellectual disabilities may have difficulty finding their way in new environments. Therefore, direct access routes and clear directional signage with graphics are important.

As a wide range of physical issues impact on the provision of access for people with disabilities, responsive design, incorporating a continuous accessible path of travel, needs to be equitable and therefore inclusive of the needs of all of the community. Access should cater for both pedestrians and users of wheelchairs and other mobility aids. In addition consideration must be given to the needs of users who may require assistance from other people as well as assistance animals.

1.9 Application of the Access to Premises Standards

As a new building it is noted the Disability (Access to Premises) Standard 2010 (Premises Standards) does apply this building however with the requirements of this standard mirroring the requirements of the BCA compliance with the BCA is compliance with the Premises Standard.

2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

2.1 Classification (Clause A3.2)

The building has been classified as follows.

Class	Level	Description
6	Ground Floor	Building 1- Entry/Retail
6	Ground Floor	Building 2- Boma Restaurant
5	Ground Floor (Note: This building has three (3) split levels	Building 3- Administration
9b	Ground Floor	Building 4- Nocturnal Habitat
9b	Ground Floor	Building 5- Reptile and Insect Habitat
9b	Ground Floor	Building 6- Aquatic Habitat

2.2 Areas Required to be Accessible

Under the provisions of Clause D3.1 of BCA2015, the following areas of the building are required to be accessible:

Level	Area / Room	Description
Ground Floor	Building 1- Entry/Retail	To and within all areas normally used by occupants
Ground Floor	Building 2- Boma Restaurant	To and within all areas normally used by occupants
Ground Floor	Building 3- Administration	To and within all areas normally used by occupants
Ground Floor	Building 4- Nocturnal Habitat	To and within all areas normally used by occupants
Ground Floor	Building 5- Reptile and Insect Habitat	To and within all areas normally used by occupants
Ground Floor	Building 6- Aquatic Habitat	To and within all areas normally used by occupants

Note: The limitations and exemptions of Clauses D3.2, D3.3 and D3.4 of the BCA have been considered where applicable in the process of developing the above table.

3 ACCESS FOR PEOPLE WITH A DISABILITY

3.1 Introduction

The table below is a summary of all the individual elements that relate directly to the ability of a person with a disability to access all the portions of the building required to be accessible as outlined in Part 2.3 of this report.

Access has been assessed against the relevant portions of the BCA and the related Australian Standards for each item listed below.

Compliance has been indicated by using the following symbols:

Symbol	Description
✓	Compliance is achieved, and no further information is required.
✓	Specific details are not provided, but compliance can be readily achieved.
✗	From the documentation provided, compliance is not achieved.

3.2 Assessment Summary

Clause	Comment	Status
SECTION D: ACCESS AND EGRESS		
PART D3 - ACCESS FOR PEOPLE WITH A DISABILITY		
D3.0: Deemed-to-Satisfy Provisions	Noted	-
D3.1: General Building Access Requirements	Building 1 (Entry Building)- Access is required and has been provided to and within all areas normally used by occupants. Doorway clearances to be further assessed at CC stage. Building 2 (Boma Restaurant)- Access is required and has been provided to and within all areas normally used by occupants. Doorway clearances to be further assessed at CC stage. Building 3 (Administration)- Access is to be provided to and within all areas normally used by the occupants. Doorway clearances to be further assessed at CC stage. It can be noted that this building comprises of three (3) split levels. These levels are connected by stairs located both internally and externally. As required under this Clause as a Class 5 building all areas are required to be accessible therefore it is recommended that ramps complying with AS1428.1-2009 or a low rise lift is installed to achieve accessibility to all areas of the building. This item is to be further assessed at CC stage of development. Building 4, 5, 6 (Nocturnal, Reptile & Insect, Aquatic Habitats)- Access is to be provided to and within all areas used by the occupants. Doorway clearances to be further assessed at CC stage.	✓

SECTION D: ACCESS AND EGRESS		
	Currently in each building there are ramps leading to the entry and exit doorways. For compliant access to be achieved to these buildings a level landing (max 1:40 gradient) is to be provided in the door circulation zones and with any ramp providing access and egress are also to be located clear of the door circulation zones.	
D3.2: Access to Buildings	Under the requirements of this Clause an accessway must be provided to the proposed development from: 1) The main points of the pedestrian entry at the allotment boundary; and 2) From any required accessible carparking space on the allotment. It can be noted that currently there is no footpath along the section of the Great Western Highway located adjacent to the proposed development, therefore pedestrian access from the allotment boundary is not achieved. It is to be confirmed that as part of the proposed development if a new footpath will be provided along the section of the Great Western Highway directly adjacent to the development. If a new footpath is provided then a compliant pedestrian accessway will be required. At this stage no accessible carpaces have been nominated. As mentioned compliant accessways from each accessible carspace will be required. Please see Clause D3.5 for further clarification. It is recommended that a rolltop gutter (or kerb ramps complying with AS1428.1-2009) be implemented in place of the stepped gutter serving the Bus Drop Off Zone. By having a rolltop gutter (and/or kerb ramp) in this location a complaint accessway to the entry building can be achieved for occupants discharging from vehicles. These items are to be further assessed at a later stage of the development.	✓
D3.3: Parts of Buildings to be Accessible	Ramps, stairways, walkways, circulation spaces at doorways, door widths and accessible paths are to comply with AS1428.1-2009. ` The ramps to building 1 is required to have mid landings with a minimum of 1540mm clear of mid handrail in accordance with AS1428.1-2009. The stairs to buildings 1 & 3 are required to comply with Clause 11 of AS1428.1-2009 and have handrails located to each side. Note: The Access to Premises Standards to not provide the concessions provided in sub-cluses (g) and (h) in this clause, hence compliance with the Access to Premises Standards will require the floor covering in the accessible areas to strictly comply with Clause 7.4.1(a) of AS1428.1-2009.	✓

SECTION D: ACCESS AND EGRESS		
D3.4: Exemptions	The following areas in the building are considered to not be accessible due to the specific uses of the room or space: Building 1: Cleaners room, Store room, First Aid (toilet only), Parents room (toilet only), security office Building 2: Loading facility, garbage room, parents room (toilet only), WC cleaner, Kitchen Cleaner, Kitchen area, Cold store, Freezer store, Wash-up, Restaurant cleaner/store. Building 3: Equipment room, Secure Stores, Store rooms, Cleaner rooms. Buildings 4,5,6: Service Areas for able bodied staff Note: As noted this report will not assess and reference buildings 7-23. These buildings are primarily for "back of house" services assumed for able bodied staff. As these buildings are out of the scope of works then no detailed assessment made.	**Noted**
D3.5: Accessible Car Parking	At this stage no accessible carspaces have been allocated to serve the building. It can be noted that there are approximately 1400 carspaces located in the external carpark at the front of the development. Based on the requirement of BCA Clause D3.5 a ratio of 1 accessible carparking space is required per 50 carparking spaces up to 1000 spaces and then 1 accessible carparking space per 100 spaces where above 1000 spaces. Based on the provision of 1400 carparking spaces a total of twenty four (24) accessible carparking spaces are required. The accessible carparking spaces are to comply with AS2890.6-2009. Limited details are provided at this stage to show compliance with this standard. This item will be required to be further assessed at a later stage of the development.	✓
D3.6: Signage	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbols as appropriate must identify each sanitary facility, ambulant disabled toilet, all exits with Exit Signage and all accessible entrances where an entrance is not accessible.	✓
D3.7: Hearing Augmentation	A hearing augmentation system must be provided where an inbuilt amplification system, other than one used for emergency warning is installed to the following:- -Buildings 4,5 and 6 as they are Class 9b assembly buildings	✓

SECTION D: ACCESS AND EGRESS		
	-Building 1 ticket counters (but only where the counters are screened from the public	
D3.8: Tactile Indicators	The current proposal will require tactile ground surface indicators to stairways, ramps other than a step ramp or kerb ramp and where overhead obstructions are less than 2 metres in height. It is noted that there are currently tactiles proposed to buildings 4/5/6 within the buildings and these shall be relocated externally at the top and bottom of ramps leading into these buildings.	✓
D3.9: Wheelchair seating spaces in Class 9b Assembly Buildings	Buildings 4, 5 and 6 have not been provided with any fixed seating. Therefore the requirements of this Clause do not apply.	N/A
D3.11: Ramps	On an accessway a series of connected ramps must not have a combined vertical rise of 3.6m and a landing for a step ramp must no overlap a landing for another step ramp or ramp.	N/A
D3.12: Glazing on an Accessway	On an accessway, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	✓

SECTION E: SERVICES AND EQUIPMENT		
PART E3 – LIFT INSTALLATIONS		
E3.0: Deemed-to-Satisfy Provisions	Noted	-
E3.6: Passenger Lifts	No lifts proposed throughout the whole development at this stage. However, lifts may be needed to building 3 to address the split levels.	N/A

SECTION F: HEALTH AND AMENITY		
PART F2 – SANITARY AND OTHER FACILITIES		
F2.0: Deemed-to-Satisfy Provisions	Noted	-
F2.4: Accessible Sanitary Facilities (including Table F2.4)	It can be noted that buildings 1, 2 and 3 have been provided with both male and female accessible sanitary compartments as required under this Clause. Buildings 4, 5 and 6 have not been provided with any sanitary facilities, however it is assumed that these buildings will be served by common sanitary facilities in another location of the proposed zoo. It has been identified that certain accessible sanitary facilities within the differing buildings do not meet the door circulation space and ambulant facility requirements of AS1428.1-2009 and will require a design change to achieve compliance. <u>Building 1:</u>	✓

SECTION F: HEALTH AND AMENITY		
	- The male and female sanitary facilities located in the office area of the building have ambulant disabled toilets. However, the female ambulant disabled toilet has a washbasin installed within the cubicle and this encroaches upon the 900mm x 900mm circulation space as required in front of the closet pan. - Grabrails are also to be provided to the accessible and ambulant disabled sanitary compartments <u>Building 2:</u> - The accessible sanitary facilities have the capability of complying with this clause. <u>Building 3:</u> - The accessible sanitary facilities have the capability of complying with this clause. The accessible sanitary facilities found within Buildings 1,2 and 3 will be further assessed at a later stage of development.	

4 STATEMENT OF COMPLIANCE

The design documentation as referred to in this report has been assessed against the applicable provisions of the BCA as outlined in Part 1.2 of this report and it is considered that such documentation complies or is capable of complying (as outlined in Part 3.2 of this report) with those documents subject to the following:

4.1 Building 3 -Access Requirements

Access for persons with a disability is required to be provided direct to the principle pedestrian entrance of Building 3 administration via the provision of a ramp complying with AS1428.1-2009 or a lift complying with Clause E3.6 of BCA in accordance with Clause D3.2 of BCA2015. This shall be provided to the eastern elevation leading to the reception area.

Access for persons with a disability is required to be provided throughout Building 3 in accordance with Clause D3.1 of BCA2015 where there are currently split level stairs proposed. Access will be required to be provided by internal ramps complying with AS1428.1-2009 or lifts complying with Clause D3.3 & E3.6 of BCA2015.

4.2 Design Certification

Further due to the level of detail provided at this stage the following items are to form part of a design statement or specification:

General

1 Tactile ground surface indicators will be installed at the top and bottom of stairways (other than fire isolated stairways); and where an overhead obstruction is less than 2 metres above the floor level. Tactile ground surface indicators will comply with Sections 1 and 2 of AS/NZS 1428.4.1.

2 On an accessway where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights or glazing capable of being mistaken for a doorway or opening will be clearly marked and comply with Clause 6.6 of AS1428.1-2009. A solid non-transparent contrasting line not less than 75mm wide is to extend across the full width of the glazing panel. The lower edge of the contrasting line is to be located between 900mm and 1000mm above the plane of the finished floor level. The contrasting line is to provide a minimum of 30% luminance contrast when viewed against the floor surface or surfaces within 2 metres of the glazing on the opposite side.

3 All doorways will have a minimum luminance contrast of 30% in accordance with Clause 13.1 of AS1428.1-2009.

4 Fixtures and fittings in accessible and ambulant disabled sanitary facilities will be provided and installed in accordance Clause 15 of AS1428.1-2009.

5 Walkways will comply with Clause 10 of AS1428.1-2009.

6 For the walkways, the floor or ground surface abutting the sides of the walkway will be firm and level of a different material to that of the walkway at the same level and follow the grade of the walkway and extend horizontally for a minimum of 600mm, or be provided with a kerb or kerb rail in accordance with Clause 10.2 of AS1428.1-2009.

7 Stairways will comply with Clause 11 of AS1428.1-2009.

8 Handrails will comply with Clause 12 of AS1428.1-2009.

9 Grabrails will comply with Clause 17 of AS1428.1-2009.

10 Accessible car spaces will achieve compliant headroom clearances in accordance with Clause 2.4 of AS/NZS 2890.6-2009

11 Bollards will be provided in the shared disabled car space area in accordance with Clause 2.2.1(e) of AS/NZS 2890.6-2009. Refer to Annexure B1 for a diagrammatic explanation.

12 Switches and power points will comply with Clause 14 of AS1428.1-2009.

13 Floor and ground floor surfaces on accessible paths and circulation spaces including the external areas will comply with Clause 7 of AS1428.1-2009.

14 Braille and tactile signage will comply with BCA2015 Clause D3.6.

15 Signage will to comply with Clause 8 of AS1428.1-2009.

16 The unobstructed height of a continuous accessible path of travel will be a minimum of 2000mm and 1980mm at doorways.

17 Any change in level that exceeds 3mm will be ramped in accordance with Clause 6 of AS1428.2.

18 Door handles and the like, will be in accordance with Clause 13.5 of AS1428.1-2009.

19 Hearing Augmentation shall be provided in accordance with Clause D3.7 of BCA2015.

Annexure A Design Documentation

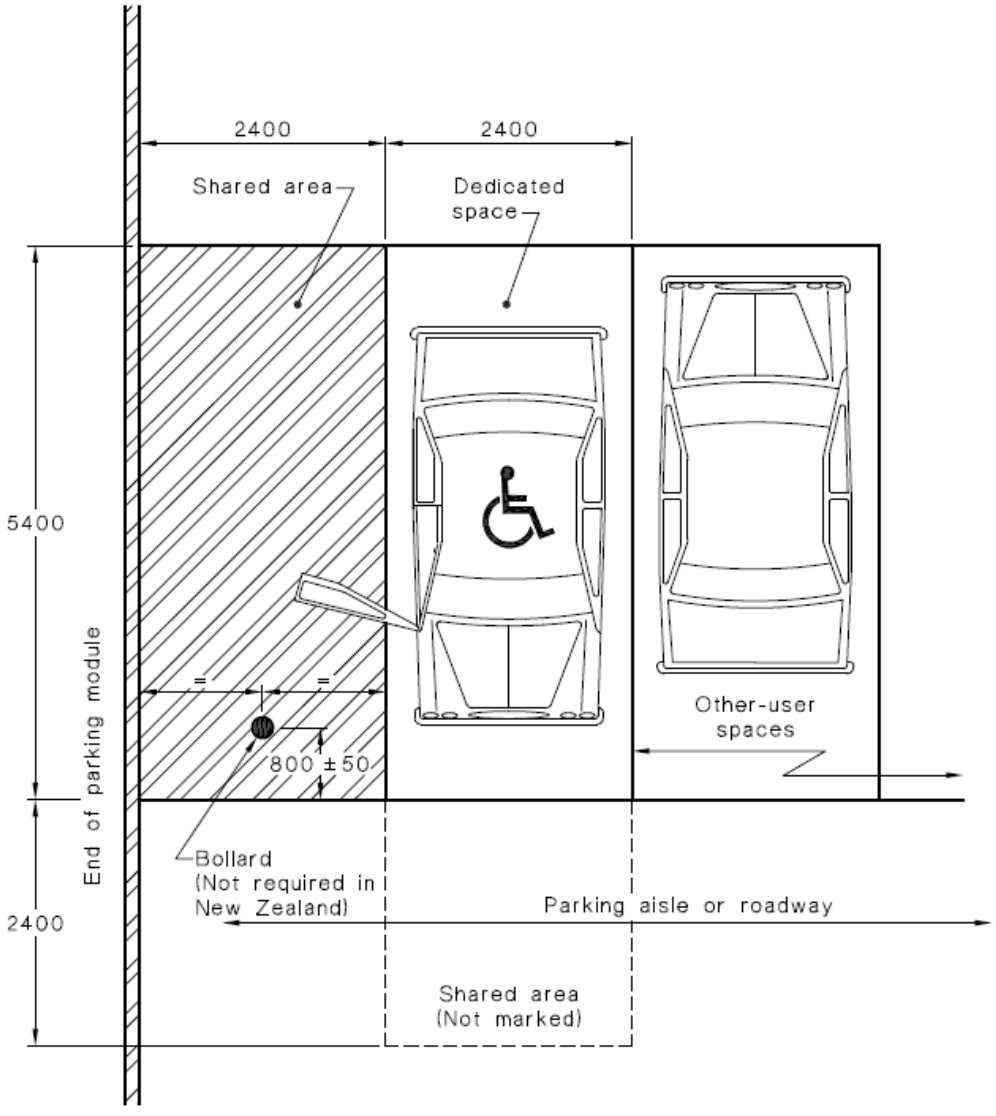
This report has been based on the following design documentation.

Architectural Drawing Schedule

No.	Drawing	Scale	Issue
DA 01	Cover Sheet / Locality Plan	N.T.S	C
DA 02	Master Plan For The Site	NA	C
DA 03	DA Areas Calculations - Building 1	NA	C
DA 04	DA Areas Calculations - Building 2	NA	C
DA 05	DA Areas Calculations - Building 3	NA	C
DA 06	DA Areas Calculations - Buildings 4,5,6,20,21,22 + 23	NA	C
DA 100	Site & Floor Plan Of Building 1 - Entry / Retail Pavilion	1:200	C
DA 101	Floor Plan Of Building	1:100	C
DA 102	Roof Plan	1:100	C
DA 103	3D Image / Enviromental	NA	C
DA 104	Elevations	1:100	C
DA 105	Section	1:100	C
DA 106	Section A	1:50	C
DA 107	Section B	1:50	C
DA 108	Section C	1:50	C
DA 109	Section D	1:50	C
DA 110	Section E	1:50	C
DA 111	Section F	1:50	C
DA 200	Site & Floor Plan Of Building 2 - Restaurant	1:200	C
DA 201	Floor Plan Of Building	1:100	C
DA 202	Roof Plan	1:100	C
DA 203	3D Image / Enviromental	NA	C
DA 204	Elevations	1:100	C
DA 205	Elevations	1:100	C
DA 206	Sections	1:100	C
DA 300	Site & Floor Plan Of Building 3 - Administration / Curatorial / Vet	1:200	C
DA 301	Floor Plan Of Building	1:100	C
DA 302	Roof Plan	1:100	C
DA 303	3D Image / Enviromental	NA	C
DA 304	Elevations	1:100	C
DA 305	Sections	1:100	C
DA 400	Site & Floor Plan Of Building 4 - Nocturnal Habitat	1:200	C
DA 401	Floor Plan Of Building	1:50	C
DA 402	Reflected Ceiling Plan	1:50	C
DA 403	3D Image / Enviromental	NA	C
DA 404	Elevations	1:50	C
DA 405	Sections	1:50	C
DA 406	Sections	1:50	C
DA 500	Site & Floor Plan Of Building 5 - Insects Habitat	1:200	C
DA 501	Floor Plan Of Building	1:50	C
DA 502	Reflected Ceiling Plan	1:50	C
DA 503	3D Image / Enviromental	NA	C
DA 504	Elevations	1:50	C
DA 505	Sections	1:50	C
DA 506	Sections	1:50	C
DA 600	Site & Floor Plan Of Building 6 - Aquatic Habitat	1:200	C
DA 601	Floor Plan Of Building	1:50	C
DA 602	Reflected Ceiling Plan	1:50	C
DA 603	3D Image / Enviromental	NA	C
DA 604	Elevations	1:50	C
DA 605	Sections	1:50	C
DA 606	Sections	1:50	C
DA 700	Site & Floor Plan Of Building 20,21,22 + 23 - Kiosk	1:50	C
DA 701	Floor Plan Of Building	1:50	C
DA 702	3D Image / Enviromental	NA	C
DA 703	Elevations		C
DA 704	Sections		C
DA 800	Site & Floor Plan Of Building 7 - Back Of House	1:200	C
DA 801	Elevations & Sections	1:100	C
DA 810	Site & Floor Plan Of Building 8 - Back Of House	1:200	C
DA 811	Elevations & Sections	1:100	C
DA 820	Site & Floor Plan Of Building 9 - Back Of House	1:200	C
DA 821	Elevations & Sections	1:100	C
DA 830	Site & Floor Plan Of Building 10 - Back Of House	1:200	C
DA 831	Elevations & Sections	1:100	C
DA 840	Site & Floor Plan Of Building 11 - Back Of House	1:200	C
DA 841	Elevations & Sections	1:100	C
DA 850	Site & Floor Plan Of Building 12 - Back Of House	1:200	C
DA 851	Elevations & Sections	1:100	C
DA 860	Site & Floor Plan Of Building 13 - Back Of House	1:200	C
DA 861	Elevations & Sections	1:100	C
DA 870	Site & Floor Plan Of Building 14 - Back Of House	1:200	C
DA 871	Elevations & Sections	1:100	C
DA 880	Site & Floor Plan Of Building 15 - Back Of House	1:200	C
DA 881	Elevations & Sections	1:100	C
DA 890	Site & Floor Plan Of Building 16 - Back Of House	1:200	C
DA 891	Elevations & Sections	1:100	C
DA 900	Site & Floor Plan Of Building 17 - Back Of House	1:200	C
DA 901	Elevations & Sections	1:100	C
DA 910	Site & Floor Plan Of Building 18 - Back Of House	1:200	C
DA 911	Elevations & Sections	1:100	C
DA 920	Site & Floor Plan Of Building 19 - Back Of House	1:200	C
DA 921	Elevations & Sections	1:100	C

Annexure B Figures and Drawings Sample

B 1



DIMENSIONS IN MILLIMETRES

FIGURE 2.2 EXAMPLE OF AN ANGLE PARKING SPACE WITH SHARED AREA ON ONE SIDE ONLY—DIMENSIONS FOR AUSTRALIA ONLY*

B 2

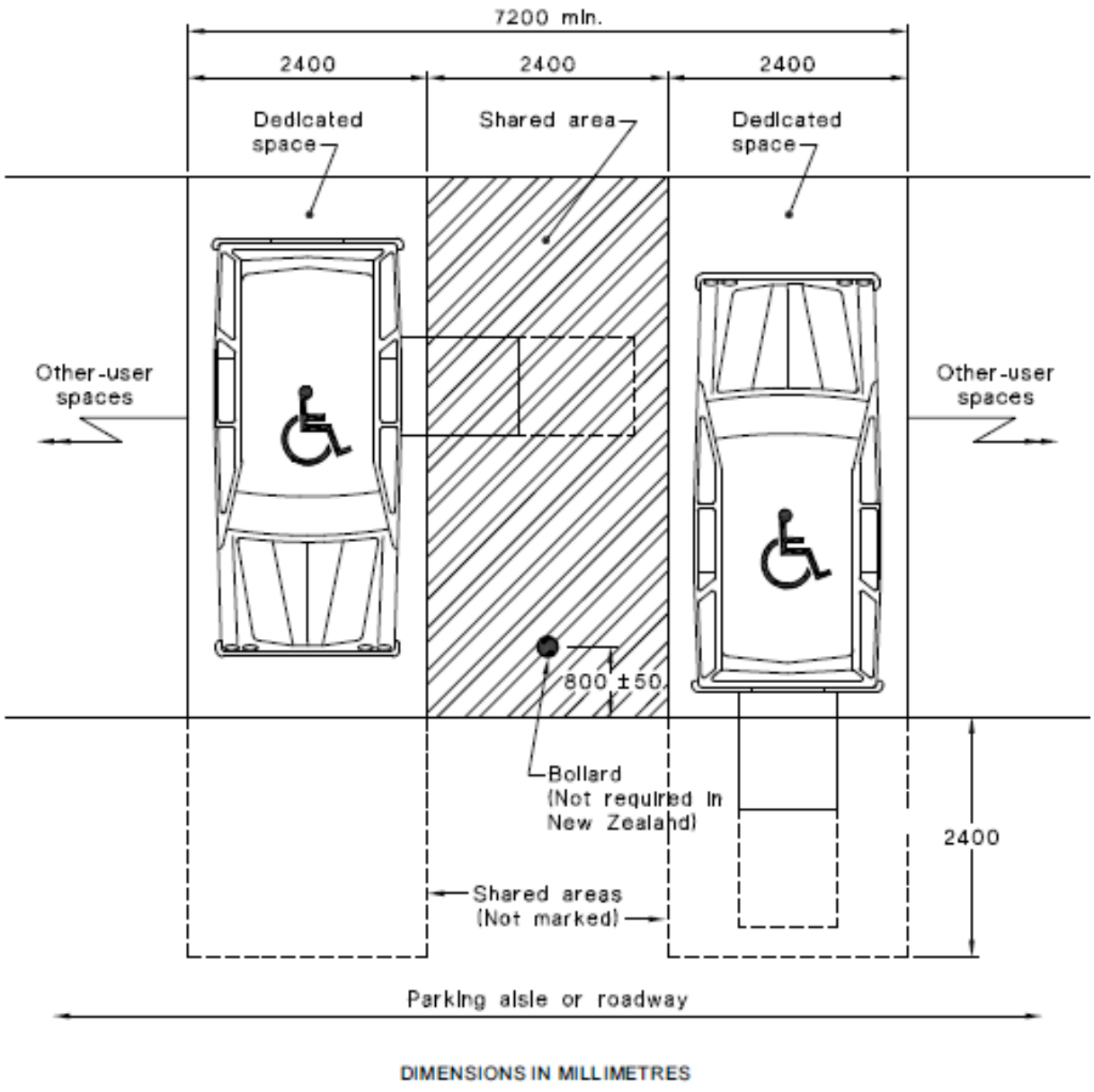
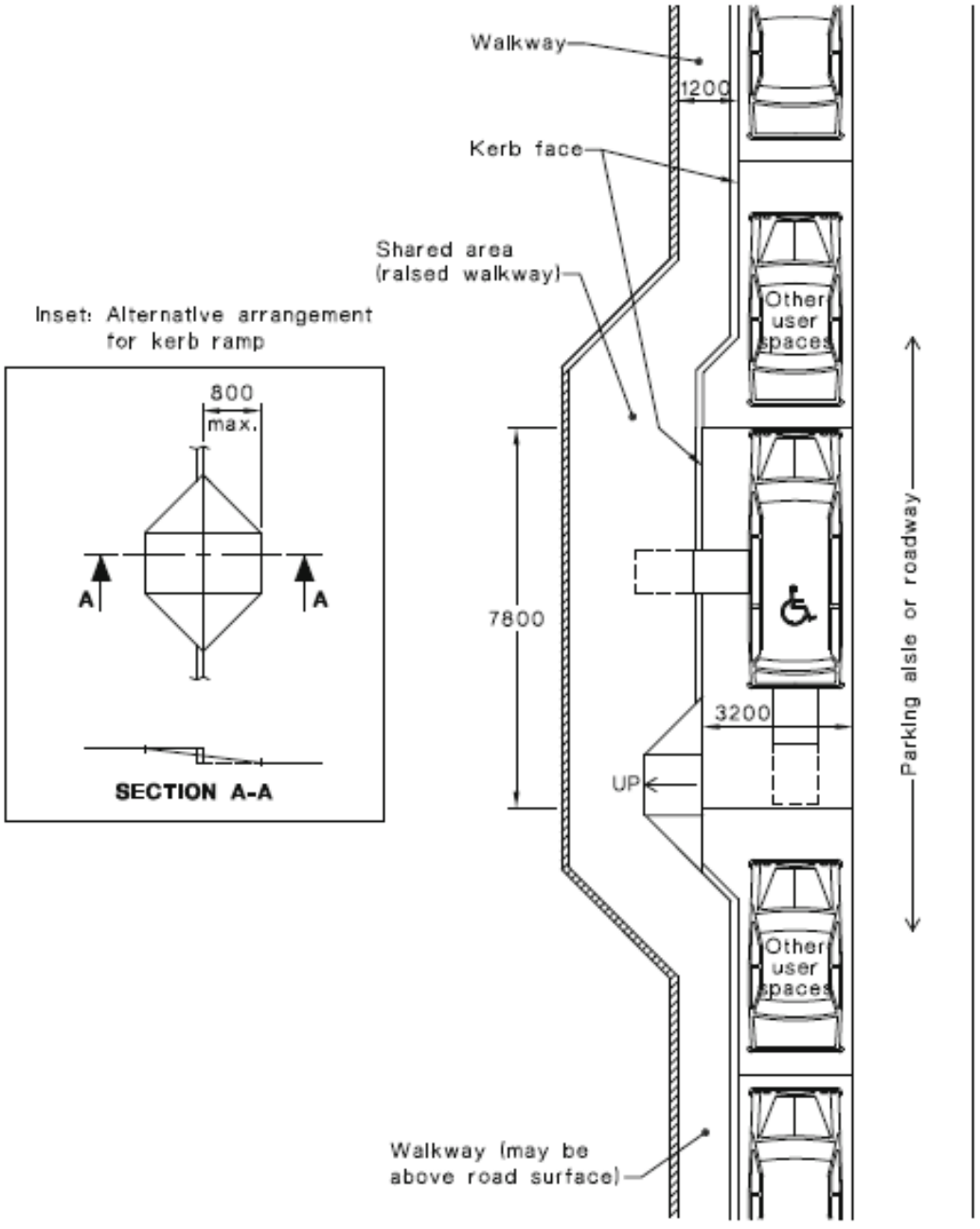


FIGURE 2.3 EXAMPLE OF TWO PARKING SPACES WITH A COMMON SHARED AREA—DIMENSIONS FOR AUSTRALIA ONLY*

Back

B 3

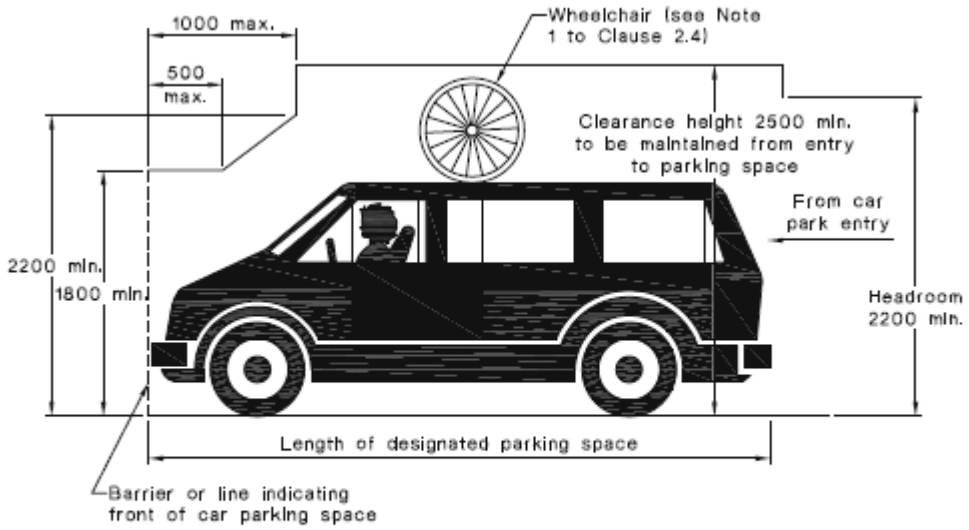


DIMENSIONS IN MILLIMETRES

FIGURE 2.6 EXAMPLE OF A PARALLEL PARKING SPACE WITH SHARED AREA RAISED—DIMENSIONS FOR AUSTRALIA ONLY*

Back

B 4

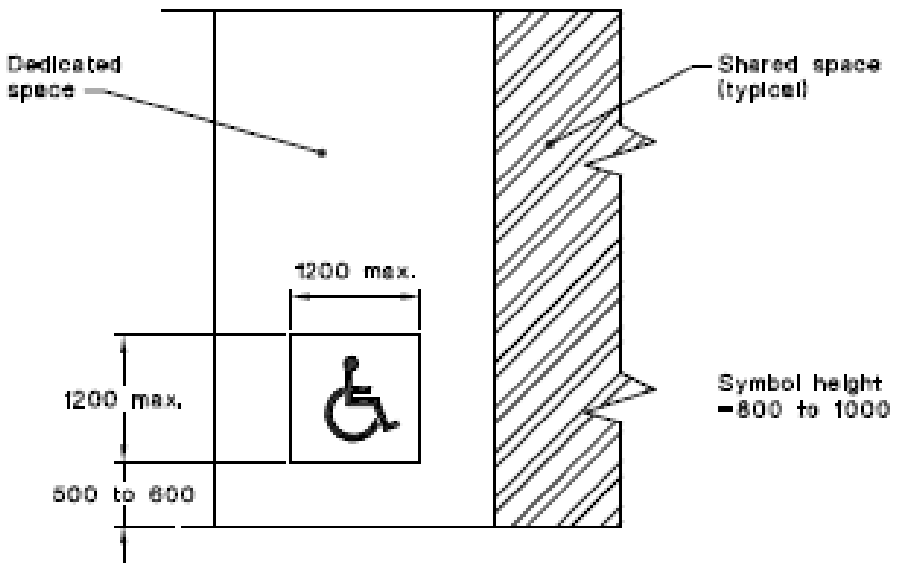


DIMENSIONS IN MILLIMETRES

FIGURE 2.7 HEADROOM REQUIRED ABOVE CAR SPACES FOR PEOPLE WITH DISABILITIES

Back

B 5

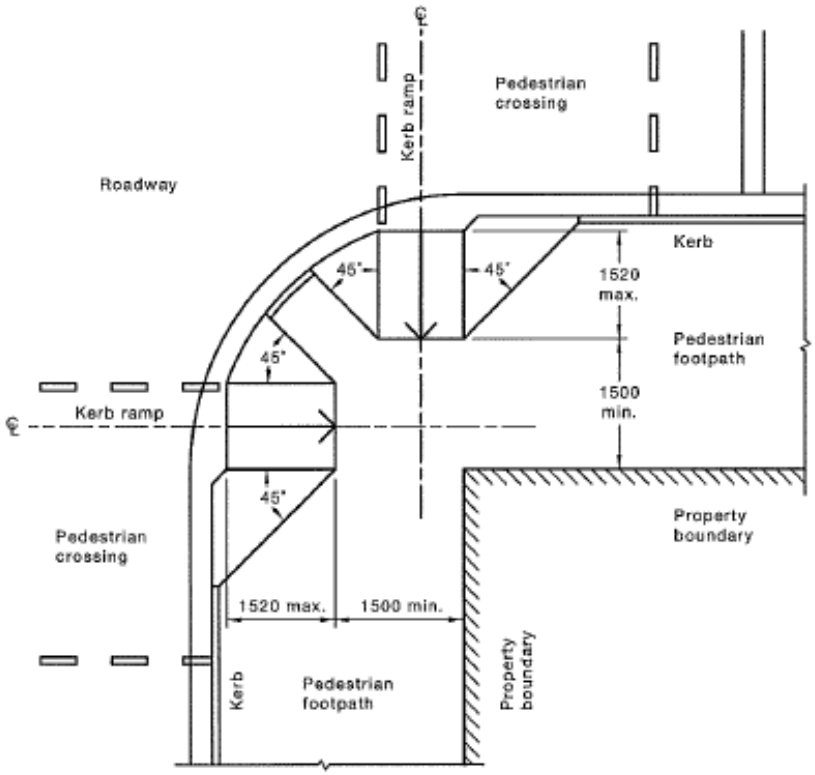


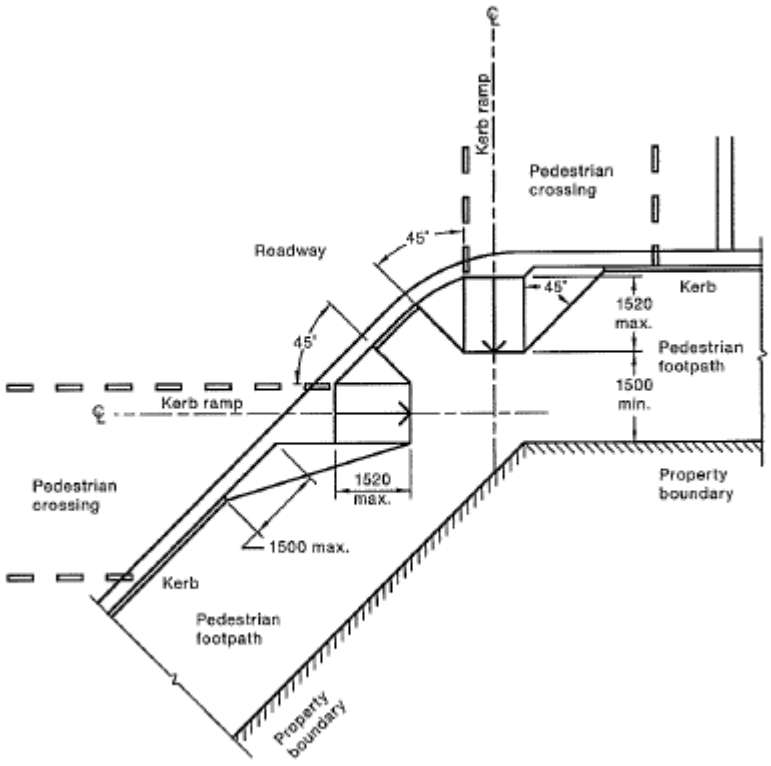
DIMENSIONS IN MILIMETRES

FIGURE 3.1 USE OF SYMBOL OF ACCESS TO IDENTIFY SPACES

Back

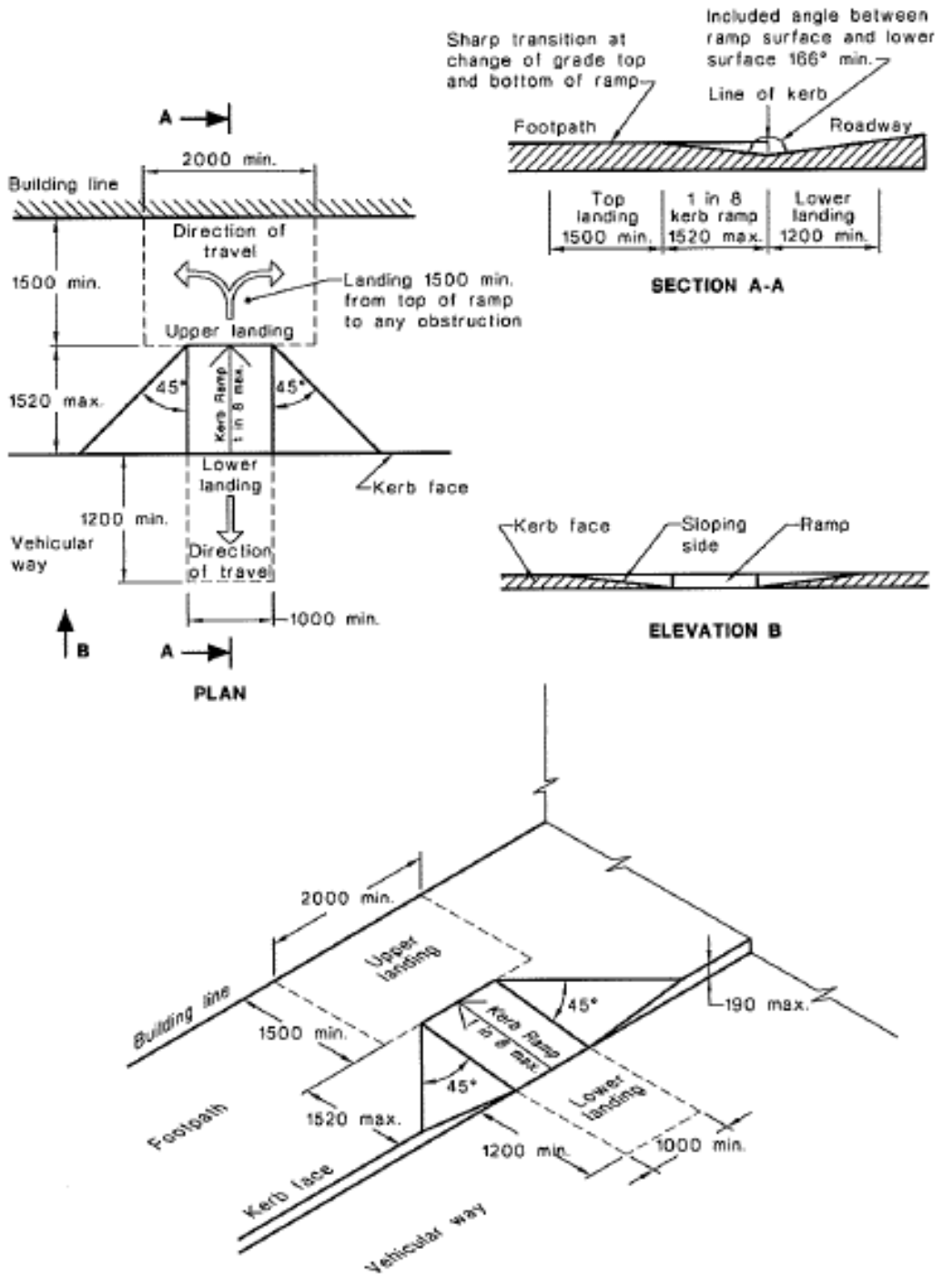
B 6





NOTES:

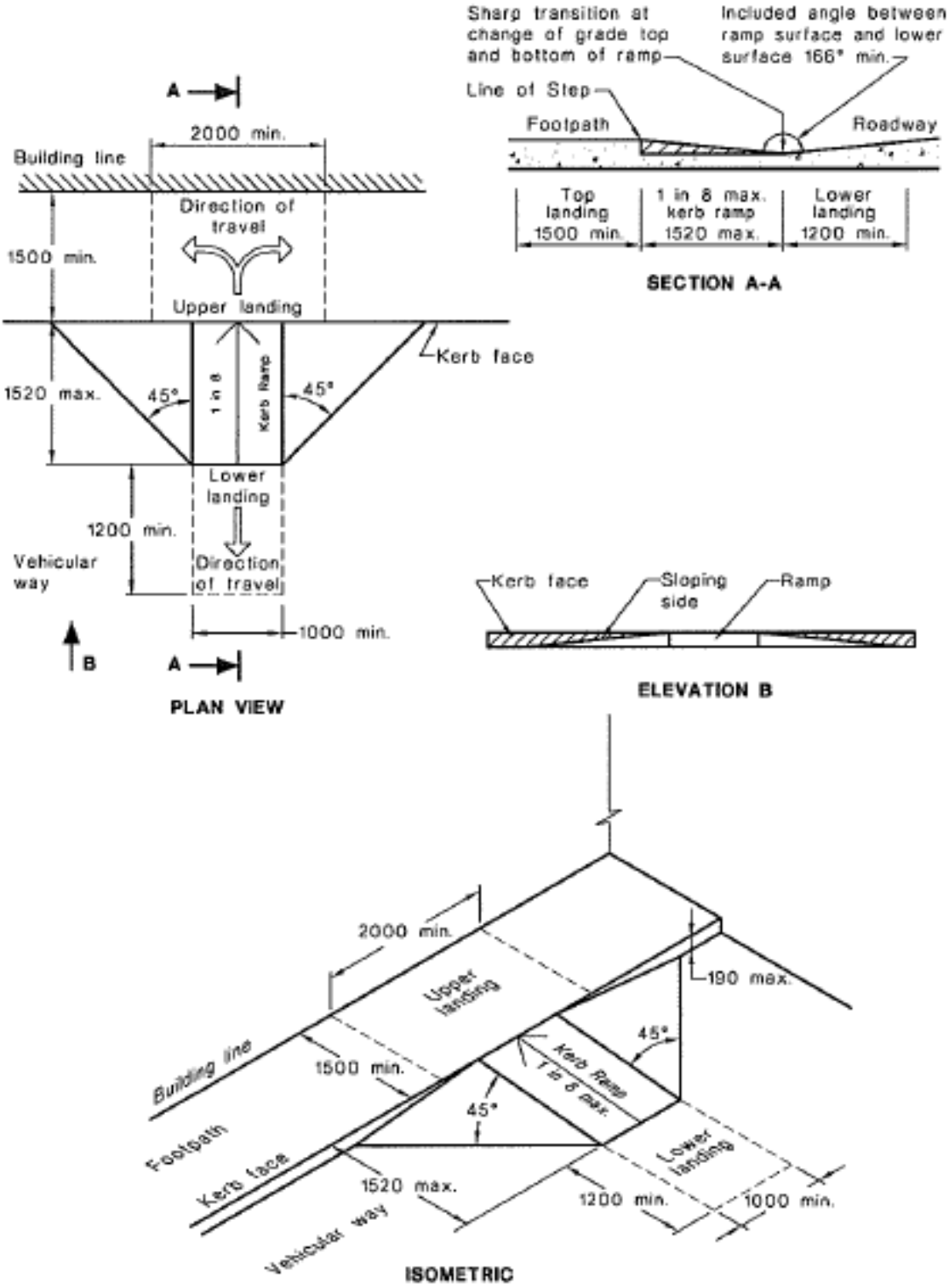
B 7



NOTE: Where there is no turn involved, top landing may be reduced to 1200 mm min. in length.

DIMENSIONS IN MILLIMETRES

FIGURE 24(A) INSERTED KERB RAMP



NOTE: Where there is no turn involved, top landing may be reduced to 1200 mm min. in length.

DIMENSIONS IN MILLIMETRES

FIGURE 24(B) ATTACHED KERB RAMP

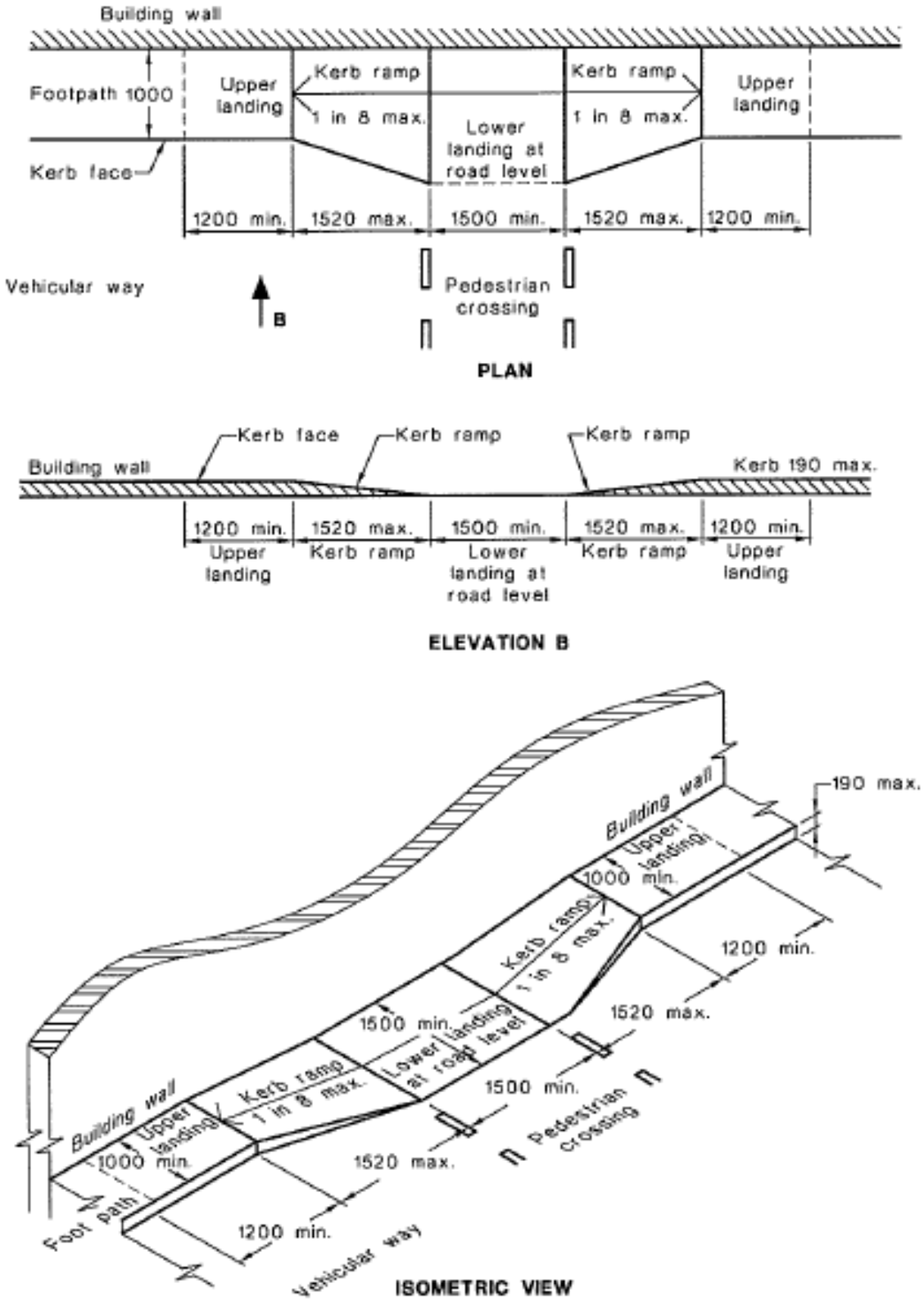
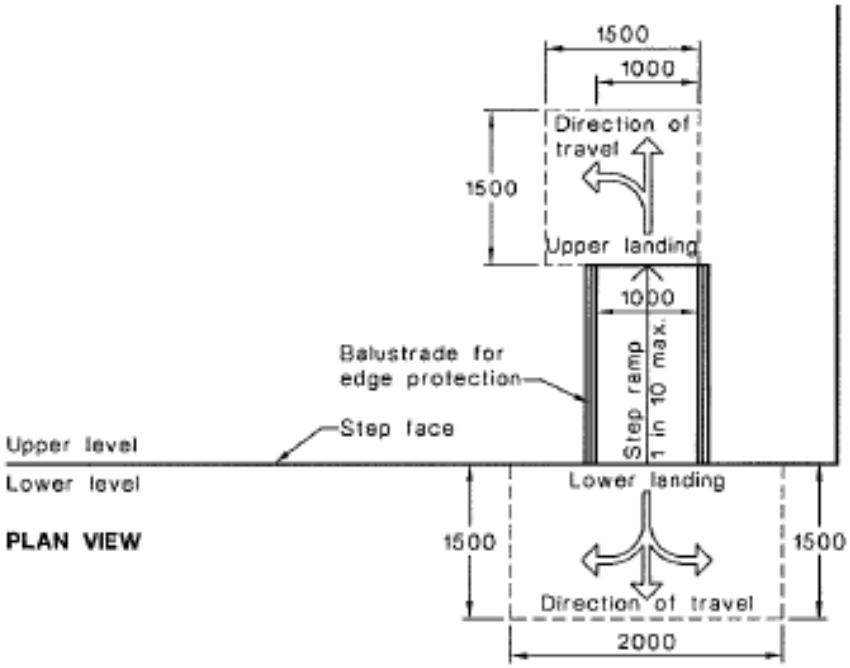
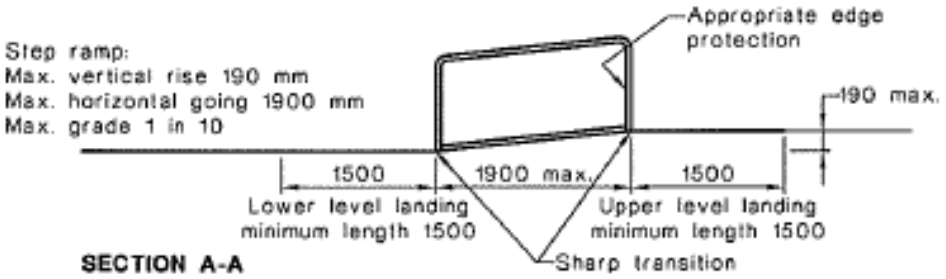
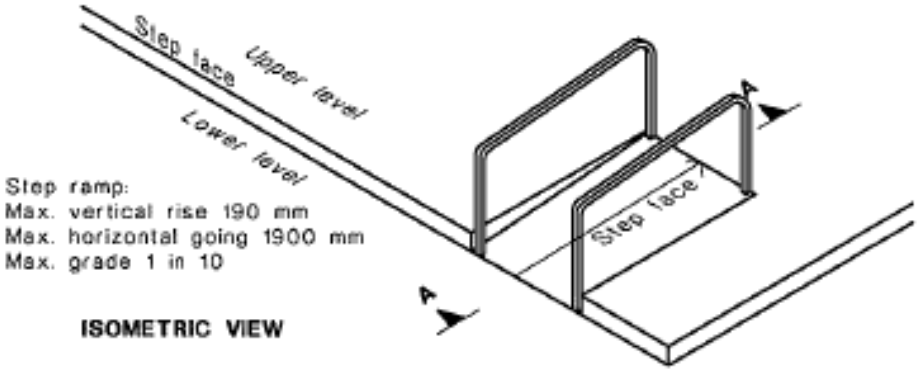


FIGURE 24(C) IN LINE KERB RAMPS—NARROW FOOTPATHS

B 8







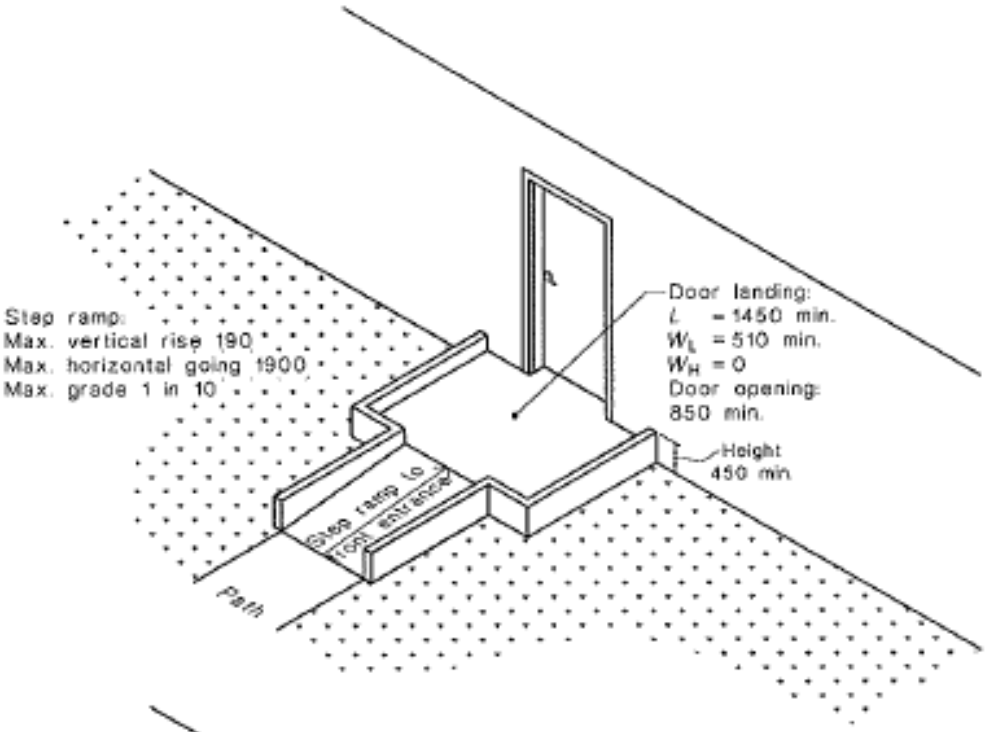
NOTES:

1 Where there is no turn involved, top and bottom landing may be reduced to 1200 mm min. i length.

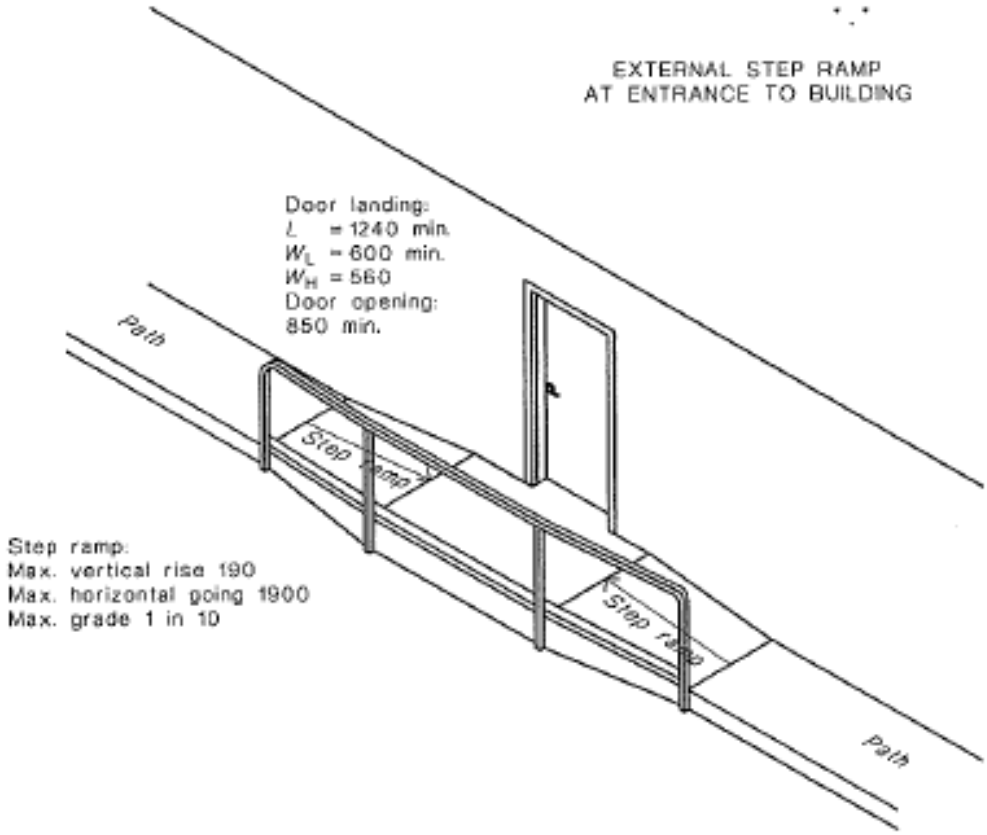
2 Kerbs or kerb rails shall be provided in accordance with Clause 10.6.1 except where splaye sides are provided at a 45° angle.

DIMENSIONS IN MILLIMETRES

FIGURE 22(A) STEP RAMP—INSERTED



EXTERNAL STEP RAMP
AT ENTRANCE TO BUILDING

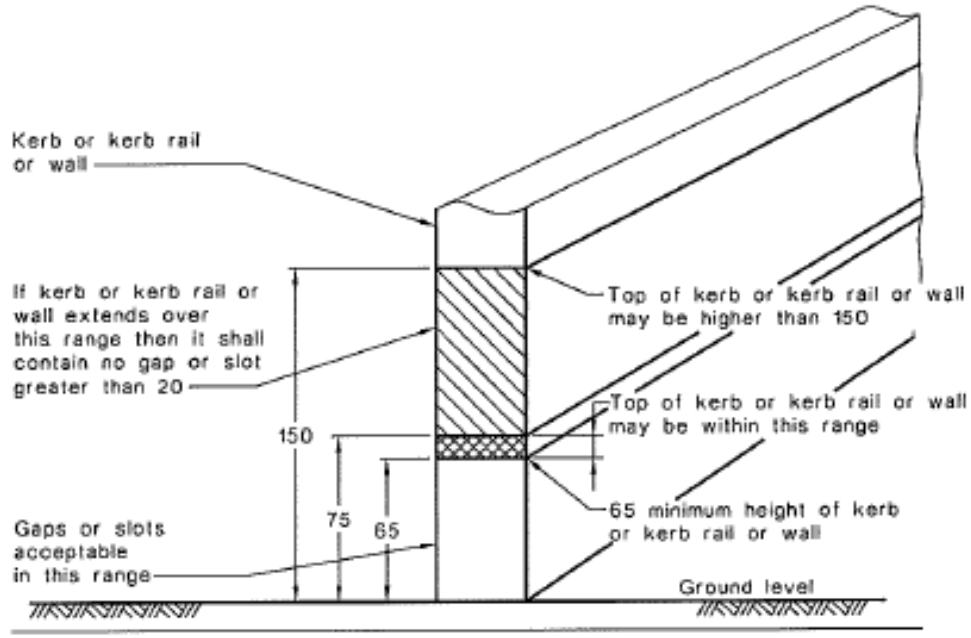


EXTERNAL STEP RAMP
AT ENTRANCE TO BUILDING

DIMENSIONS IN MILLIMETRES

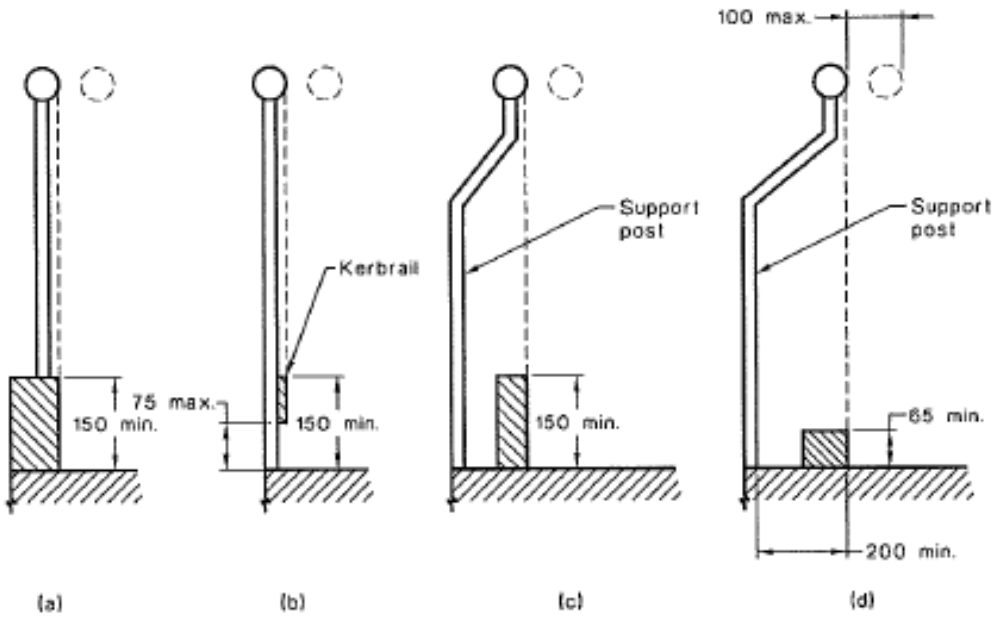
FIGURE 22(B) EXTERNAL STEP RAMPS AT ENTRANCE TO BUILDING

B 9



DIMENSIONS IN MILLIMETRES

FIGURE 18 KERB RAIL

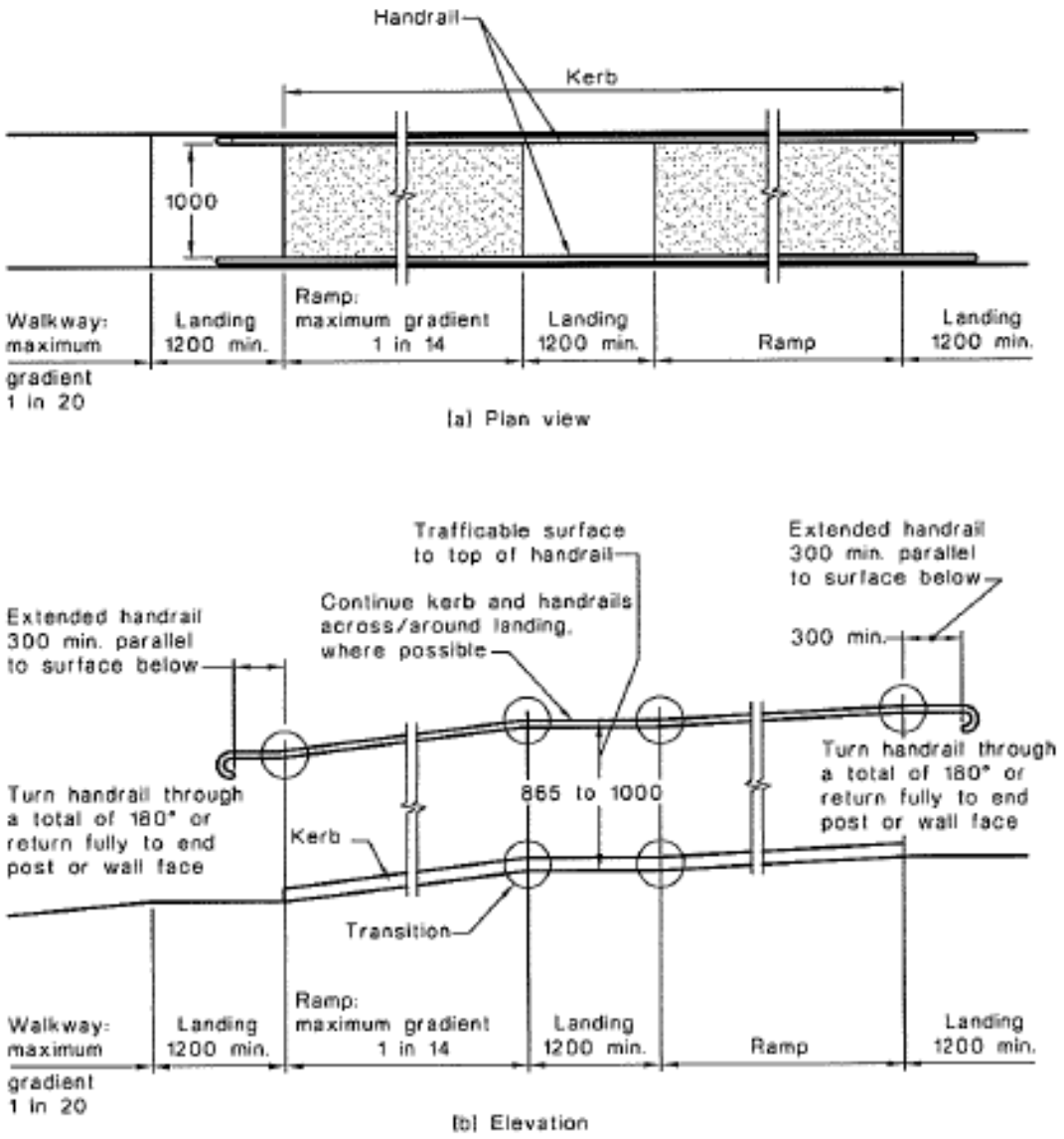


NOTE: See Appendix A for further clarification.

DIMENSIONS IN MILLIMETRES

FIGURE 19 SECTION SHOWING LOCATION OF KERB OR KERB RAIL IN RELATION TO HANDRAIL WITH VERTICAL SUPPORT

B 10



DIMENSIONS IN MILLIMETRES

FIGURE 14 RAMP HANDRAILS

B 11

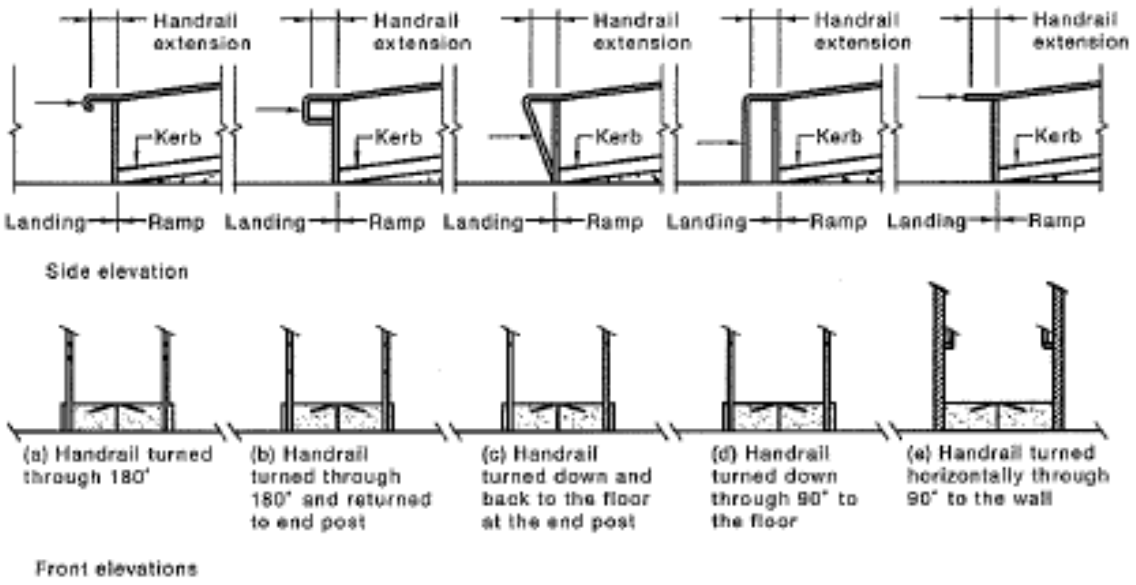
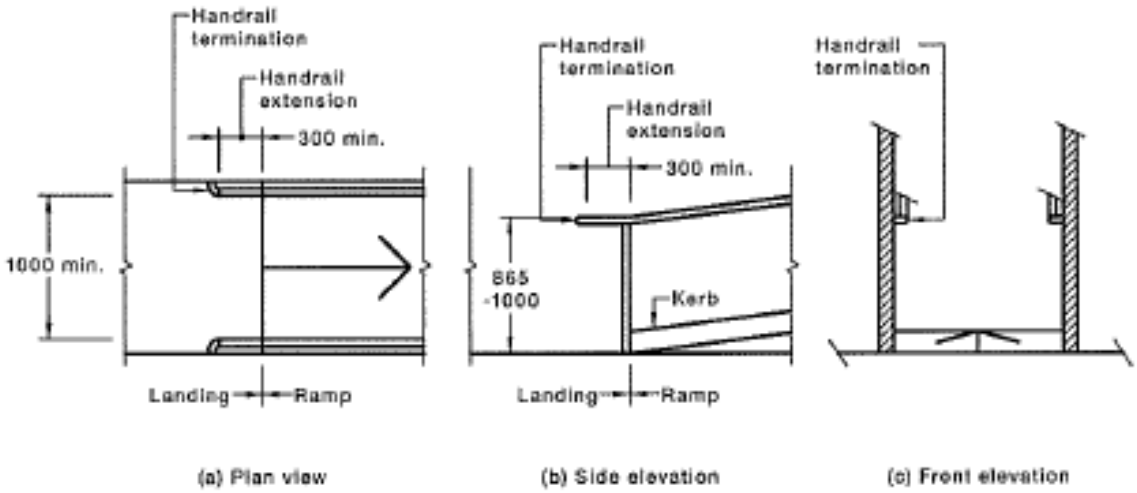


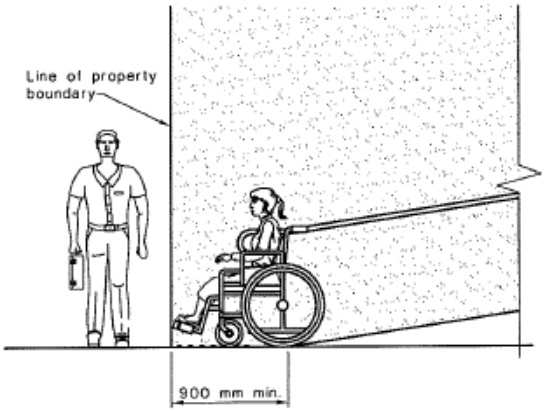
FIGURE 15(A) RAMP HANDRAILS—EXAMPLES OF HANDRAIL TERMINATIONS



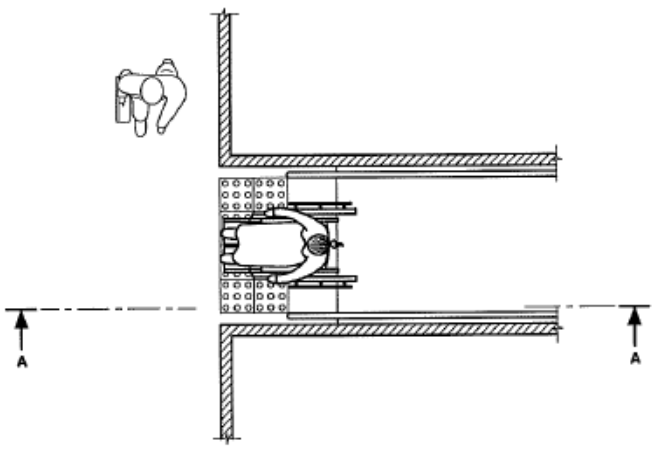
DIMENSIONS IN MILLIMETRES

FIGURE 15(B) RAMP HANDRAILS—DETAIL FOR HANDRAILS TERMINATED BY TURNING HORIZONTALLY THROUGH 90° TO THE WALL

B 12



SECTIONAL ELEVATION A-A

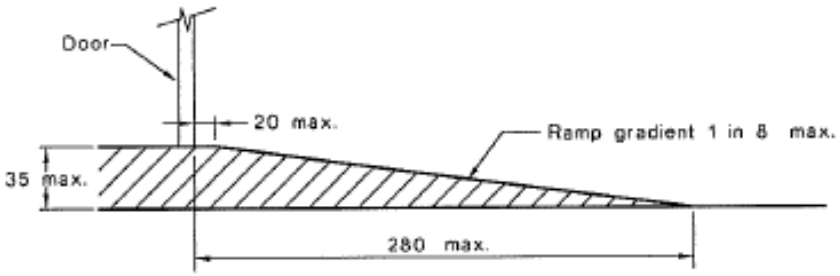


Plan

NOTE: TGSIs to be installed within the property boundary.

FIGURE 16 LOCATION OF RAMP AT A BOUNDARY TO PREVENT PROTRUSION OF HANDRAILS AND TACTILE GROUND SURFACE INDICATORS (TGSIs) INTO A TRANSVERSE PATH OF TRAVEL

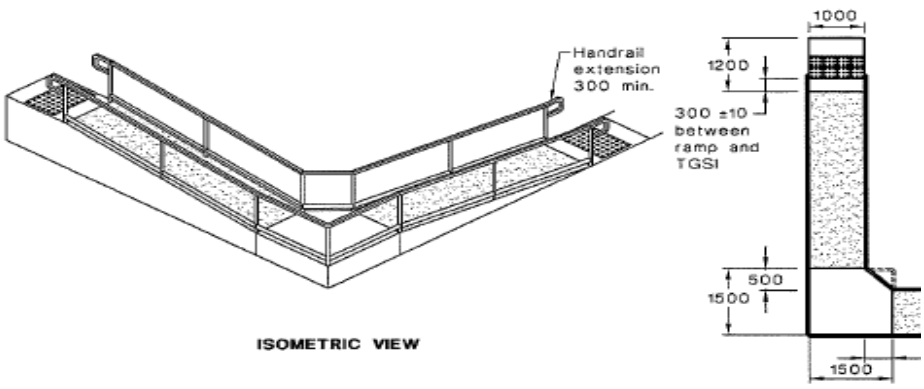
B 13



DIMENSIONS IN MILLIMETRES

FIGURE 21 THRESHOLD RAMP

B 14



ISOMETRIC VIEW

PLAN VIE

DIMENSIONS IN MILLIMETRES

FIGURE 25(B) RAMPS AND LANDINGS—90° LANDING—INTERNA

B 15

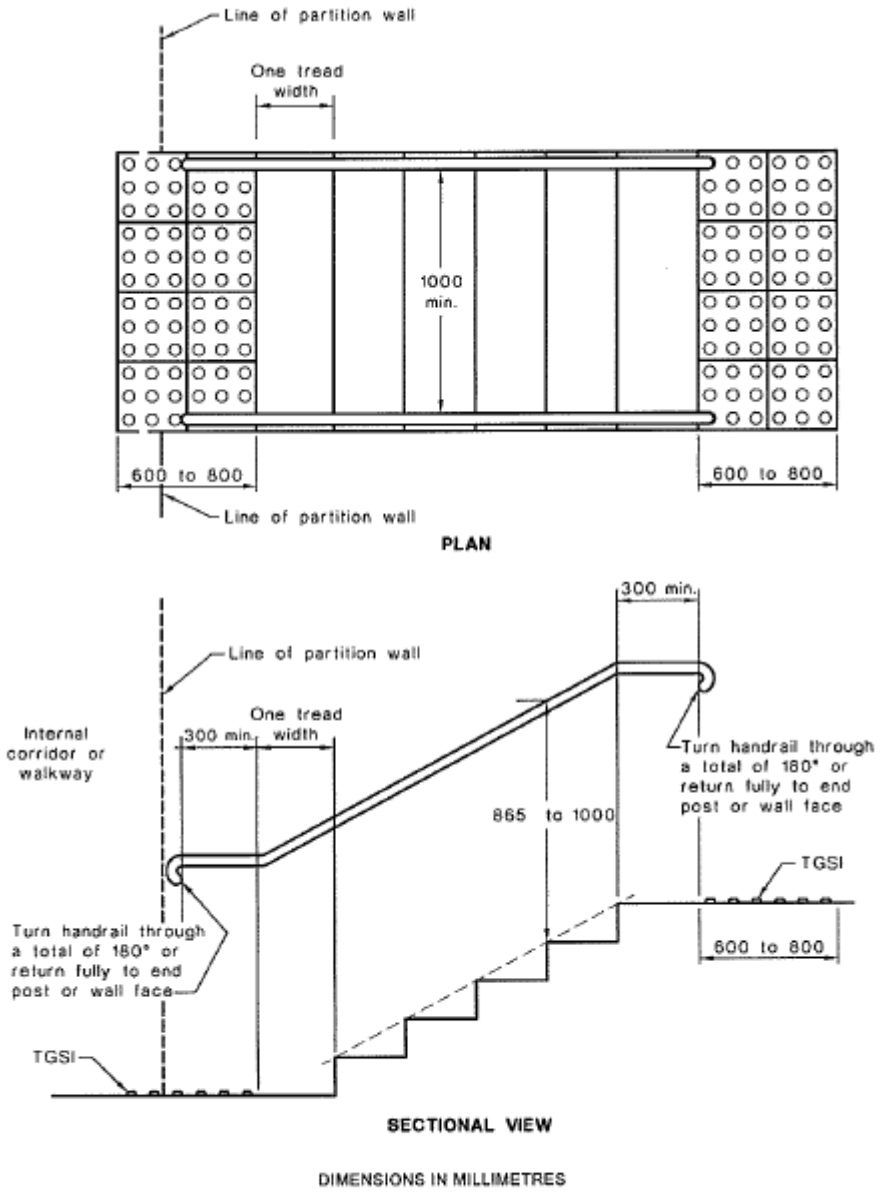
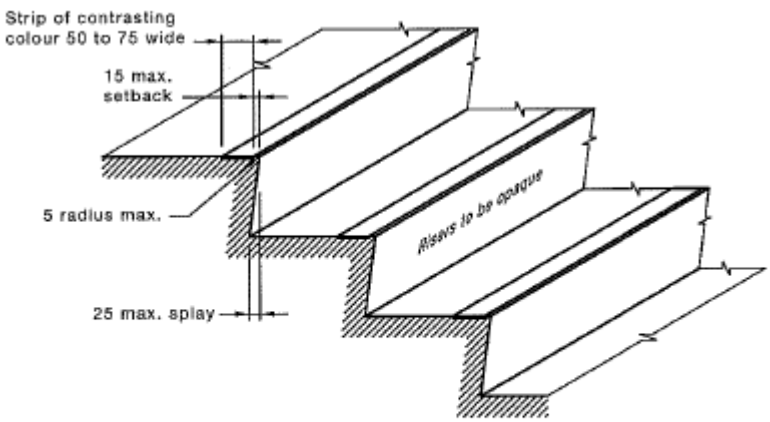


FIGURE 26(B) STAIRWAY LOCATION AND HANDRAIL EXTENSIONS AT END OF STAIRWAY OTHER THAN AT LINE OF BOUNDARY

B 16



NOTE: A chamfered nosing 5 x 5 mm may be used.

DIMENSIONS IN MILLIMETRES

FIGURE 27(A) A TYPICAL STAIR NOSING PROFILE WITH NOSING STRIP