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BUILDING CODE OF AUSTRALIA

Assessment Report

For

Macquarie Park Village

Proposed Residential Development – Stage 1

At

110 – 114 Herring Road
Macquarie Park
North Ryde

Client: Stamford Property Services Pty Ltd
Report: CF10606-RP02A-Stage1-120613
Date: 12 June 2013

REPORT REGISTER

Report No.	Issue No.	Remarks	Issue Date
CF10606-RP02	Draft	Draft for comments	26.04.13
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1.0 INTRODUCTION

1.1 Background

The BCA report is primarily to provide a detailed assessment of the proposed design against the Deemed-To-Satisfy (DTS) requirements of BCA. This will also assist the designer in design issues and identify if further information is required for the Construction Certificate.

1.2 Purpose of the Report

This report is to identify any departure from the DTS requirements of the current building regulations, namely, BCA 2013 (BCA 2013 is effective from 1 May 2013). The report also provides an audit review of the architectural drawings against the relevant BCA clauses.

This report supersedes the previous report (CF10606-RP01-310111) which was based on the whole concept development. This report relates to the amended design for the proposed Stage 1 development.

The Stage 1 development comprises the erection of the 3 basement levels of common car park and the construction of four residential towers, namely, Adelaide Building (formerly Hunter Apartment), Darwin Building (formerly Young Apartment), Perth Building (formerly Woodward Apartment) and Brisbane Building (formerly Cutler Apartment) located to the western part of the site.

The remaining buildings, Hobart, Melbourne and Sydney Buildings will be constructed under Stage 2 development and will be assessed separately.

1.3 Referenced Documents

Drawing numbers DA2001E to DA2003E, DA2100E to DA2102E, DA2103F, DA2105F, DA2106C to DA2109C, DA2110F, DA2111D, DA2112C, DA2113D and DA2115D.

1.4 Limitations and Exclusions

This report does not address the requirements under the Disability Discrimination Act. The advice from a suitably qualified Access Consultant should be obtained.

The document was assessed against the BCA requirements and did not take into account of any local council policies (such as those requiring accessible units for people with disabilities) which may conflict with the DTS requirements of BCA. If this situation arises, the more stringent requirements prevail.

The BCA clause requirements listed under the 'Comment' column of the assessment table in Section 4.0 only relate to the relevant parts of the clause that are applicable to this project. They are in abbreviated form for readability and therefore do not present the clause in its complete text. For the full extent of the clause requirements, reference should be made to the BCA.

1.5 Assessment Methodology

A BCA assessment was carried out in tabulated form in Section 4.0. The document was checked against the BCA requirements and the findings were detailed under the 'Comment' column and shown in *italic texts*. The status of compliance was subsequently specified under the 'Status' column.

Where the Status denotes "To comply", it means details are not available for review and it is assumed that the design is capable of being complied with.

The non-compliances and matters that required special attention are shown shaded in the table under Section 4.0.

2.0 EXECUTIVE SUMMARY

2.1 Non-complying Issues

The report identified the areas of non-compliance with the Deemed-To-Satisfy provisions of the BCA. These are shown shaded in the assessment table in Section 4.0. Some of the non-compliances can be overcome by re-designing. Where non-compliance cannot be addressed by re-designing, Alternative Solutions [1] will be required to address these matters.

The potential issues that will be addressed by Alternative Solutions are (but not limited to):

- Excessive travel distance in the car park. (D1.4 and D1.5). Recommended engineered travel distances are 25/70/130.
- Travel distance from Unit DA102 of Darwin Building is approximately 7m to a point of choice in lieu of 6m. This is typical on L1 to L8 (refer to D1.4).
- Travel distance from Unit BR1205 on L2 is 8m to a point of choice in lieu of 6m. This is typical from L2 to L13 (refer to D1.4).
- Travel distance from DAG07 on the Ground Floor of Darwin Building is approximately 9m to a point of choice in lieu of 6m.
- Minimum distance between exits on L2 to L13 of Brisbane Building is approximately 7.7m in lieu of 9m (refer to D1.5).
- Adelaide and Darwin Buildings are not proposed to be provided with a hydrant ring main (refer to E1.3).
- Adelaide and Darwin Buildings are not proposed to be provided with an automatic sprinkler system (refer to E1.5).
- The fire control room is not located at the front entrance of the building. (refer to E1.8)
- Some fire isolated stairs discharge into a covered area. The perimeter of the covered area appears to be less than 1/3 open which does not comply with D1.7(b)(iii) of the BCA. (refer to D1.7)

2.2 Essential Fire Safety Measures

The following essential fire safety measures are required to be installed in the building:

Design/Installation Standard			
Item	Measure	BCA Clause	Relevant Australian Standard or Other Standard
1.	Access panels, self-closing fire doors & hoppers to fire-resisting shafts	BCA Clause C3.13	AS 1530.4-2005, AS 4072.1-2005
2.	Artificial lighting required to assist occupant movement and egress	BCA Clause F4.4	AS/NZS 1680.0-1998
3.	Automatic fail safe devices, self closing, automatic closing and latching device	BCA Clauses C3.5, C3.8, D2.19, D2.21 & D2.22 , NSW C3.11(d), Spec C3.4	AS 1670.1-2004 (Amdt 1)
4.	Automatic fire detection & alarm system	BCA Clauses C2.3, C3.5, C3.8, C3.11, NSW C3.11(d), Spec C3.4, Spec E2.2a	AS 1670.1-2004 (Amdt 1)
5.	Automatic fire suppression systems	BCA Clause E1.5 & Spec E1.5	AS 2118.1-1999 (Amdt 1), AS 2118.4-1995 (valid until 30.4.2014), AS 2118.4-2012 & AS 2118.6-1995 (valid until 30.4.2014), AS 2118.6-2012
6.	Building elements required to satisfy prescribed fire-resistance levels	Part C & Spec C1.1	
7.	Building occupant warning system	Clause 8 of Spec E1.5 & Clause 6 of Spec E2.2a	AS 1670.1-2004 (Amdt 1)

1 Alternative Solution means a building solution which complies with the Performance Requirements of the BCA.

Design/Installation Standard			
Item	Measure	BCA Clause	Relevant Australian Standard or Other Standard
8.	Emergency lifts	BCA Clauses E3.4, E3.7	AS 1735.11-1986 & AS 1735.12-1999 (Amdt 1)
9.	Emergency lighting	BCA Clause E4.2, E4.4,	AS/NZS 2293.1-2005 (Amdt 1)
10.	Emergency Evacuation Plan		AS 3745-2002
11.	Exits (including fire-isolated stairways, ramps and passageways, non-fire-isolated stairways and ramps, stair treads, balustrades and handrails associated with exits)	BCA Clause D2.2, D2.3, D2.11, D2.13, D2.14, D2.16 & D2.17	
12.	Exit signs	BCA Clauses E4.5, NSW E4.6 & E4.8	AS/NZS 2293.1-2005 (Amdt 1)
13.	Exit signs (non-illuminated)	BCA Clause E4.7	
14.	Fire control centres and rooms	BCA Clause E1.8, Spec. E1.8	
15.	Fire dampers	BCA Clause C3.15	AS/NZS 1668.1-1998 (Amdt 1)
16.	Fire doors	BCA Clause C3.5, C3.8, C3.10, C3.11, Spec C3.4	AS 1905.1-2005, AS 1905.2-2005, AS 1735.11-1986
17.	Fire hose reel systems	BCA Clause E1.4	AS 2441-2005 (Amdt 1)
18.	Fire hydrant systems	BCA Clause E1.3	AS 2419.1-2005 (Amdt 1)
19.	Fire safety notices		Clause 183 of EP&A Regulation 2000
20.	Fire seals protecting openings in fire-resisting components of the building	BCA Clause C3.15, Spec A2.4 & Spec C3.15	AS 1530.4-2005 & AS 4072.1-2005 (Amdt 1)
21.	Lightweight construction	BCA Clause C1.8, Spec A2.4 & Spec C1.8	AS/NZS 1530.3-1999, AS 1530.4-2005, ASTM E72-80-1981, ASTM E695-79-1985
22.	Materials and assemblies required to have fire hazard properties	BCA Clause C1.10, Spec C1.10	AS/NZS 1530.3-1999, AS 4254.1-2012, AS 4254.2-2012, AS/NZS 3837-1998, AS ISO 9705-2003
23.	Path of travel	BCA Part D, NSW Part D	
24.	Mechanical air handling systems	BCA Spec C2.5, C3.15, E2.2, F4.12, Spec E2.2a	AS/NZS 1668.1-1998 (Amdt 1), AS 1668.2-1991(valid until 30.4.2014) & AS 1668.2-2012
25.	Passenger lift fire service controls	BCA Clauses E3.7, E3.9, E3.10	AS 1735.11-1986, AS 1735.12-1999 (Amdt 1)
26.	Portable fire extinguishers	BCA Clause E1.6	AS 2444-2001
27.	Pressurising systems	BCA Clauses C2.12, D1.7, E2.2, Spec E1.8 & Spec E2.2a	AS/NZS 1668.1-1998 (Amdt 1)
28.	Required exit doors (power operated)	BCA Clause D2.19(b)(iv)	
29.	Self-closing non-combustible door or hopper to garbage shaft	BCA Clause C3.13	AS 1530.1-1994
30.	Smoke hazard management systems	BCA Clause E2.2, NSW E2.2, Spec E2.2a	AS/NZS 1668.1-1998 (Amdt 1) & AS 1670.3-2004
31.	Smoke and/or other suitable detectors	BCA Spec E2.2a	AS 1670.1-2004 (Amdt 1) & AS 3786-1993 (Amdt 1, Amdt 2, Amdt 3 & Amdt 4)
32.	Smoke dampers	BCA Clause E2.2	AS/NZS 1668.1-1998 (Amdt 1)
33.	Smoke doors *(Adelaide, Darwin & Perth Buildings)*	BCA Clause C2.14, Spec. C3.4	
34.	Sound systems and intercom systems for emergency purposes	BCA Clause E4.9	AS 1670.4-2004
35.	Stretcher facilities in lifts	BCA Clause E3.2, E3.8	
36.	Wall-wetting sprinklers and drencher systems	BCA Clause D1.7	AS 2118.1-1999 (Amdt 1)

Design/Installation Standard			
Item	Measure	BCA Clause	Relevant Australian Standard or Other Standard
37.	Warning & operational signs	BCA Clauses D2.23, E3.3 & Part E1	
38.	All other fire safety features		Alternative Solution report - TBA

Note: The 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.

3.0 BCA BUILDING DESCRIPTION

3.1 General

3.1.1 Description of building

The Stage 1 development will comprise a three below ground level common car park with four residential towers above the Podium, namely Building Adelaide, Darwin, Perth and Brisbane.

The podium will be open to the sky and is accessible directly from Epping Road. Vehicular access to the development will be via the roadway along the eastern boundary of the site off Herring Road.

Except for the tower stairs serving Perth and Brisbane Buildings which will discharge directly onto Epping Road, the remaining exits of the Stage 1 development will discharge onto the podium which leads to the roadway providing vehicular access to the development.

3.1.2 Effective Height Assessment (prior to recent court decision)

Deemed-To-Satisfy (DTS) assessment of Effective Height is as follow:

The whole complex is considered as a single building having an effective height of >25m in accordance with BCA Deemed-To-Satisfy (DTS) interpretation of Effective Height. *It means the height to the floor of the topmost storey (excluding the topmost storey if it contains only heating, lift or other equipment, water tanks or similar service units) from the floor of the* ***lowest storey*** *providing direct egress to a road or open space.*

If measured in accordance with the DTS requirement, the lowest storey providing direct egress to road or open space would be governed by the Fire Control Room (FCR), which has an RL of 66.5m. The top most storey of the Stage 1 development would be Brisbane Building which has an RL of 108.40m. Therefore, the whole development is considered to have an effective height of 41.90m (108.40 – 66.5).

3.1.3 BCA Philosophy (to be supported by an Alternative Solution)

The basis of the proposed alternative solution is to treat each tower as a “separate building”.

The Fire Control Room and the Sprinkler Pump/Valve Room could be treated in isolation and would not impact on the assessment of the effective height of each individual building. Hence, the RL of these rooms would not be used in the assessment of the effective height of each tower. The fire engineer will consider preparing an alternative solution to justify the Fire Control Room as a separate building. (To be confirmed by the Fire Engineer)

Effective height of each tower will be measured to the lowest level of that tower providing direct egress. In this case, the lowest storey would be in Ground Floor Lobby of each tower.

The fire stair in the north west corner of the B1 car park discharges into the open space which has an RL of approximately RL66.90. This stair is part of the required exits for B1 car park. It is assumed that the occupants on Level B1 need to enter this stair (at RL65.90) and travel for half a flight before discharging into the open space at RL66.90. Based on this, the exit is not direct. Hence, Level B1 is not considered as the lowest storey providing direct egress to a road or open space.

3.1.4 Effective Height of Individual Tower (subject to an Alternative Solution)

Our determination of effective height of each building, based on the BCA Philosophy in Section 3.1.3 above is shown in the table below. This is subject to an Alternative Solution AND agreement with the NSW

Fire Brigades (NSWFB). The interpretation will impact on the fire brigade access and fire fighting procedures, hence, concurrence from NSWFB is required prior to finalizing the Design.

Building	Assessment	Effective height
Adelaide Building	92.05 (L8) – 70.35 = 21.70m	< 25m
Darwin Building	92.05 (L8) – 70.35 = 21.70m	<25m
Perth Building	98.65 (L10) – 70.25 = 28.40m	>25m
Brisbane Building	108.40 (L13) – 70.70 = 37.70m	> 25m

3.1.5 Supreme Court Decision on Effective Height

Based on the recent court decision with regards to the BCA interpretation of Effective height of a building (Refer to Supreme Court decision: "The Owners – Strata Plan No. 69312 v Allianz Aust Insurance [2012] NSWSC 1244"), the lowest storey providing direct egress to a road or open space for this Stage 1 development would be at Level B1 car park. Level B1 has an RL of 64.500. Therefore, the maximum effective height of the Stage 1 development would be 108.40-64.50 = 43.90m.

Hence, the contents in Sections 3.1.2, 3.1.3 and 3.1.4 should be ignored. However, they are retained in this report for records of Design Team discussion regarding the approach to the Alternative Solution for Effective Height prior to the above Supreme Court decision.

3.1.6 Classification

The proposed uses of the building attract the following classifications:

Common parts of building	Use	Classification
Level B3 to B1	Carpark	7a

Adelaide Building	Use	Classification
Levels GL to L8	Apartments	Class 2
Level 9	Plant room	Class 2

Darwin Building	Use	Classification
Levels GL to L8	Apartments	Class 2
Level 9	Plant room	Class 2

Brisbane Building	Use	Classification
Level GL	Apartments & plant room	Class 2
Level 1	Apartments & plant room	Class 2
Levels 2 to 13	Apartments	Class 2
Level 15	Plant room	Class 2

Perth Building	Use	Classification
Level GL	Apartment Garbage Room	Class 2 Class 7b
Level 1	Apartments & plant room	Class 2
Levels 2 to 10	Apartments	Class2
Level 11	Plant room	Class 2

Note: There is no Level 4 or Level 14 designated in the above buildings.

3.1.7 Smoke Hazard Management

Part of building	Required smoke hazard management
Car park	Mechanical ventilation system in accordance with AS 1668.2 and comply with clause 5.5 of AS/NZS 1668.1. Fans with metal blades suitable for operation at normal temperature.
Residential apartments	In addition to the automatic sprinklers throughout the buildings [unless where alternative solutions are proposed to justify the effective building heights (such as for Adelaide, Darwin and Hobart Apartments) are less than 25m], automatic smoke detection and alarm system complying with Specification E2.2a must be provided in residential apartments. This can be smoke alarms complying with AS 3786 within the unit. Where buildings are protected with automatic sprinklers, smoke detectors are not required in public corridor and other internal spaces. This implies that all the stores, garbage rooms, ancillary rooms etc on the residential floor must be protected with automatic sprinklers.
Uses other than apartments	Zone smoke control system (building >25m effective height).
Tower fire isolated stairs serving any storey above an effective height of >25m.	Automatic air pressurisation system complying with AS/NZS 1668.1 will be required to tower fire isolated stairs. Stair pressurization relief must be provided to ensure effective operation of pressurization.
Fire isolated stairs in car park	Automatic air pressurisation system complying with AS/NZS 1668.1 will be required as they serve more than 2 below ground storeys.
Class 9b –Assembly Building	Refer to NSW Table E2.2b for details.

3.1.8 Stage Construction Management

Care should be taken to ensure that the egress routes from the Stage 1 development would not be impaired by the Stage 2 construction zone. For example, the basement car park fire stair at grid A,B-16 discharges onto the podium adjacent to Melbourne Building. The discharge path from this stair must be more than 6m from the eastern external wall of Brisbane Building so that any openings on the Ground Floor need not be protected by internal wall-wetting sprinklers.

4.0 BCA ASSESSMENT

The Stage 1 development was assessed based on the BCA DTS requirements where the effective height of the development is greater than 25m based on determination in Section 3.1.2 above. The BCA Philosophy in Sections 3.1.3 and 3.1.4 is for information only.

Although the drawings assessed were in Design Development stage, further details required. However, this report serves as a Design guide and should be adhered to in future design development.

4.1 Part B – Structure

Clause Description	Clause Requirements/Comments	Status
Part B1 Structural Provisions		
B1.1 Resistance to actions	The building structure must resist the most critical combinations of loads as specified in clauses B1.2 and B1.4 of BCA.	To note.
B1.4(h) Glazed assemblies	All glazed assemblies must comply with AS 2047 and AS 1288 as appropriate.	To note.

Clause Description	Clause Requirements/Comments	Status
B1.4(i) Termite risk management	Where a primary building element is subject to attack by subterranean termites, it must incorporate Termite Management as specified in AS 3660.1. Primary building element means a member of a building designed specifically to take part of the loads specified in clause B1.2 or clause B1.3 of BCA. This includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members.	To comply.
B1.4(l) Garage door	Garage doors and other large access doors in openings not more than 3m in height in external walls of buildings determined as being located in wind region C or D must comply with AS/NZS 1170.2 and AS/NZS 4505.	To note.
B1.5 Structural software		Not applicable.
B1.6 Construction of buildings in flood hazard areas	A Class 2, 3, 9a (health-care building), 9c (aged-care building) or Class 4 part of a building, in a flood hazard area must comply with the ABCB Standard for Construction Buildings in Flood Hazard Areas. *Subject to the determination by council at the development application stage, compliance with this requirement may be required.*	To comply if DA consent designates the proposed development site as flood hazard area.

4.2 Part C – Fire resistance

Clause Description	Clause Requirements/Comments	Status
Part C1 Fire Resistance and Stability		
C1.1 Type of construction required	Type A required.	To comply.
C1.2 Calculation of rise in storeys	The number of storeys including storeys within the roof space calculated above the lowest ground level at the external wall. Plantroom at the top of the building is not counted. If ceiling of basement <1m from the natural ground (average over 12m along the external wall where the ground is lowest, it is not counted as a storey. *The maximum Rise in storeys is 14 which is governed by Brisbane Building. The lowest storey being the B1 car park.*	To note.
C1.3 Buildings of multiple classification	In determining the Type of construction in building of multiple classifications, the type of construction applicable to the classification of the top storey applies to all storeys below it. *Type A construction is required*.	To comply.
C1.4 Mixed types of construction	Building may be of mixed Types of construction if the parts are separated in fire walls in accordance with C2.7. *Carpark requires 120/120/120 construction. The podium slab must achieve 120/120/120.*	To comply.
C1.5 Two storey Class 2, 3 or 9c buildings		Not applicable.
C1.6 Class 4 parts of buildings		Not applicable.
C1.7 Open stands and indoor stadiums		Not applicable.
C1.8 Lightweight construction	Fire resistant lightweight walls and shaft walls must comply with Spec C1.8. Lightweight walls in lift, stair, service shafts must comply with Spec C1.8.	To comply.
C1.10 Fire hazard properties	Building materials to have various fire hazard properties listed in Spec C1.10. For floor materials and floor coverings and walls and ceiling lining materials, refer to Specification C1.10. Paint or fire retardant coatings must not be used to make a substrate comply with the required fire hazard properties.	To comply.
NSW C1.10 Fire hazard properties		Not applicable.
C1.11 Performance of external walls in fire		Not applicable.
C1.12 Non-combustible materials	Certain materials are deemed as non-combustible and are listed in C1.12.	To note.

Clause Description	Clause Requirements/Comments	Status
Part C2 Compartmentation and Separation		
C2.1 Application of Part	C2.2, C2.3 and C2.4 do not apply to a carpark protected with automatic sprinklers or an open deck carpark or an open spectator stand. *The car park must be fire separated from other classifications to ensure that no floor area limitation applies*.	To note.
C2.2 General floor area and volume limitations	The size of the fire compartment must not exceed the limitations set down on Table C2.2. Top floor plantroom is not counted in the floor area or volume of fire compartment. Refer to definition of floor area in Part A1 when calculating.	Complies.
C2.3 Large isolated buildings	See NSW C2.3.	
NSW C2.3 Large isolated buildings		Not applicable.
C2.4 Requirements for open space and vehicular access		Not applicable.
C2.5 Class 9a and 9c buildings		Not applicable.
NSW C2.5		Not applicable.
C2.6 Vertical separation of openings in external walls	Vertical separation of external openings in non-sprinklered Type A buildings required. Construction must be: A 60/60/60 vertical spandrel >900mm high which extends 600mm above the upper floor level. In the case of curtain wall, the gaps must be packed with material that withstands the thermal movement without the loss of seal against fire or smoke. A 60/60/60 horizontal construction that projects 1100mm outwards from the external face of the wall and extends 450mm beyond the openings concerned. Exemptions given to open deck carpark, open spectator stand, sprinklered building, openings within the same stairway. ***Vertical spandrel is required in building not protected with automatic sprinklers. Details must be submitted for further assessment.***	Applicable to building not protected with automatic sprinklers. Details required for assessment.
C2.7 Separation by fire walls	The fire wall must have the relevant FRL prescribed by Specification C1.1. Roof battens of 75mmx50mm or less or roof sarking may pass through the fire wall. Fire compartment separated by fire walls may be treated as a separate building for the purposes of the DTS provisions of Sections C, D and E if the fire wall extends continuously through to the underside of roof or upper roof (if the roof is at different levels). The wall must be continuous vertically through each storey. If the fire wall only separates parts of building on the same storey, then each separated part can be considered as a fire compartment.	To comply.

Clause Description	Clause Requirements/Comments	Status
C2.8 Separation of classifications in the same storey	Building elements in the storey of mixed classifications must have the higher FRL of the classifications concerned. OR the classifications must be separated by fire wall having the higher FRL of the classifications concerned.	To comply.
C2.9 Separation of classifications in different storeys	Type A construction – the floor of the upper storey must have an FRL for the classification of the lower storey.	To comply.
C2.10 Separation of lift shafts	Any lift connecting >2 storeys or >3 storeys (if building is sprinklered) must be enclosed in shaft having an FRL in accordance with Spec C1.1 of Building Code of Australia. Emergency lift must be enclosed in FRL of 120/120/120.	To comply.
C2.11 Stairways and lifts in one shaft	A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft.	Not applicable.
C2.12 Separation of equipment	Lift motor room and lift control; emergency generators; central smoke control plant; boilers or batteries (batteries in the building that have a voltage >24 volts and a capacity >10 amps hour) must be separated from the remainder of the building in 120/120/120 construction. Separating construction between the lift shaft and lift motor room need only be 120/-/- construction to allow for penetration in the slab for cable and guide rails. This does not apply to lift installation without a machine room.	To comply.
C2.13 Electricity supply system (Electrical substation etc)	Electricity substation (if located within a building) must be separated from the remainder of the building in construction having an FRL of 120/120/120. NB: Electricity authority may require the construction to be 180/180/180. Main switchboard which sustains emergency equipment operating in emergency mode (if located within a building) must be separated from the remainder of the building in construction having an FRL of 120/120/120. Electrical conductors located within the building that supply electricity to the switchboard which sustains emergency equipment or substation that supplies electricity to it must have a classification in accordance with AS/NZS 3013 of not less than WS53W (if subject to damage by motor vehicles) or otherwise WS52W OR enclose or protected by construction having an FRL of 120/120/120. All switchboards in the electrical installation which serve the emergency equipment (i.e. Hydrant booster pumps, pumps for automatic sprinklers or other fire suppression systems, pumps for fire hose reels which form the sole means of fire protection in the building, mechanical smoke control system emergency lifts, control & indicating equipment and Sound Systems and Intercom Systems for Emergency Purposes [SSISEP]) must be segregated by enclosed metal partitions from other switchboards which serve non-emergency equipment switchgear.	To comply.

Clause Description	Clause Requirements/Comments	Status
C2.14 Public corridors in Class 2 & 3 buildings	Public corridor >40m must be divided at intervals of <40m with smoke-proof walls complying with Clause 2 of Specification C2.5. *Smoke proof wall and door must be provided in the corridor of Adelaide, Darwin and Perth Buildings to reduce the corridor length to less than 40m. The wall must be extended to the underside of the floor above.* *Where smoke separated corridor is required, care should be taken with the design of the stair pressurization relief and also FHR coverage as FHR is not permitted to pass through smoke doors.* *Smoke doors must swing in BOTH directions.*	Darwin and Perth Buildings do not comply. Provide smoke separation. Services consultant to note design of stair pressurization relief and FHR coverage.
C3 Protection of openings		
C3.1 Application of Part	DTS of this part do not apply to : • Control joints, weep holes in external walls and joints between pre-cast panel walls; • Non-combustible sub-floor or cavity ventilators of <45,000mm^2 and spaced >2m from any other ventilator in the same wall; • Openings at the perimeter of a balcony, verandah, colonnade, terrace; • Service penetrations through the floor and openings formed by vehicle ramp in the car park. Openings formed between columns and beams at the perimeter of the building required to be protected.	To note.
NSW C3.2 Protection of openings in external walls	Openings in external wall that is *required to have an FRL* must be protected in accordance with C3.4 if they are exposed to fire source feature which is less than: • 3m from side or rear boundary of the allotment or • 6m from the far boundary of a road, if not located in a storey at or near ground level or • 6m from another building on the allotment that is not class 10. If protected with wall-wetting sprinklers, they must be located externally. If openings are required to be protected, they must not occupy >1/3 of the area of the external wall of the storey in which it is located unless they are in a class 9b building used as an open spectator stand.	Not applicable.
C3.3 Separation of external walls and associated openings in different fire compartments	Openings in external walls of different fire compartments must have an FRL of 60/60/60 or protected in accordance with C3.4 if they are within the distances set out in Table C3.3. Refer to the Table for information.	Not applicable.

Clause Description	Clause Requirements/Comments	Status
C3.4 Acceptable methods of protection	Acceptable methods of protection are: • Doorways – internal or external wall wetting sprinklers as appropriate used with self closing or automatic closing door or -/60/30 self closing fire door. • Windows – internal or external wall-wetting sprinklers as appropriate used with windows that are *automatic or permanently fixed in the closed position*; -/60/- fire windows (automatic or permanently fixed in the closed position) or -/60/- automatic fire shutters.	To note.
C3.5 Doorways in fire walls	Doorways must not exceed ½ of the length of the fire wall and each doorway must be protected by fire door or fire shutter having the required FRL with at least *30 minutes of Insulation criteria.* The fire door or shutter must be automatic or self closing. Automatic closing must be initiated by activation of smoke or heat detector located <1.5m from each side of the opening and any other fire alarm system including the sprinkler installed in either fire compartment.	To comply. May be applicable in car park lift lobbies if required by Alternative Solution.
C3.6 Sliding fire doors	Automatic closing sliding fire door which is held open with an electromagnetic device should fully closed between >20 sec and <30 sec upon deactivation of the electromagnetic device and in the event of power failure, the door must fail safe in closed position. An audible warning device must be located near the doorway and a red flashing warning light must be installed on each side of the doorway. They must be activated upon the de-activation of the hold open electromagnetic device. The de-activation must be triggered by the installed smoke or heat detectors located <1.5m from each side of the doorway and any other fire alarm system including the sprinkler installed in either fire compartment. *None proposed*.	Not applicable.
C3.7 Protection of doorways in horizontal exits	Doorway must be protected with a single fire door having an FRL of the fire wall except that the insulation level can be reduced to 30 minutes. *In a class 7 or 8 building, two fire doors must be provided*, one on each side and each door must have an Insulation of 30 minutes. The door must be self-closing or automatic closing. Automatic closing must be in accordance with C3.5 above.	Not applicable.
C3.8 Openings in fire-isolated exits	Doorways must be protected by -/60/30 self closing or automatic closing fire doors. Automatic closing must be initiated by the activation of the smoke or heat detector installed <1.5m from the doorway in the approach side. OR the activation of the building's fire alarm including the sprinkler system. A window in an external wall of the fire isolated stair or passageway must be protected in accordance with C3.4 if it is within 6m of and exposed to a window or other opening in a wall of the same building other than in the same fire-isolated enclosure. *Window is proposed in the external wall of fire stairs in Adelaide Building. They are not exposed to other openings. Hence, protection of the window is not required.*	To comply.

Clause Description	Clause Requirements/Comments	Status
C3.9 Service penetrations in fire-isolated exits	Penetrations permitted inside the fire isolated exits are: • Electrical wiring permitted by D2.7; • Ducting associated with pressurisation system. The duct located outside the exits must be constructed of material having an FRL of -/120/60; • Water supply pipes for fire services.	To comply.
C3.10 Openings in fire-isolated lift shafts	Lift landing door must be protected with -/60/- fire door and must comply with AS 1735.11. Lift indicator panels exceeding 35,000mm^2 must be backed by construction having an FRL of -/60/60.	To comply.
C3.11 Bounding construction: Class 2 & 3 and 4 buildings		
NSW C3.11 Bounding construction: Class 2 & 3, 4 and 9b buildings	Doorway in a Class 2 or 3 building which provides access to the public corridor or the landing of an internal non fire isolated stair which serves as a required exit must be protected with self closing or automatic closing -/60/30 fire door in a *Type A construction.* In a Class 2 or 3 building where the path of travel to an exit *does not provide a choice of alternative exits*, and the path is along a balcony, landing or the like and passes an external wall of another unit or common room, the external wall must be of masonry construction or be lined internally with a fire protective covering. Any doorway must be protected with self-closing, tight-fitting 35mm thick solid core door. Any windows or other openings must be protected internally in accordance with C3.4 or if not protected, must be located 1.5m above the floor of the balcony. The FRL of the internal walls must not be reduced by any openings with respect to integrity and insulation (NB: Fire damper must have insulation criteria).	To comply.
C3.12 Openings in floors for services	Service penetrations through fire rated floor or ceiling must be protected in shafts complying with Spec C1.1 or in accordance with C3.15.	To comply.
C3.13 Openings in shafts	In Type A construction, access opening to service shaft must be protected by *self closing* -/60/30 fire door or hopper or -/60/30 access panel. If within a sanitary compartment, this must be protected by -/30/30 access panel or non-combustible panel and frame.	To comply.

Clause Description	Clause Requirements/Comments	Status
C3.15 Openings for service installations	Service penetrations through fire rated elements *(other than an external wall or roof)* must be protected to prevent fire spread. Tested systems: The materials and installation must be in accordance with the tested prototype. To comply with the insulation criteria, no combustible material must be placed within 100mm of the penetration for a distance of 2m from the penetration and the service penetration must not be located in a required exit. Ventilation ducts Installation must comply with AS/NZS 1668.1. Deemed-to-Satisfy (Specification C3.15): If the service is a metal pipe and it is installed in accordance with Specification C3.15, the penetration is not permitted in ceiling that is required to have a resistance to the incipient spread of fire and it does not connect >2 fire compartments. It must not contain a flammable or combustible liquid or gas. If it connects >2 fire compartments, it must be enclosed in fire rated shaft. If metal or UPVC pipe is to be protected as per Specification C3.15 and penetrates floors of a class 5 to 9b building, and it is within the sanitary compartments, the sanitary compartment must be separated from other parts of the building by walls with FRL required by Specification C1.1 for a stair shaft. The doorway must be protected with self closing -/60/30 fire door. Wire or cluster of wires installed in accordance with Specification C3.15 must not penetrate a ceiling required to have a resistance to the incipient spread of fire. They must not connect >2 fire compartments unless protected within a shaft. Electrical switch outlet must be installed in accordance with Specification C3.15.	To comply.
C3.16 Construction Joints	Protection must be in accordance with the tested prototype with respect to integrity and insulation.	To comply.
C3.17 Columns protected with lightweight construction	The protection must be identical to the tested prototype.	To note.
Spec C1.1 Fire Resisting Construction		
Spec C1.1, Clause 2.1 Exposure to fire source features	Fire source feature (fsf) is defined under Part A. A building element is not exposed to fsf if it is shielded from the fsf by another part of the building which has an FRL of >30/-/- and it is not transparent; or The external wall of another building that stands on the same allotment and the part concerned is >15m above another building; or The part is below the finished ground level.	To note.

Clause Description	Clause Requirements/Comments	Status
Spec C1.1, Clause 2.2 Fire protection for a support of another part	Any building element that supports another part which required an FRL must have the same FRL. The FRL of the supporting element must be not less than the required FRL of the element within the fire compartment in which it is located. Exemption is given to: • Element that provides lateral support to tilt up wall or external wall of Type C construction. • Element that provides support within a sprinklered carpark. • Non-combustible roof that provides lateral support in a building. For Type A construction, it is only applicable to roof concession granted under clause 3.5(a), (b) or (d). • Column that complies with 2.5(a) and (b). • Element that provides lateral support to a fire wall if failure of the element will not affect the fire performance of the fire wall.	To comply.
Spec C1.1, Clause 2.3 Lintels	Lintel must have FRL unless it does not contribute to the support of the fire door or window and it spans over certain small openings.	To comply.
Spec C1.1, Clause 2.4 Attachments not to impair fire resistance (eg signs, awnings etc)	Combustible material may be used if it complies with Clause 2 of Spec C1.10 or Clauses 2 & 3 of Spec C1.10a or is exempted under Clause C1.10 and it is not located directly above a required exit and it does not contribute to undue risk of fire spread via the façade of the building. *Any canopy or awning attached to external wall must be non-combustible*.	To comply.
Spec C1.1, Clause 2.5 General concessions	Structures on roof that contain lift motor equipment, ventilating and air condition plants which do not contain combustible liquids need not be fire rated. Curtain wall or panel wall protected with external sprinklers need not be fire rated.	To comply.
Spec C1.1, Clause 2.6 Mezzanine floor: concession	Mezzanine structure need not be fire rated if the floor <1/3 parent floor area or <200m^2 whichever is less provided the FRL of wall and column within 6m of the mezzanine has increased fire ratings.	Not applicable.
Spec C1.1, Clause 2.7 Enclosure of shafts	Shaft required FRL must be enclosed at the top and bottom. *The garbage rooms in the car park are considered as the extension of the shafts and must be enclosed in 120/120/120 construction.*	To comply.
Spec C1.1, Clause 2.8 Carparks in class 2 & 3 buildings	A storey consists of carpark or ancillary use in a Class 2 building which is <4 storeys may be considered as a Class 2 for the purpose of determining the FRL. Likewise, in a Class 3 or Class 2 & 3 building which is < 3 storeys, the carpark can be considered as Class 2.	Not applicable. Building >4 storeys.
Spec C1.1, Clause 2.9 Residential aged care building: concession		Not applicable.

Clause Description	Clause Requirements/Comments	Status
Spec C1.1, Clause 3.1 Fire-resisting construction: Type A	For Type A construction: • the FRLs of the building elements must comply with Table 3. • External walls, common walls, flooring and floor framing of lift pits must be non-combustible. • Any internal wall required to have FRL with respect to integrity and insulation must extend to the underside of the floor above, roof/roof covering or fire rated ceiling. Roof battens 75mmx50mm or less or roof sarking may cross the wall. • Loadbearing internal wall and fire wall and shaft must be of concrete or masonry. • Non-loadbearing internal wall required to be fire-resisting and services shafts must be of non-combustible construction, and • FRLs specified for external column in Table 3 also apply to internal column that face and are within 1.5m of a window which exposed to a fire source feature. *Refer to Appendix A for details.*	To comply.
Spec C1.1, Clause 3.2 Concession for floors	Floor need not require FRL if: • In a Class 2, 3, 5 or 9 building, the space underneath is not a storey and is not used for any purposes. • Timber stage floor in a Class 9b building where the space below is not used for dressing room, store room. • It is within a sole occupancy unit of in a Class 2, 3, 4 part. • It is an open-access floor for the accommodation of electrical and electronic services above a floor with the required FRL.	To comply.
Spec C1.1, Clause 3.3 Floor loading of class 5 or 9b buildings: concession	If design live loads is <3kPa, FRL of floor and floor beams next above may be 90/90/90 or roof and roof beams next above (if there is no floor) may be 90/60/30.	Not applicable.
Spec C1.1, Clause 3.4 Roof superimposed on concrete slab: concession	The roof superimposed on top of a fire resistant roof slab may be non-combustible and the construction between the roof and the slab need to be non-combustible.	To note.
Spec C1.1, Clause 3.5 Roof: concession	Non-combustible roof covering may be used in lieu of fire rated roof provided that: • the building is protected with automatic sprinkler system throughout; or • has a rise in storey of <3; or • is a Class 2 or 3 building; or • has an effective height of <25m and the ceiling immediately below the roof has a resistance to the incipient spread of fire of > 60 minutes.	To comply.

Clause Description	Clause Requirements/Comments	Status
Spec C1.1, Clause 3.6 Rooflights	Rooflight in a non-combustible roof or fire resistant roof must have an aggregate area of <20% of the roof area and must be <3m from: • boundary of the allotment other than road; and • the structure within 6m vertically above the rooflight must be have FRL required for fire wall and any openings within must be protected as per C3.4; and • any roof light in the adjoining sou if the bounding wall required FRL; and • any rooflight in the adjoining fire separated section of the building; and • if ceiling required resistance to the incipient spread of fire, the ceiling must be constructed so that the roof space is protected by the ceiling.	To comply.
Spec C1.1, Clause 3.7 Internal columns and walls: concession	In building <25m in effective height where the roof does not require FRL, the FRL of internal columns and internal walls in the storey immediately below the roof must be 60/60/60 in Class 2 or 3 building. Similarly in a Class 5, 6, 7, 8 or 9 buildings with rise in storeys >3. No FRL for Class 5, 6, 7, 8 or 9 buildings if rise in storeys is <3.	Concession only applicable to building <25m.
Spec C1.1, Clause 3.8 Open spectator stands and indoor sports stadiums: concession		Not applicable.
Spec C1.1, Clause 3.9 Carparks	An open-deck carpark or carpark protected with automatic sprinklers need not comply with Table 3 provided it complies with the reduced FRLs specified in Table 3.9. The carpark has to be fire separated from other classifications in the building to form its own fire compartment. The carpark includes: (a) an administration area associated with the functioning of the carpark. (b) for sprinklered carpark associated with a Class 2 or 3 building and the carpark is reserved for the sou, any area within each parking space which is <10% of the parking space and has ancillary use to the sou. The carpark excludes: another Class 7 use which is not a carpark (e.g storeroom etc). area used for parking of trucks, buses, vans (e.g loading dock). *Concession is not applicable as some storage is located remote from each car space. Hence, car park must have 120/120/120 FRL*.	To note.
Spec C1.1, Clause 3.10 Class 2 buildings: concession		Not applicable.
Spec C1.8 Structural tests for lightweight construction	Any fire rated lightweight wall system must comply with this specification. The test methods must comply with ASTM E72-80, ASTM E695-79 and Surface Indentation Test.	To comply.

Clause Description	Clause Requirements/Comments	Status
Spec C1.10 Fire hazard properties - General		
Spec C1.10, Clause 1 Scope	The fire hazard properties in this specification apply to linings, materials and assemblies in Class 2 to 9 buildings.	To note.
Spec C1.10, Clause 2 Class 2 to 9: general requirements	Table 1 summarises the requirements of linings and materials and assemblies with respect to the relevant clauses of Specification C1.10.	To comply.
Spec C1.10, Clause 3 Floor linings and floor coverings	Floor lining or floor covering must have critical radiant heat flux (CRF) listed in Table 2. If a building is not protected by a sprinkler system, the maximum smoke development rate must not exceed 750 percent-minutes.	To comply.
Spec C1.10, Clause 4 Wall and ceiling linings	Wall and ceiling lining materials must achieve the relevant Material group number specified in Table 3. Group 1 is the most stringent. Where a building is not protected by automatic sprinklers, in addition to complying the required Group Number, the material must also achieve a Smoke Growth Rate index of not more than 100 or an Average Specific Extinction Area of less than 250m²/kg.	To comply.
Spec C1.10, Clause 5 Air-handling ductwork	Rigid and flexible ductwork in a Class 2 to 9 building must comply with the fire hazard properties set out in AS 4254.	To comply.
Spec C1.10, Clause 6 Lift cars	Floor linings and floor coverings in lift car must have CRF of not less than 2.2 and wall and ceiling linings must be Group 1 material or a Group 2 material.	To comply.
Spec C1.10, Clause 7 Other materials	Refer to NSW Spec C1.10 NSW 7 below.	
NSW Spec C1.10 NSW 7	Materials and assemblies not included in clauses 3 (floor linings & floor coverings), 4 (wall & ceiling linings), 5 (air-handling ductwork) or 6 (lift cars) must not exceed the indices set out in NSW Table 4.	To note.

Clause Description	Clause Requirements/Comments	Status
NSW Table 4 Other Materials	Materials and assemblies in a Class 2 to 9 building not included in Clauses 3,4, 5 or 6 of the National Specification C1.10 must not exceed the indices set out below: FCR and fire isolated exits, other than a sarking-type material used in a ceiling or used as an attachment or part of an attachment to a building element must have SFI = 0, SDI <2. If combustible, be attached directly to a non-combustible substrate and not exceed 1mm finished thickness. Sarking-type material in a FCR or a fire isolated exit used in the form of an exposed wall or ceiling must have FI = 0. In other locations, the FI <5. Other materials or locations and insulation materials other than sarking-type materials must have SFI <9, and SDI <8 if the SFI is >5. In a class 9b building used as a public hall or the like, a proscenium curtain required by Specification H1.3 must have SFI = 0, SDI <3. In a Class 9b building used as an Entertainment Venue, material used to: (a) cover closed back upholstered seats in the public area where smoking is permitted or flame is exposed in connection with the preparation of meals, the SFI <6 and SDI <5. (b) If used as a curtain, blind or similar Clause in the public area, the FI <6. (c) form a cinematograph screen, the FI <12, SFI of 0 and SDI <7 and the screen must have metal supporting frame. Materials subject to (b) and (c) must have a label affixed to a representative sample of each different material indicating, in legible characters- • Name of manufacturer; • Trade name and description of materials composition; • Retardant treatment and name of applicator and date of application; • AS 1530.2 and AS/NZS 1530.3 test number and its FI, SFI and SDI; and • Approved methods of cleaning. Any fire retardant coating applied to material subject to (a), (b) and (c) must be: • Certified by its manufacturer or distributor as approved for use with the fabric to achieve the required indices; and • Certified by its manufacturer or distributor to retain its retardancy effect after a minimum of 5 commercial dry cleaning or laundering operations carried out in accordance with AS 2001.5.4-1987, Procedure 7A., using ECE reference detergent; and • Certified by the applicator that it has been carried out as per manufacturer's specification. *NB: Refer also to the Notes in NSW Table 4 for substrate and composite materials requirements.*	Not applicable.
Specification C1.11 Performance of external walls in fire		Not applicable.
Spec C2.5 Smoke-proof walls in Health-Care and Aged Care Buildings		Not applicable.

Clause Description	Clause Requirements/Comments	Status
Spec C3.4 Fire doors, smoke doors, fire windows and shutters		
Spec C3.4, Cl 2 Fire doors	Fire door must comply with AS/NZS 1905.1 and any glazed part incorporated within must maintain its integrity (failure by radiation) for the duration required by the FRL.	To comply.
Spec C3.4, Cl 3 Smoke doors	Smoke door system must prevent the smoke passing from one side to the other. Glazed smoke door must be appropriately decaled to prevent people accidentally walking into it. Smoke door must be side hung to swing in the direction of egress or in both directions and the leaves must be fitted with smoke seals and are capable of resisting smoke at 200^{o}C for 30 minutes. Solid core door satisfies this requirement. If smoke door is held open by electromagnetic device, it must automatically close upon power failure and upon activation of the smoke detectors located <1.5m on either side of the door. Any glazing in the door must comply with AS 1288 and glazed panel must be adequately decaled to avoid people accidentally walking into it.	To comply.
Spec C3.4, Cl 4 Fire shutters	Fire shutter must be identical with the tested prototype that achieved the required FRL. It must have an insulation criteria of 30 minutes.	To comply if provided.
Spec C3.4, Cl 5 Fire windows	The fire window must be identical with the tested prototype.	To comply if provided.
Spec C3.15 Penetration of walls, floors and ceilings by services		
Spec C3.15, Cl 2 Application	This specification prescribes the method of fire stopping of penetrations which are considered as Deemed-to-Satisfy. This specification does not apply to installations in ceilings required to have a resistance to the incipient spread of fire nor to the installation of piping that contain a flammable liquid or gas.	To note.
Spec C3.15, Cl 3 Metal pipe system	Metal pipe which penetrates wall, floor or ceiling and is not fully charged must not have combustibles located within 100mm for a distance of 2m from the penetration. The pipe must be constructed of copper alloy or stainless steel with wall thickness of >1mm thick or cast iron or steel (other than stainless steel) with wall thickness >2mm.The pipe penetration must be >200mm from other service penetration and should only accommodate a single pipe. To maintain the integrity of the fire stopping, the section of pipe that is embedded within the thickness of the building elements must not be lagged unless the lagging material complies with Clause 7. The remaining length of pipe must be adequately wrapped. The penetration must be properly fire stopped as per Clause 7.	To comply.

Clause Description	Clause Requirements/Comments	Status
Spec C3.15, Cl 4 Pipes penetrating sanitary compartments	The gap between the edge of the penetration and the pipe must be fire stopped as per Clause 7 and the sanitary compartment must be fire separated from the building as per clause C3.15(c)(ii).	To comply.
Spec C3.15, Cl 5 Wires and cables	Penetration must be >50mm from any other penetration opening. The penetration opening for a single cable must be 2000mm^2 and the gap between the cable and the edge of hole must be <15mm. For cases where more than one single cable is accommodated, the maximum penetration opening must be <500mm^2. The gap must be fire stopped as per Clause 7.	To comply.
Spec C3.15, Cl 6 Electrical switches and outlets	The recess of an electrical switch, outlet, socket in a wall must not exceed half the thickness of the wall. The recess must not be located opposite another recess within 300mm horizontally or 600mm vertically of the opposite recess. Any gap must be fire stopped as per Clause 7.	To comply.
Spec C3.15, Cl 7 Fire stopping	This clause specifies the materials, testing, installation and construction requirements so that the FRL of the building elements is not weakened by the penetration. Particular attention should be given to penetration in a hollow construction such as cavity wall or stud wall. The cavity must be framed and packed with fire stopping material to a thickness of 25mm all round the services.	To comply.

4.3 Part D – Access and egress

Clause Description	Clause Requirements/Comments	Status
Part D1 Provision for Escape		
D1.1 Application of Part	The DTS provisions of Part D do not apply to the internal parts of a sole occupancy unit in a Class 2 or 3 building or a Class 4 part building.	
D1.2 Number of exits required	In addition to any horizontal exit, not less than 2 exits must be provided: • from each storey if the building has an effective height >25m and a Class 2 or 3 building subject to C1.5. • Basement storey if the egress involves a vertical rise of >1.5m *unless the floor is <50m^2* and the distance to the single exit is <20m. Access to exit must not pass through another sole occupancy unit.	Complies.
NSW D1.2 Number of exits required	In addition to any horizontal exit, not less than 2 exits must be provided in any storey or mezzanine within an auditorium in a Entertainment Venue.	Not applicable.

Clause Description	Clause Requirements/Comments	Status
D1.3 When fire-isolated stairways and ramps are required	Every stairway or ramp serving as required exit must be fire isolated: For Class 2 building, if it connects, passes through or passes by more than 3 consecutive storeys (*2 consecutive storeys in the case of Class 3 building*) plus 1 extra storey of any classification if it is used for the accommodation of motor vehicles or ancillary use. If the extra storey is not a carpark or ancillary use, then the building must be protected with a sprinkler system or the stair must be separated from the extra storey by 90/90/90 loadbearing construction or -/60/60 construction. Furthermore, the stair must not provide access to or egress for the extra storey connected. For Class 5 to 9 buildings (other than *Class 9a or open spectator stand)*, if it connects, passes through or passes by more than 2 consecutive storeys. One extra storey of any classification may be included if the building is sprinklered or the extra storey is separated from the stair by 90/90/90 loadbearing construction or -/60/60 construction. Furthermore, the stair must not provide access to or egress for the extra storey connected.	Fire isolated exits are proposed. Complies.
D1.4 Exit travel distances	Class 2 & 3 Entrance doorway must be less than 6m from an exit or point of choice to 2 exits. 20m to exit at level that provides direct egress to a road or open space. Class 5 to 9 20m to an exit or point of choice to 2 exits in which case the nearest exit <40m. Concession for Class 5 & 6 building located at ground level where distance <30m. *The following non-compliances are noted:* ▪ *Excessive distance to a point of choice and distance to the nearest exit in the car park.* ▪ *Travel distance from DA102 of Darwin Building is approximately 7m to point of choice in lieu of 6m (Typical on L1 to L8).* ▪ *Travel distance from DAG07 on the Ground Floor of Darwin Building is approximately 9m to a point of choice in lieu of 6m.* ▪ *Travel distance from BR1205 on L2 is 8m to a point of choice in lieu of 6m. Typical from L2 to L13.* *Non-compliance will be addressed by an Alternative Solution.*	Alternative Solution will be proposed for excessive travel distance in car park and residential towers. The engineered distance in the car park will be 25m to a point of choice and 70m to the nearest exit.

Clause Description	Clause Requirements/Comments	Status
D1.5 Distance between alternative exits	Alternative exits >9m apart and not more than: • Class 2 or 3 building – 45m; • Class 9a, in Patient Care Area – 45m • All other cases – 60m Alternative paths of travel do not converge and must be >6m apart. ▪ *Excessive travel distance is noted in the car park.* ▪ *Distance between exits on Ground Floor plant room of Brisbane Building is approximately 63m which exceeds 60m. To overcome this issue, a fire isolated passageway must be created in the passage at grid A-16.* ▪ *Distance between exits on L2 to L13 of Brisbane Building is approximately 7.7m which is less than the required 9m.* *Non-compliance will be addressed by an Alternative Solution.*	Alternative Solution will be proposed for non-compliant distance between exits. The engineered distance in the car park will be 130m.
D1.6 Dimensions of exits and paths of travel to exits	Clear height ≥2m and 1980mm at doorway. Clear width ≥1m and *1.8m in passageway, corridor used for transportation of patients in beds within a Treatment or Ward area.* The required width of a stairway or ramp must be measured clear of all obstructions. The 2m clear height of stair is measured vertically above a line along the nosings of the treads or floor surface of landing. This must be maintained over the entire width of the stair, ceiling cornices are permitted to encroach the clear height. For population <200 persons, clear width 1m + 250mm per 25 persons or 1.8m in corridor of Treatment or Ward area. For population >200 persons: • Clear width 2m + 500mm for every 60 persons *if egress involves a change in floor level* by a stairway or ramp with gradient steeper than 1 in 12. • Other case, 2m + 500mm for every 75 persons. Unobstructed width of doorway: • Clear egress width – 250mm. Minimum clear door width >750mm except for doorway opening into a *sanitary compartment or bathroom.* Clear width of exit must not diminish in the direction of travel to a road. ▪ *Bollards must be provided in the car park to prevent parked car obstructing the access to the fire stairs.* ▪ *The wall of the south west store room in B3 and B2 car park may need to be located 1m from the column A-03 to ensure egress path is maintained.*	Amend drawings to comply.
NSW D1.6 Dimensions of exits and paths of travel		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D1.7 Travel via fire-isolated exits	Doorway from a room must not open directly into a fire isolated exit unless it is from a public corridor, lobby, airlock, sanitary compartment or sou occupying the whole storey. Each fire isolated stair and ramp must provide independent egress and discharge directly, or by its own fire isolated passageway: • to a road or open space; or • to a storey or space, within the confines of the building that is used only for pedestrian movement, car parking or the like (e.g colonnade) and is open for at least 2/3 of its perimeter; and it is <20m to a road or open space; or • into a covered area that adjoins a road or open space with >1/3 open around its perimeter and has clear height of 3m including at the perimeter opening. The point of discharge must be <6m from open space. Where path of travel from point of discharge is within 6m of the external wall of the same building, measured at right angle, the wall must have an FRL of 60/60/60 and any openings within must be protected with internal wall-wetting sprinklers. This requirement also applies to any wall or opening which is within 3m vertically above ***or*** below the level of discharge as appropriate. If more than 2 doorways (not from the sanitary compartment) opening directly into a fire isolated exit in the same storey, a smoke lobby as per D2.6 must be provided or the exit must be pressurised as per AS 1668.1. ▪ *The tower stair of Adelaide Building discharged onto an alcove (at grid E,F – 04). The perimeter of alcove at discharge appears to be <1/3 open. Ensure the ceiling height of the alcove is >3m.* ▪ *The tower stairs of Darwin Building discharged onto an alcove. Ensure the ceiling height of the alcove is >3m.* ▪ *The tower stair of Perth Building (grid A-02) and basement stair (grid A,B-02) discharged onto an alcove. The perimeter of alcove at discharge appears to be <1/3 open. Ensure clear alcove ceiling height is > 3m. Also, discharge doors of both stairs must be -/60/30 self closing doors as the egress path passes within 6m of the door.* ***Note: some footpaths in the landscaped podium are considered as discharge paths from the fire stairs. They must be located so that they are more than 6m from the opening of the external of the same building where the fire stairs discharged.***	Amend drawing to comply or address by Alternative Solutions.
D1.8 External stairways or ramps in lieu of fire-isolated exits		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D1.9 Travel by non-fire-isolated stairways or ramps	Non-fire isolated stair must provide a continuous travel *via its own flight* to a road or open space. In Class 2, 3, 4 building, the distance between the entry door to the road or open space must be <30m in Type C construction or <60m in all other cases. In Class 5 to 9 building, the travel distance to an exit from any point on a floor via the stair must be <80m. In Class 2, 3, 9a building, the stair must discharge at a point <15m from the exit doorway or fire isolated passageway leading to open space or <30m from one of the two exit doorways or fire isolated passageways located in opposite directions. In the case of Class 5 to 8 or 9b building, the distance must be <20m and <40m respectively.	To comply.
D1.10 Discharge from exits	Exit must not be obstructed at point of discharge and the path of travel to the open space must not be obstructed. If the open space is at a different level than the public road, the connecting path to the road must be by a ramp not steeper than 1:8 or 1:14 (if accessible to disabled) or a stairway. Connection by stairway in a Class 9a building is not permitted. The discharge point of Alternative Exits must be located as far apart as practicable. *Refer to D1.6 for installation of bollards in the car park.*	To comply.
NSW D1.10 Discharge from exits		Not applicable.
D1.11 Horizontal exits		Not applicable.
D1.12 Non required stairways, ramps or escalators		Not applicable.
D1.13 Number of persons accommodated	This is based on floor area and density as shown on Table D1.13. Areas occupied by stair, lift, escalator, ducts, sanitary compartments and ancillary uses are excluded in the floor area. Other suitable means of assessing its capacity such as seating capacity can be accepted.	To note.
NSW D1.13 Number of persons accommodated	Density for ENTERTAINMENT VENUE is shown on this NSW Table D1.13.	Not applicable.
D1.14 Measurement of distances	Nearest part of exit is measured to: • doorway providing access to fire isolated exits. In the case where a smoke lobby is provided, the measurement is to the fire door that leads directly into the exits; • the nearest riser (for open stair) or junction of floor of the ramp; • the doorway that opens directly into the open space; • doorway of a horizontal exit.	To note.
D1.15 Method of measurement	If >one corridor or internal path of travel that connects the exit, the distance between exits is measured through the point of choice. Distance also measured around fixed wall or demountable wall or between fixed seatings.	To note.

Clause Description	Clause Requirements/Comments	Status
D1.16 Plant rooms and lift machine rooms and electricity network substations (ens): Concession	If plantroom <100m^2, a ladder may be used in lieu of a stairway. If plantroom or a Class 8 ens >100m^2 & <200m^2, where two or more exits required, all of them can be ladders except for one, which has to be a complying exit. If fire isolated exits are required, the ladder must be enclosed in a fire isolated shaft. Alternatively, the ladder may discharge within a storey in which case it must be considered as forming part of the path of travel. A ladder must comply with AS 1657 for a plantroom or a Class 8 ens. For a lift machine room, where access is provided from within a machine room to a secondary floor, a fixed rung type ladder complying with AS 1657 may be used, provided that – (a) the height between the floors is not more than 2800mm; and (b) the ladder is inclined at an angle to the horizontal not less than 65^o nor more than 75^o; and (c) the distance between the front face of the ladder and any adjacent obstruction is not less than – (i) 960mm, where ladder is inclined 65^o to the horizontal; or (ii) 760mm, where the ladder is inclined 75^o to the horizontal; or (iii) A distance that is determined by interpolating the values in (i) and (ii), where the ladder is inclined at any angle between 65^o and 75^o to the horizontal; and (d) A clear space not less than 600mm exists between the foot of the ladder and any equipment.	To comply.
D1.17 Access to lift pits	Where lift pit is <3m deep, access to the pit must be through the lowest landing doors. Where lift pit is >3m deep, access must be provided via an access doorway which complies with the following: • The doorway must be level with the pit floor and >600mm wide by 1980mm clear height. The height may be reduced to 1500mm if it is obstructed by the lift car when resting on a fully compressed buffer; • Access to the doorway must be by a stairway complying with AS 1657; • The door must be horizontal sliding or outwards opening hinged type; self closing and self locking from the outside; and marked with letters on the landing side with letters >35mm high “DANGER LIFTWELL – ENTRY OF UNAUTHORIZED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES”.	To comply.
Part D2 Construction of Exits		
NSW D2.1 Application of Part	Except for D2.13, D2.14(a), D2.16, D2.17(d), D2.17(e) and D2.18, Part D do not apply to the internal parts of a sou in a Class 2 building or Class 4 part.	To comply.
D2.2 Fire-isolated stairs or ramps	Stair must be non-combustible and local failure will not cause structural damage to, or impair the FRL of the shaft.	To comply.

Clause Description	Clause Requirements/Comments	Status
D2.3 Non-fire-isolated stairways and ramps	Stair and *supporting element* must be constructed of reinforced concrete or prestressed concrete or steel not less than 6mm thick or timber >44mm thick and has density >800Kg/m^3 at a moisture content of 12%. If laminated timber is used, it must be laminated with ressorcinol formaldehyde or resorcinol phenol formaldehyde glue.	To comply.
D2.4 Separation of rising and descending stair flights	In a required fire isolated stairway, the rising and descending stairs must not be directly connected. If separation required, it must be non-combustible construction and smoke proof in accordance with Clause 2 of Specification C2.5.	Not applicable.
D2.5 Open access ramps and balconies		Not applicable.
D2.6 Smoke lobbies	Smoke lobby must have a floor area >6m^2 and be separated from occupied areas in walls having an FRL of 60/60/-. Opening must be protected with smoke door complying with Specs C3.4 with smoke sensing device fitted on the approach side. Lobby to be pressurised if stair is pressurised.	Not applicable.
D2.7 Installations in exits and paths of travel	Penetrations permitted inside the fire isolated exits are: Electrical wiring for lighting, detection, pressurisation system, security, surveillance system, intercommunication system required under D2.22 and monitor for hydrant or sprinkler isolating valves. Access to service shafts are prohibited inside the fire stair. Opening to any chute for discharging the hot products must not be located in corridor leading to required exit. EDB, Electricity meters, central telecommunication DB and electric motors must not be installed in the corridor leading to the required exit unless it is enclosed in non-combustible construction (including ceiling) and door fitted with smoke seals. This is to prevent smoke leaking from the enclosure to the floor.	To comply.
D2.8 Enclosure of space under stairs and ramps	No enclosed space is allowed in fire isolated stair. Space below a non fire isolated stair (including an external stairway) or ramp must not be enclosed unless the enclosure has an FRL of 60/60/60 and opening protected with -/60/30 self closing fire door.	To comply.
D2.9 Width of stairways	Clear stair width and height must be ≥1m and ≥2m respectively. Required stair >2m is counted as 2m wide unless continuous handrail or balustrade is installed at 2m centres to separate the stair width.	To comply.
D2.10 Pedestrian ramps	Fire isolated ramp may be substituted for a fire isolated stairway. Ramp gradient must be gentler than 1:8 or 1:14, if accessible to disabled. Floor surface must be non-slip.	To comply.

Clause Description	Clause Requirements/Comments	Status
D2.11 Fire-isolated passageways	The FRL of the enclosure of the fire isolated passageway must not be less than that of the fire stair in which it is connected. In any other case, >60/60/60. The resistance is measured from the outside. The top of the fire isolated passageway may be non-combustible if the walls are extended to the underside of a non-combustible roof covering or constructed of ceiling having an incipient spread of fire of 60 minutes.	To comply.
D2.12 Roof as open space	The roof must have an FRL of 120/120/120 and must connect to a road or open space. No roof lights or openings are within 3m of the path of travel on the roof. *The podium is the roof of the car park below. Hence, the FRL of the ground floor slab must be not less than 120/120/120.*	To comply.
D2.13 Treads (Goings) and risers	Going (G) and Riser (R) dimensions must comply with Table D2.13. The going must be 250mm minimum and 355mm maximum while the riser must be 115 minimum and 190mm maximum. Where the stair discharges to a sloping public walkway or public road, the riser may be reduced at the intersection and 2R+G can also be varied. • Each flight <18 risers and >2 risers and must be constant throughout each flight. • Risers must not incorporate openings >125mm diameter. • Goings must be non-slip. • Goings must also be solid construction if stair >10m high or connects >3 storeys. No wider is permitted in a required stair. For a non-required stair, not more than 3 winders permitted in a quarter landing and not more than 6 winders permitted in a half landing. Stairs within the sou of class 2 or 4 are considered as private stairs.	To comply.
NSW D2.13 Treads and risers		Not applicable.
D2.14 Landings	Gradient must be gentler than 1:50 and must be <750mm long measured 500mm from the inside edge of landing. Landing must have non-slip finish or non-skip strip near the edge.	To comply.
D2.15 Thresholds	Threshold of a doorway must not incorporate a step or ramp closer than the width of the doorway except: (a) In a building required to be accessible by Part D3, the doorway opens to a road or open space and is provided with a threshold ramp or step ramp in accordance with AS 1428.1. (b) In other cases – Threshold permitted in doorway opening to open space, external balcony provided the sill is <190mm.	To comply. Access consultant to audit all entrances to buildings.
NSW D2.15 Thresholds		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D2.16 Balustrades or barriers	Continuous balustrade must be provided along the side of roof if accessible to public. Also required along stair or ramp if not bounded by a wall. Any terrace or floor which is >1m above surface beneath must be protected with balustrade. Balustrade in *fire isolated stair, Class 7 (other than carpark) and Class 8 buildings* must : • Be 865mm above nosings and stair ramp or landing surface (if balustrade is provided along the inside edge of landing and balustrade is <500mm long, otherwise height must be >1m); • 1m above balcony, landing or the like; • The balustrade openings or width of any other opening (including any openable window or panel) <300mm and space between rails <460mm with bottom rail <150mm above nosing line of the stair treads. In other cases, the height same as above but the space between balusters or rails does not permit a 125mm sphere to pass through it. A tensioned wire balustrade is considered to satisfy this requirement provided it is constructed in accordance with Tables D2.16a, D2.16b and D2.16c. If floor >4m above the surface, no climbing device is permitted between 150mm and 760mm above floor.	To comply.
NSW D2.16 Balustrades or barriers		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D2.17 Handrails	Handrail must be provided to one side of ramp or stair and both sides if stair or ramp >2m. It must be fixed at a height of not less than 865mm from nosings or floor. Handrails must be continuous between stair flight landings and must have no obstruction on or above that will break a handhold, except for newel posts, ball stanchions or the like. (a) In a 9b building used as a primary school, the handrail must be fixed at a height of 865mm and another secondary handrail between 665mm and 750mm. Height is measured from nosings or floor. (b) In a required exit serving an area required to be accessible, designed and constructed to comply with clause 12 of AS 1428.1, except that clause 12(d) does not apply to the secondary handrail required in (a) above. (c) In a 9a building, handrail must be provided along at least one side of the corridor which is used by patients. Handrail must be 50mm clear of wall and be continuous along the full length if possible. Likewise for 9c building where corridor is used by residents. (d) Handrails required to assist people with disability must comply with Clause D3.3. (e) Handrails to a stairway or ramp within a sou in Class 2 or 3 building or Class 4 part must be located along at least one side of the flight or ramp and along the full length of the flight or ramp. If the handrail is part of a balustrade, the handrail may terminate where the balustrade terminates. Height of handrail must be not less than 865mm from floor or stair nosings. (e) The requirement of (d) do not apply to handrails referred to in Clause D2.18 or a stairway or ramp providing a change in elevation of less than 1m or a landing or a winder where a newel post is installed to provide a handhold. *In building where adaptable unit is proposed, the handrails within the fire stair must comply with (b) above.*	To comply.
D2.18 Fixed platforms walkways, stairways, and ladders	Handrail, balustrade must comply with AS 1657 in plantrooms, machinery rooms or storerooms in the internal parts of sou in Class 2 or 4 part.	To comply.
D2.19 Doorways and doors	Sliding fire door, smoke door, revolving door, roller shutter door or tilt-up door must not be fitted in a resident use area of a Class 9c building. Roller shutter exit door may be installed in Class 6, 7 or 8 building if the floor area <200m^2 and the door is the only required exit and it is held open when the building is occupied. Manual sliding door can be fitted as Exit door if it opens directly to a road. A power operated door in the path of travel must be capable of being opened manually under a force of not more than 110N if there is a malfunction or failure of power source.	To comply.
NSW D2.19 Doorways and doors		Not applicable.

Clause Description	Clause Requirements/Comments	Status
NSW D2.101 Doors in path of travel in a ENTERTAINMENT VENUE	See NSW D2.19 above.	Not applicable.
D2.20 Swinging doors	Swing path of exit door must not encroach >500mm of required egress width and >100mm when door is fully open. Must swing in direction of egress unless floor area <200m^2 and it is the only required exit and it is fitted with floor stopping device.	To comply.
D2.21 Operation of latch	Except for Class 9b special building (see paragraph below), exit door and door in the path of travel must be fitted with lever action latch located between 900mm and 1.1m from the floor. If serving an area required to be accessible by Part D3, the device must be such that a person who cannot grip will not slip from the handle during operation of the latch and have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35mm and not more than 45mm. Alternatively, a single hand pushing action on a single device which is located between 900mm and 1.2m from the floor. Exemptions are granted for: • Vault, sanitary compartment; • Sou in Class 2, 3 (other than an entry door to a sou of a boarding house, guest house, hostel, lodging house or backpacker accommodation), & 4; • Space inaccessible to people at all times when door is locked; • Occupancies such as secure parts of a bank, detention centre, mental health facility, early childhood centre or the like provided the door is openable by fail-safe control switch or by nominated person; • Door fitted with fail safe open device linked to building's fire alarm system or sprinkler system. • In a Class 9a or 9c building, the door is one leaf of a two leaf door which is readily openable and the door is not a fire door or smoke door. In Class 9b building where the population is >100, (*other than school, childhood centre or religious center)* the door must be fitted with panic bar located between 900mm and 1.2m from the floor. Where two leaf door is fitted, panic bar need only apply to one leaf if that clear door width >1m or the required width.	This requirement does not apply to internal parts of the residential apartment. Where building incorporates adaptable units, the door latch in the common areas must comply with accessibility features specified. The internal layout, door hardwares and fixtures within the adaptable unit must comply with AS4299. Access consultant to advise.
NSW D2.21(b) Operation of latch		Not applicable.
NSW D2.21(c) Operation of latch		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D2.22 Re-entry fire-isolated exits	Doors of a fire isolated exit of a Class 9a, 9c building and doors of a fire isolated exit serving any storey above an effective height of 25m, must not be locked from inside so that access to every storey from the fire stair must be readily available. If doors of a fire isolated exit are fitted with locks, they must be fail safe open upon activation of building's fire alarm to permit both entry to and re-entry from the fire stair. In normal mode, every fourth storey is accessible at all times (not fitted with lock). In lieu of every fourth storey accessible, an intercommunication system or audible or visual alarm system operated within the stair must be installed at every storey. A signage must be affixed adjacent to the door to explain its use.	To comply. Architect confirmed re-entry will be provided to fire stairs of all buildings.
D2.23 Signs on doors	Signage must be installed to required fire door in a fire isolated exit, horizontal exit or required smoke door. For horizontal exit, smoke door that swings in both directions, signage is required on each side of the door: "FIRE SAFETY DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN". For an automatic door held open by hold open device, signage on each side of the door or on each side of the wall adjacent to the doorway: "FIRE SAFETY – DOOR DO NOT OBSTRUCT". Exit door to street from fire stair – on each side of door: "FIRE SAFETY DOOR – DO NOT OBSTRUCT". In other cases, signage must be installed on the side of the door that faces people seeking egress.	To comply.

Clause Description	Clause Requirements/Comments	Status
D2.24 Protection of openable windows	(a) A window opening must be provided with protection, if the floor below the window is 2m or more above the surface beneath in a **bedroom** in a Class 2 or 3 building or Class 4 part of a building; or a Class 9b early childhood centre. (b) Where the lowest level of the window opening is less than 1.7m (measured from the floor level where the window is located) above the floor, a window opening covered by (a) must comply with the following: (i) the openable portion must be protected with a device to restrict the window opening; or a screen with secure fittings. (ii) A device or screen required by (i) must – (A) not permit a 125mm sphere to pass through the window opening or screen; and (B) resist an outward horizontal action of 250N against the window restrained by a device or screen protecting the opening. (C) Have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. (c) A barrier with a height not less than 865mm above the floor is required to an openable window – (i) in addition to window protection, when a child resistant screen release mechanism is required by (b)(ii)(C); and (ii) for openable window 4m or more above the surface beneath if the window is not covered by (a). (d) A barrier covered by (c) must not – (i) permit a 125mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150mm and 760mm above the floor that facilitate climbing. *This is a new requirement introduced in BCA 2013. It is applicable to bedrooms only. Where window incorporates device to restrict the opening size in (b)(ii) above, the calculation of the natural ventilation required under clause F4.6 of BCA will be based on the ventilated opening size of the window. Architect to check if the adopted window system satisfies F4.6.*	To comply. Architect to confirm if window system complies with F4.6 of BCA.
Part D3 Access for People with A Disability		
D3.1 Application of Part	DTS provisions apply to Class 1b, 2, 3, 5, 6, 7a, 7b, 8, 9a, 9b, 9c, 10a and 10b (swimming pool) buildings. Refer to Table D3.1 for detailed requirements. *Access required to common areas –* *From a pedestrian entrance required to be accessible to at least 1 floor containing sole occupancy units and to the entrance doorway of* ***each sole occupancy unit located on that level.*** *Access also required to and within not less than 1 of each type of room or space for use in common by the residents.* *Where a ramp complying with AS1428.1 or a passenger lift is installed –* *(a) To the entrance doorway of each sole occupancy unit; and* *(b) To and within rooms or spaces for use in common by the residents,* *Located on the levels served by the lift or ramp.*	Architect to note and to comply. Access consultant to advise.

Clause Description	Clause Requirements/Comments	Status
D3.2 Access to buildings	(a) An accessway must be provided to a building required to be accessible – (i) from the main points of a pedestrian entry at the allotment boundary; and (ii) from another accessible building connected by a pedestrian link; and (iii) from any required accessible carparking space on the allotment. (b) An accessway must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances including the principal pedestrian entrance. Where the building floor area >500m^2, a non-accessible pedestrian entrance must not be located more than 50m from an accessible entrance. An entrance that serves only an area exempted by D3.4 need not be accessible. (c) Where a pedestrian entrance required to be accessible has multiple doorways - (i) not less than 1 of those doorways must be accessible if the entrance consists of not more than 3 doorways. (ii) If more than 3 doorways, not less than 50% of those doorways must be accessible. (d) For the purpose of (c) – (i) an accessible pedestrian entrance with multiple doorways is considered to be one pedestrian entrance where – (A) all doorways serve the same part or parts of the building; and (B) the distance between each doorway is not more than the width of the widest doorway at that pedestrian entrance; and (ii) a doorway is considered to be the clear, unobstructed opening created by the opening of one or more door leaves. (e) Where a doorway on an accessway has multiple leaves, (except an automatic opening door) one of those leaves must have a clear opening width of not less than 850mm in accordance with AS1428.1 – 2009. *At the minimum, disabled car spaces must be provided for uses other than Class 2. Table D3.2 requires access to be provided to entrance floor and any other floor where a passenger lift is provided.* *Although the disabled car spaces are located on Level B1 and B2, all car park levels must be accessible.*	Access consultant to review and advise. Architect will need to provide landscaped drawings indicating footpath gradients to the Access consultant. Access consultant to also review the design of the adaptable units.

Clause Description	Clause Requirements/Comments	Status
D3.3 Parts of buildings to be accessible	In a building required to be accessible – (a) **every** ramp and stairway, except for ramps and stairways in areas exempted by D3.4, must comply with – (i) for a ramp, except a fire-isolated ramp, clause 10 of AS 1428.1; and (ii) for a stairway, except a fire isolated stairway, clause 11 of AS 1428.1; and (iii) for a fire isolated stairway, clause 11(f) and (g) of AS 1428.1; and (b) **every** passenger lift must comply with E3.6; and (c) accessway must have – (i) passing spaces complying with AS 1428.1 at maximum 20m intervals on those part of an accessway where a direct line of sight is not available; and (ii) turning spaces complying with AS 1428.1 – (A) within 2m of the end of accessways where it is not possible to continue travelling along the accessway; and (B) at maximum 20m intervals along the accessway; and (d) an intersection of accessways satisfies the special requirements for a passing and turning space; and (e) a passing space may serve as a turning space; and (f) a ramp complying with AS 1428.1 or a passenger lift need not be provided to serve a storey or level other than the **entrance storey** in a Class 5, 6, 7b or 8 building – (i) containing not more than 3 storeys; **and** (ii) with a floor area for each storey, excluding the entrance storey, of not more than 200m^2; and (g)clause 7.4.1(a) of AS 1428.1 does not apply and is replaced with "the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm", and (h) the carpet pile height or pile thickness dimension, carpet backing thickness dimension and their combined dimension shown in figure 8 of AS 1428.1 do not apply and are replaced with 11mm, 4mm and 15mm respectively.	To comply. Access consultant to advise.
D3.4 Exemptions	The following areas need not be accessible – (a) An area where access would be inappropriate because of the particular purpose for which the area is used. (b) An area that would pose a health and safety risk for people with a disability. (c) Any path of travel providing access only to an area exempted by (a) or (b).	To note.

Clause Description	Clause Requirements/Comments	Status
D3.5 Car parking	Number of disabled carparking spaces must comply with Table D3.5. Disabled spaces not required if valet parking is provided and direct access to carparking spaces is not available. Disabled car space need not be sign marked if total car spaces is <5. Parking design must comply with AS/NZS 2890.6. *Although not required by Table D3.5 of BCA, it is practical to provide disabled parking where adaptable units are proposed.*	To comply. Architect advised 2 accessible car parking spaces for visitors are provided on the podium. Every adaptable apartment has an accessible space.
D3.6 Identification of access facilities, services features	(a) Clear legible Braille and Tactile International disabled symbol/signage (incorporating symbol of access or deafness as appropriate) complying with Specification D3.6 must be provided to – (i) disabled WC, (ii) space where hearing augmentation system is installed, and (iii) each door required by E4.5 to be provided with an Exit sign and state "Exit" and "Level" followed by the floor level number. (b) Signage with international symbol for deafness must be provided within a room containing a hearing augmentation system identifying – (i) the type of hearing augmentation; and (ii) area covered within the room; and (iii) if receivers are being used and where receivers can be obtained. (c) Right or left handed disabled toilet signage must be provided for accessible toilets as appropriate. (d) Signage for ambulant accessible toilet must be provided and located on the door. (e) Where a pedestrian entrance is not accessible, directional signage as per AS 1428.1 must be provided to direct the nearest accessible entrance. (f) Where a disabled toilet is not located in a bank of toilets, a directional signage as per AS 1428.1 must be placed in this bank of toilets to direct the location of the nearest disabled toilet.	To comply.

Clause Description	Clause Requirements/Comments	Status
D3.7 Hearing augmentation	(a) Where an inbuilt amplification system is installed other than EWIS, hearing augmentation system complying with AS 1428.1 must be provided in a room in – (i) a Class 9b building; (ii) an auditorium, conference room, meeting room or room used for judicatory purposes; (iii) ticket office, tellers booth, reception area where public is screened from service provider. (b) If a hearing augmentation system required by (a) is – (i) an induction loop, it must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system; or (ii) a system requiring the use of receivers, it must be available to not less than 95% of the floor area of the roomserved by the inbuilt amplification system. The number of receivers provided must not be less than – (A) If the room accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and (B) If it accommodates >500 persons but not more than 1000 persons, 20 receivers plus 1 receiver for every 33 persons or part thereof in excess of 500 persons; and (C) If the room accommodates >1000 persons but not more than 2000 persons, 35 receivers plus 1 receiver for every 50 persons or part thereof in excess of 1000 persons; and (D) If the room accommodates >2000 persons, 55 receivers plus 1 receiver for every 100 persons or part thereof in excess of 2000 persons. (c) The number of persons accommodated in the room must be calculated as per D1.13. (d) In a Class 9b building, any screen or scoreboard capable of displaying public announcements must be capable of supplementing any public address system, other than one used for emergency warning purpose.	Not applicable.
D3.8 Tactile indicators	Type B indicators complying with Sections 1 and 2 of AS/NZS 1428.4.1 must be installed to warn people with vision impaired as they approach a stair (other than a fire isolated stair), escalator, passenger conveyor or moving walk, a ramp (other than fire isolated ramp), step ramp, kerb ramp or swimming pool ramp. In the absence of a suitable barrier, tactile indicators must be installed if an overhead obstruction <2m above floor (other than a doorway) and an accessway meeting a vehicular way adjacent to any pedestrian entrance (unless exempted in D3.4) to a building if there is no kerb or kerb ramp at that point. *Some of the spaces underneath the car park ramps are less than 2m high. Tactile indicators must be installed or a suitable barrier must be provided.*	To comply.
D3.9 Wheelchair seating spaces in Class 9b assembly building		Not applicable.

Clause Description	Clause Requirements/Comments	Status
D3.10 Swimming pools	(a) Where swimming pool is required to be accessible in Table D3.1, not less than 1 means of accessible water entry/exit in accordance with Specification D3.10 must be provided. (b) An accessible entry/exit must be by means of – (i) a fixed or movable ramp and an aquatic wheelchair; or (ii) a zero depth entry at a maximum gradient of 1:14 and an aquatic wheelchair; or (iii) a platform swimming pool lift and an aquatic wheelchair; or (iv) a sling-style swimming pool lift. (c) Where the perimeter of the swimming pool is >70m, at least one accessible water entry/exit must be provided in accordance with (b)(i), (ii) or (iii) above. (d) Latching devices on gates and doors forming part of the swimming pool safety barrier need not comply with AS 1428.1. The requirement of accessible swimming pool does not apply to private swimming pool which is for the exclusive use (not shared with other occupants) of occupants of a Class1b building or a sou in a Class 2 or Class 3 building.	Common swimming pool must comply with this requirement. Access consultant to advise.
D3.11 Ramps	An accessway must not be used to connect different levels where the height exceeds 3.6m. A landing for a step ramp must not overlap a landing for another step ramp or ramp.	To note.
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.	To comply. Access consultant to advise.
Spec D1.12 Non-required stairways, ramps and escalators	Non-required stair, escalator can connect any number of storeys provided it complies with this specification.	Not applicable.
Specification D3.6 Braille and Tactile Signs	This specification sets out the requirements for the design and installation of Braille and tactile signage as required by D3.6. It regulates the followings: (A) Location of tilizi and tactile signs; (B) Braille and tactile sign specification; (C) Luminance contrast; (D) Lighting; (E) Braille Refer to this specification for detailed requirements.	Access consultant to advise.

Clause Description	Clause Requirements/Comments	Status
Specification D3.10 Accessible water entry/exit for swimming pools	(1) Fixed or movable ramp must have a slip resistant surface with maximum gradient of 1:14 and have kerbs & handrails on both sides as per AS 1428.1. The ramp must extend to a depth of ≥900mm and ≤1100mm below the stationary water level. It must have landings at top and bottom of the ramp and the bottom landing must be located at a level between 900mm and 1100mm below the stationary water level. (2) Zero depth entry must have a slip resistant surface with maximum gradient of 1:14. A single handrail complying with AS 1428.1 need only be provided from the top of the entry point continuous to the bottom level area. The level area must be 1500mm long and located at the bottom of the zero depth entry at a level between 900mm and 1100mm below the stationary water level. (3) Platform swimming pool lift must be capable of being operated from the swimming pool surround, within the swimming pool, and on the platform and located where the water depth is not more than 1300mm. It must be able to withstand a weight capacity of ≥160kg and can sustain a static load of ≥1.5 times the rated load. (4) Sling-style swimming pool lift must be located where water depth is ≤1300mm and must be capable of being operated from the swimming pool surround, within the swimming pool and from the sling. It must be able to withstand a weight of ≥135kg and can sustain a static load of ≥1.5 times the rated load. The sling must be able to submerge to a water depth of ≥500mm below the stationary water level. A clear space not less than 900mmx1300mm, with slip-resistant surface and gradient of not more than 1:50 must be provided so that the centerline of the space is directly below the lifting point for the sling. This space must be provided on the swimming pool surround parallel with the swimming pool edge on the side remote from the water. (5) An aquatic wheelchair to be used with (A), (B) and (C) above must have the top surface of the seat ≥430mm high, with seat width of ≥480mm and a footrest must be provided. The armrests must be provided on both sides of the seat and must be capable of moved away from the side of the chair to allow a person to transfer on and off the seat.	To comply. Access consultant to advise.

4.4 Part E – Services and equipment

Clause Description	Clause Requirements/Comments	Status
Part E1 Fire Fighting Equipment		

Clause Description	Clause Requirements/Comments	Status
E1.3 Fire hydrants (FH)	Must be installed in building with floor area >500m^2 and where a fire brigade is available to attend a building fire. FH must comply with AS 2419.1, except a Class 8 ens need not comply with clause 4.2 of AS 2419.1 if it cannot be connected to town mains and one hour water storage is provided for fire fighting. Internal hydrant may serve an *sou occupying two consecutive storeys* in *Class 5 to 9* building or any storey in *Class 2, 3 & 4* building provided that the hydrant is *located at the level of egress.* Where water supply system is taken from a static source, suitable connections and vehicular access must be provided to permit fire brigade personnel to draw water from that source and a fire-service booster connection must be provided adjacent to allow boosting of the system. Location of Hydrant booster must comply with clause 7.3 of AS 2419.1. *It is proposed that a hydrant ring main is not provided in Adelaide and Darwin Buildings – This will be addressed by an Alternative Solution.* *The location of the hydrant booster does not comply with clause 7.3(c) of AS 2419.1 in that it is not within the sight of the main entrance of the development. Furthermore, the upper hose connection is possibly within 2m each side of the doorway – Liaise with the Hydraulic consultant.* *Note that the FH inside the fire isolated stair must be located on the landing that has the same level as the storey served by the FH.* *The FH coverage on the Ground Floor of Darwin Building is unclear as the FH within the fire stairs are not accessible to serve the Ground Floor. Hydraulic Consultant to advise.*	Alternative Solution will be proposed for the deletion of hydrant ring main in Adelaide and Darwin Buildings. Hydraulic consultant to review location of Hydrant booster and seek approval from NSWFB. Hydraulic consultant to review locations of FH within the fire stairs. Hydraulic consultant to advise the FH coverage on the Ground floor of Darwin Building.

Clause Description	Clause Requirements/Comments	Status
E1.4 Fire hose reels (FHR)	FHR system required to serve the whole building where one or more *internal* fire hydrants are installed or the fire compartment >500m^2. FHR may serve an *sou occupying two consecutive storeys* in *Class 5 to 9* building or any storey in *Class 2, 3 & 4* building provided that the hose reel is *located at the level of egress.* FHR need not serve the classrooms and associated corridors in a primary or secondary school. Likewise for Class 9c aged care building or a Class 8 ens. Portable fire extinguishers will be required where fire hose reel is not provided. FHR must be located externally or internally to achieve system coverage specified in AS2441. FHR must be located adjacent to an internal FH (other than the one in the fire isolated exit), except that a FHR need not be located adjacent to every FH, provided system coverage can be achieved. FHR must be located within 4m of an exit, except that a FHR need not be located adjacent to every exit, provided system coverage can be achieved. The intermediate FHR remote from the FH and exit must be located in paths of travel to an exit to achieve coverage. Fire hose reel must not pass through fire or smoke doors except door to switchroom, substation, entrance fire door to Class 2, 3 & 4 building, fire door/hatch to shaft and fire door to equipment room and doors to separated ancillary use areas of high potential fire hazard in a Class 9a and Class 9c buildings. FHR must comply with AS 2441. If the supply could not achieve the flow & pressure, a pump or water storage facility or both must be provided. *Hydraulic consultant to ensure the locations and the coverage comply with BCA and AS2441.* *Also, FHR cupboard door obstructs egress path which contravenes clause 10.4.4 of AS2441.*	Hydraulic consultant to ensure design complies. Specify 180^o hinge door to FHR cupboard.
E1.5 Sprinklers	Automatic sprinkler system must be installed in accordance with AS 2118 when required by Table E1.5. It is required throughout the whole building if any part of the building is >25m effective height; Class 9c building; Class 6 building where floor area >35,000 m^2 or volume >21,000m^3; Enclosed carpark which accommodates >40 vehicles and occupancies of excessive hazard where the fire compartment >2,000m^2 or volume >12,000m^3. *NOTE: NSW Table E1.5 (NSW has requirements for fire sprinkler systems in certain residential age care facilities. See the Department of Planning & Infrastructure website www.planning.nsw.gov.au).* Automatic sprinkler system is not required in a stand-alone open deck car park which > 40 vehicles or > 25m effective height. Similarly, in a Class 8 ens with floor area not more than 200m^2 located within a multi-classified building. *It is proposed that automatic sprinklers will not be provided in Adelaide and Darwin Buildings. This will be addressed by an Alternative Solution. Refer to Section 3.1.5 for implication of Effective Height interpretation on the proposed Alternative Solution.*	To comply. Alternative Solution will be proposed to omit sprinklers in Adelaide and Darwin Buildings.

Clause Description	Clause Requirements/Comments	Status
E1.6 Portable fire extinguishers	Portable fire extinguishers complying with sections 1, 2, 3 and 4 of AS 2444 must be provided as listed in Table E1.6. In addition to the fire extinguisher for Class F fire risks involving cooking oils and fats in kitchen, a fire blanket must also be installed.	To comply.
E1.8 Fire control centres	Fire Control Centre must be provided in a building >25m and <50m in *effective height.* Fire Control Centre also required in a Class 6, 7, 8 or 9 building with a total floor area >18,000m^2. The Fire Control Centre/Room must comply with Specification E1.8. *As the building has an effective height of not more than 50m, a fire control room (FCR) must be provided and the design must comply with Specification E1.8.* ***The proposed FCR does not strictly comply with Specification E1.8 in terms of location – refer to clause 8 of Spec E1.8 below.***	Location of FCR does not appear to comply with clause 8 of Specification E1.8. Refer to clause 8 of Spec E1.8 for commentary.
E1.9 Fire precautions during construction	Building under construction must be protected by at least 1 fire extinguisher of class A, B and C fires on each storey adjacent to an exit. When building reached an effective height of 12m, the required FH and FHR must be operational at every storey except the two uppermost storeys and any required booster connections must be installed.	To comply.
E1.10 Provision for special hazards	Suitable additional fire fighting equipment must be provided in building of special hazards or restricted water supply for fire fighting purposes.	Not applicable.
Part E2 Smoke Hazard Management		
E2.1 Application of Part	The DTS provisions do not apply to open deck carpark or open spectator stand or Class 8 ens with floor area not more than 200m^2, located within a multi-classified building. Smoke exhaust and smoke-and-heat vent do not apply to store room <30m^2 occupied for short duration, sanitary compartment, plant room or the like.	

Clause Description	Clause Requirements/Comments	Status
E2.2 General requirements Smoke hazard management (SHM)	Table E2.2a applies to Class 2 to 9 buildings and Table E2.2b applies to Class 6 and 9b buildings. Smoke hazard management system must comply with AS 1668.1. Note: An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a or Table E2.2b and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must – (i) be designed and installed as a smoke control system in accordance with AS/NZS 1668.1; or (ii) incorporates smoke dampers where the air-handling ducts penetrate any elements separating the fire compartment served; and (iii) be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with clause 4.10 of AS/NZS 1668.1. For the purpose of this provision, each sou in a Class 2 or 3 building is treated as a separate fire compartment. *Stair pressurization will be installed in all buildings.* *In order for stair pressurization to perform effectively, any proposed window inside the fire stair must be fixed glazing to maintain air tight stair shaft except for the fire door. Furthermore, stair pressurization relief must be provided on the floor.*	Mechanical consultant to advise.
NSW Table E2.2b Class 9b building		Not applicable.
E2.3 Provisions for special hazards	Additional smoke hazard management may be necessary for buildings of special characteristic or storing hazardous materials which are not addressed in Table E2.2a and E2.2b.	Not applicable.
Part E3 Lift Installations		
E3.1 Lift installations	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1.	To note.
E3.2 Stretcher facility in lifts	Must be provided in one emergency lift or one passenger lift (if emergency lift is not required) if the lift served any storey which has an effective height of >12m. Clear space required for raised stretcher is 600mm wide x 2000mm long x 1400mm high.	To comply.
E3.3 Warning against use of lifts in fire	Warning sign complying with figure E3.3 must be displayed near every lift call button.	To comply.

Clause Description	Clause Requirements/Comments	Status
E3.4 Emergency lifts	Required for building >25m effective height and Class 9a building in which patient care areas are partly located at a level that does not have direct egress to a road or open space. At least one must be provided in the building. If 2 or more passenger lifts are provided, at least 2 emergency lifts must be installed. If passenger lifts are located in two separate banks, at least 1 emergency lift per bank is required. Emergency lift must be located within its own separate fire rated shaft. If the building has an effective height of more than 75m, have a rating of at least – (a) 600kg if not provided with a stretcher facility; or (b) 900kg if provided with a stretcher facility.	To comply. Architect confirmed that emergency lifts will be provided to all buildings.
E3.5 Landings	Access and egress to and from liftwell landings must comply with the DTS provisions of Section D.	To comply.
E3.6 Passenger lifts	In an accessible building, every passenger lift must be one of the types listed in Table E3.6a. However, there are limitations for the types of lifts specified. The passenger lift must incorporate accessible features in accordance with Table E3.6b and not rely on a constant pressure device for its operation if the lift car is fully enclosed. Refer to Table E3.6a and Table E3.6b for details.	To comply.
E3.7 Fire service controls	Where lifts serve any storey above an effective height of 12m, the following must be provided: (a) A fire control switch complying with E3.9 for a group of lifts or a single lift not in a group that serves the storey. (b) A lift car fire service drive control switch complying with E3.10 for every lift.	To comply.
E3.8 Aged care buildings		Not applicable.

Clause Description	Clause Requirements/Comments	Status
E3.9 Fire service recall operation switch	(a) Each group of lift must be provided with one fire service recall control switch required by E3.7 that activates the fire service recall operation at (e). The switch must – (i) be located at the landing nominated by the appropriate authority; and (ii) be labeled "FIRE SERVICE" in indelible white lettering on a red background; and (iii) Have two positions with an "OFF" and an "ON" position identified; and (iv) be operated only by the use of a key that is removable in either the "OFF" position or the "ON" position. (b) Adhesive labels must not be used for compliance with (a)(ii) and (a)(iii). (c) The key in (a)(iv) must be able to turn all fire service recall control switches in the building and must have a different key combination to other keys used for lifts in the building. (d) The fire service recall operation must be activated by – (i) switching the fire service recall control switch to (a) to "ON"; or (ii) a signal from a fire management system approved by the appropriate authority. (e) The activation of the fire service recall operation at (d) must – (i) cancel all registered car and landing calls; and (ii) inactivate all door reopening devices that may be affected by smoke; and (iii) ensure lift cars travelling toward the nominated floor continue to the nominated floor without stopping; and (iv) ensure lift cars travelling away from the nominated floor stop at or before the next available floor without opening the doors (either automatically or by the door open button), reverse direction and travel without stopping to the nominated floor; and (v) for lifts stopped at a floor other than the nominated floor, close the doors and travel without stopping to the nominated floor; and (vi) ensure that lifts stay at the nominated floor with doors open; and (vii) permit all lifts to return to normal service if the fire service recall control switch at (a) is switched to the "OFF" position during or after the fire service recall operation. (f) The requirements of (e) do not apply to lifts on inspection service or when the lift car service control switch required by E3.10 is in the "ON" position. (g) Lifts having manual controls must signal an alert to the lift for the lift to return to the nominated floor containing the recall switch that activated the signal.	To comply.

Clause Description	Clause Requirements/Comments	Status
E3.10 Lift car fire service drive control switch	(a) The lift car fire service drive control switch required by E3.7 must be activated from within the lift car. The switch must – (i) be located between 600mm and 1500mm above the lift car floor; and (ii) be labeled "FIRE SERVICE" by indelible white lettering on a red background; and (iii) have two positions with an "OFF" and an "ON" position identified; and (ii) position. (b) Adhesive labels must not be used for compliance with (a)(ii) or (a)(iii). (c) When the lift car fire service drive control switch at (a) is turned on the "ON" position, the lift must – (i) not respond to the fire service recall control switch; and (ii) cancel all registered lift car and landing calls; and (iii) override all lift car call access control systems; and (iv) inactivate all door opening devices that may be affected by smoke; and (v) allow the registration of lift car call by lift car call buttons, however the lift doors must not close in response to the registration of lift car calls; and (vi) activate door closing by constant pressure being applied on the "door close" button unless the button is released before the doors are fully closed, in which case the doors must reopen and any registered lift car calls must be cancelled; and (vii) when the doors are closed, move the lift in response to registered lift car calls while allowing additional lift car calls to also be registered; and (viii) travel to the first possible floor in response to registered lift car calls and cancel all registered lift car calls after the lift stops; and (ix) ensure doors do not open automatically, rather by constant pressure being applied on the "door open" button unless the button is released before the doors are fully open, in which case the doors must re-close; and The requirements of (c)(i) to (c)(ix) do not apply to a lift operating on inspection service. (d) A multi-deck lift installation must have systems in place that – (i) are able to communicate to the fire officer that the fire service drive control switch will not operate until all decks have been cleared of passengers; and (ii) ensure there is an appropriate method of clearing all deck landings of passengers; and (iii) maintain all doors to deck landings not containing the fire service control switch closed and inoperative while the lift is on fire service drive control.	To comply.

Clause Description	Clause Requirements/Comments	Status
Specification E3.1 Lift installations	1. Scope This Specification contains requirements for electric passenger lift installations and electrohydraulic passenger lift installations. 2. Lift cars exposed to solar radiation (a) A lift car exposed to solar radiation directly, or indirectly by re-radiation, must have— (i) mechanical ventilation at a rate of one air change per minute; or (ii) mechanical cooling. (b) A 2 hour alternative power source for ventilation or mechanical cooling at (a) must be provided in the event of normal power loss. 3. Lift car emergency lighting A lift car must have an emergency lighting system designed— (a) to come on automatically upon failure of the normal lighting supply; and (b) to provide at least 20 lux of lighting for 2 hours on the alarm initiation button. 4. Cooling of lift shaft While a lift in a lift shaft is in service, the cooling of the lift shaft must— (a) ensure that the dry bulb air temperature in the lift shaft does not exceed 40°C; and (b) if the cooling is by a ventilation system, be provided with an air change rate determined using a temperature rise of no more than 5 K. 5. Lift foyer access Where there is a security foyer in a building, access may be via locked security doors provided— (a) security doors revert to the unlocked state in the event of— (i) power failure; or (ii) fire alarm; and (b) locked foyer areas are monitored by closed circuit television and intercom system to a 24 hour staffed location. 6. Emergency access doors in a single enclosed lift shaft (a) Where a lift is installed in a single enclosed lift shaft having a distance between normal landing entrances greater than 12.2 m, emergency access doors must be provided and constructed as follows: (i) The clear opening size of emergency doors must be not less than 600 mm wide x 980 mm high. (ii) Hinged doors must not open towards the interior of the lift shaft. (iii) Doors must be self-closing and self-locking. (iv) Doors must be marked on the landing side with the letters not less than 35 mm high: “DANGER LIFTWELL ACCESS” “KEEP FURNITURE AND FIXTURES CLEAR”. (v) Doors from the landing side must only be openable by a tool. (vi) Each emergency door must be provided with a positive breaking electrical contact, wired into the control circuit to prevent movement of the lift until the emergency door is both closed and locked. *…….continue next page*	To comply.

Clause Description	Clause Requirements/Comments	Status
Specification E3.1 Lift installations	(b) In single enclosed lift shafts where— (i) ropes are installed; and (ii) the vertical distance between the lift car sill and the landing door head is less than 600 mm; and (iii) the counterweight is resting on its fully compressed buffer, emergency egress from the lift car must be provided in the form of an interlocked door with clear opening dimensions not less than 600 mm x 600 mm, accessible from the lift car entrance or the lift car roof (where the door is located in the wall of the lifts haft).	To comply.
Part E4 Emergency Lighting, Exit Signs and Warning Systems		
E4.2 Emergency light requirements	Emergency lights must be installed throughout the building.	To comply.
E4.3 Measurement of distance	Shortest measurement to be used.	To note.
E4.4 Design & operate emergency light	Comply with AS 2293.1.	To comply.
E4.5 Exit signs	Illuminated exit sign must be installed above entrance door: to fire isolated exit; to external stair or ramp; to external access balcony leading to required exit. Also required above door discharging into open space within the fire isolated exit and above horizontal exit.	To comply.
NSW E4.6 Direction signs	Illuminated directional sign must be installed to direct egress if exit is not apparent.	To comply.
E4.7 Class 2,3 & 4 buildings, exemptions	Illuminated exit sign is not required in exit door of Class 2 building provided that "EXIT" in capital letters 25mm high in colour contrasting to the background is affixed to the door on the approach side. Note: Class 3 & 4 building needs to comply with E4.5.	To note.
E4.8 Design and operation of exit signs	Must comply with AS 2293.1.	To comply.
E4.9 Sound systems and intercom systems for emergency purposes (SSIS)	SSIS must comply with AS1670.4. Required in building >25m effective height. *SSIS will be installed in all buildings.*	Will comply.
Spec E1.5 Fire Sprinkler Systems	Sprinkler system must comply with AS 2118.1; or AS 2118.4 as applicable for Class 2, 3 or 9c building; or AS 2118.6 for a combined sprinkler and fire hydrant system.	To comply.
Spec E1.5, Cl 3 Separation of sprinklered and non-sprinklered areas	Sprinklered and non-sprinklered parts must be fire separated as per BCA or AS 2118 if no specific requirement under BCA.	To comply.

Clause Description	Clause Requirements/Comments	Status
Spec E1.5, Cl 4 Protection of openings	Penetrations on separating fire rated elements must be protected as per Part C3 of BCA.	To comply.
Spec E1.5, Cl 5 Fast response sprinklers	May be installed if they are suitable for the application and *the sprinkler system can accommodate its use.*	To comply.
Spec E1.5, Cl 6 Sprinkler valve enclosures	This must be enclosed in a secure room which has direct egress to a road or open space.	To comply.
Spec E1.5, Cl 7 Water supply	For building >25m effective height, Grade 1 water supply as defined in AS 2118 must be provided.	To comply.
Spec E1.5, Cl 8 Building occupant warning system	The sprinkler system must be connected to activate the building occupant warning system complying with Clause 6 of Specification E2.2a.	To comply.
Spec E1.5, Cl 9 Connection to other systems	Activation of sprinkler system must also activate smoke hazard management system.	To comply.
Spec E1.5, Cl 10 Anti-tamper devices	In theatre, public hall, the control valves to sprinklers over the stage area must be fitted with anti-tamper devices connected to a monitoring panel at the location normally used by the stage manager.	Not applicable.
Spec E1.5, Cl 11 Sprinkler systems in carparks	When utilizing the concession for the FRL of the carpark in Table 3.9 of Specification C1.1, the sprinkler system in the carpark must be independent of the sprinkler system serving another part of the building; or if an integrated system is used, the sprinkler protecting the non-carpark part can be isolated without interrupting the effective operation of the sprinkler system in the carpark.	Not applicable.
Spec E1.5, Cl 12 Class 9c aged care buildings		Not applicable.
Spec E1.5, Cl 13 Sprinkler systems in lift installations	Where sprinklers are installed in a space housing lift and control equipment, including machine rooms, secondary floors and sheave rooms, they must be of dry system type in accordance with AS 2118.1.	To comply.
Spec E1.8 Fire Control Centres	Fire control room (FCR) is a fire control centre (FCC) in a dedicated room. Clauses 2 to 5 apply to a fire control centre and room. Clauses 6 to 12 are additional requirements for a FCR.	To comply.
Spec E1.8, Cl 3 Location of fire control centre	FCC or FCR must be located so that the egress to open space does not involve changes in levels which in aggregate >300mm.	To comply.
Spec E1.8, Cl 4 Equipment not permitted within a fire control centre	Internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings must not be located in a FCC, but may be located in rooms accessed through the FCC.	To comply.
Spec E1.8, Cl 5 Ambient sound level for a fire control centre	Ambient sound level within FCR when equipment is operating <65dB(A).	To comply.

Clause Description	Clause Requirements/Comments	Status
Spec E1.8, Cl 6 Construction of a fire control room	Building >50m effective height must be provided with a FCR. FCR must be enclosed in 120/120/120 masonry construction. Finishes within the enclosure must have Spread of Flame Index of 0 and Smoke Developed Index of <2. Alternatively, it must comply with Specification C1.10a for fire isolated exits. Openings in walls, floors or ceiling are restricted to doorway, ventilation opening and otter required services for the FCR.	To comply.
Spec E1.8, Cl 7 Protection of openings in a fire control room	Openings in external wall of FCR must be protected as per C3.4 if they are exposed to fire source features. Other openings must be protected as per part C3. Doorway in the internal wall of FCR must be protected with -/120/30 self closing fire door *fitted with smoke seals.* Openings for natural or mechanical ventilation must not be made in ceiling or floor. Mechanical penetration through a fire rated wall must be protected by -/120/- fire damper unless the wall is an external wall.	To comply.
Spec E1.8, Cl 8 Doors to a fire control room	Required doors to a FCR must open into the room. Access to the room must not be interfered by people seeking egress. FCR must be accessible from front entrance of the building and one direct from the public place or fire isolated passageway which leads to a public place and the doorway protected with -/120/30 fire door. *Technically, the FCR is not located at the front entrance.*	The location of the FCR must be discussed (in the form of an Alternative Solution) with the NSWFB as it impacts on the efficiency of the fire fighting.
Spec E1.8, Cl 9 Size and contents of a fire control room	The followings must be installed in the FCR: • Fire indicator panel and necessary control switches plus visual status indication for all required fire pumps, smoke control fans and other required fire safety equipment installed in the building; • A telephone directly connected to an external telephone exchange; • 1200mm(w) x 1000mm(h) whiteboard and pinboard; • a raked plan layout table; • colour-coded, durable, tactical fire plans. FCR may also contain the followings: • master emergency control panels, lift annunciator panels, remote switching controls for gas and electrical supplies and emergency generator backup; • building security , surveillance and management systems if they are segregated from all other systems. FCR gross floor area must >10m^2 (nett >8m^2) with shortest internal side >2.5m. Clear space in front of FIP >1.5m^2 and same for any additional facility with additional 2m^2 net floor area allocated for that.	To comply.
Spec E1.8, Cl 10 Ventilation and power supply for a fire control room	The room must be naturally ventilated or positively pressurised as per AS/NZS 1668.1 which is activated by building's fire alarm or sprinkler and by manual override in the FCR. Air flow >30 air changes per hour and have fans, ductwork originated outside the FCR to be protected by 120/120/120 construction. The electrical supply to the FCR and the equipment must be connected to the supply side of the main disconnection switch for the building. Only doorways, windows and relief louvers that are openable by a key may be constructed in the FCR.	Natural ventilation is possible via the doorway on the external wall.

Clause Description	Clause Requirements/Comments	Status
Spec E1.8, Cl 11 Sign for a fire control room	The external face of the door to the fire control room must have a sign with the words “FIRE CONTROL ROOM” in letters of not less than 50mm high and a colour contrasting with the background.	To comply.
Spec E1.8, Cl 12 Lighting for s fire control room	Emergency lighting must be installed in the FCR and the illumination level at the plan table >400 lux.	To comply.
Spec E2.2a Smoke detection and alarm systems	For Class 2, 3 & 4 smoke detection complying with AS 3786 or AS 1670.1. In public corridor not protected with sprinklers, AS 3786 detectors spaced as per AS 1670.1 and connected to activate building occupant warning system is required. In lieu of the above, AS 1670.1 system is acceptable. For Class 5 to 9 building (except 9a), smoke detection system must be AS 1670.1 system. Smoke detection for air pressurization system and zone smoke control systems must be installed as per AS/NZS 1668.1. Smoke detectors which activate a smoke control system must comply with AS 1670.1 and must activate occupant warning system.	To comply. Mechanical consultant to note.
Spec E2.2b Smoke exhaust systems	Smoke reservoir must be maintained at 2m above floor level and above top of any openings interconnecting different smoke layer. Exhaust rates must be determined as per figure 2.1. Exhaust fan, drive, flexible connections, control gear and wiring must be capable of continuous operation at a temperature of 200^{o}C for a period of >1 hour and 30 minutes at temperature of 300^{o}C if the building is not protected with sprinklers. The fan must have high temperature overload devices installed which automatically overridden during the smoke exhaust operation. Smoke reservoirs must be formed by non-combustible and non-shatterable smoke baffles at least 500mm below ceiling. The area of the smoke reservoirs <2000m^2 and <60m long in enclosed shopping malls. 900mm deep smoke baffle must be formed around the underside of each building void. Smoke exhaust fans and vents must be strategically placed to extract smoke effectively. They must be located away from the intersection of walkways or malls and to ensure that open stairs/escalators are not used as a smoke exhaust path. The discharge rate must be >5m/s and discharge point >6m from air intake or exit. Low level make up air must replenish the air exhausted to provide effective smoke exhaust. The velocity <2.5 m/s. To avoid smoke spread from fire affected floor to non-fire affected floor, make up air must maintain 1 m/s velocity across the vertical opening. Each smoke exhaust fan must be activated sequentially by smoke detectors and arranged in zones. Air handling system which does not form part of the smoke hazard management system must shut down in fire mode except for individual room unit <1000 l/s and miscellaneous exhaust air systems.	Not applicable.

Clause Description	Clause Requirements/Comments	Status
Spec E2.2b Smoke exhaust systems	In single fire compartment, air handling systems in all non-fire affected zones may operate on 100% outdoor air to provide make up air to the fire affected zone. Same for multi-storey fire compartment. Manual override control must be provided adjacent to the fire indicator panel as per AS/NZS 1668.1. In theatre, the control must be located in area used by stage manager. Power supply, exhaust fans, detection control and indication circuits must comply with AS/NZS 1668.1. Smoke detection to activate the exhaust must comply with Clause 5 of Specification E2.2a.	Not applicable.
Spec E2.2c Smoke and heat vents	The vents must comply with AS 2665 and must fail safe open. Permanent vents may be used in lieu of automatic vents provided that they comply with relevant criteria of AS 2665. The vents must be operated by thermally released link, smoke detection and arranged in zones to match the reservoirs.	Not applicable.

4.5 Part F – Health and Amenity

Clause Description	Clause Requirements/Comments	Status
Part F1 Damp and Weatherproofing		
FP1.1 Surface run-off in building and construction site	Discharge of surface run-off having an average recurrence interval of 20 years must not damage or cause nuisance to other property.	To comply.
FP1.2 Surface run-off must not enter the building.	Relates to storm having an average recurrence interval of 100 years. Exemption for Class 7 & 8, garage, tool shed, sanitary compartment, open spectator stand or open-deck carpark.	To comply.
FP1.3 Disposal of surface water	Drainage system must convey surface water to an appropriate outfall; avoid entry to a building and avoid water damaging the building.	To comply.
FP1.4 Roof & external wall to prevent penetration of water.	Exemption for Class 7 & 8; garage, tool shed, sanitary compartment; open spectator stand or open deck carpark.	To comply.
FP1.5 Rising damp must be prevented.	Exemption for Class 7 & 8; garage, tool shed, sanitary compartment; open spectator stand or open deck carpark.	To comply.
FP1.6 Overflow from bathroom & laundry	Overflow must be prevented from penetrating another sole occupancy unit and public space in the storey below the same building.	To comply.
FP1.7 Water-proofing w.c, bathroom, laundry	Water must not penetrate behind fittings, linings and concealed spaces of sanitary compartments, bathrooms and laundries.	To comply.
F1.1 Stormwater drainage	Must comply with AS/NZS 3500.3.	To comply.

Clause Description	Clause Requirements/Comments	Status
F1.4 External above ground membranes	Waterproofing membranes for external above ground use must comply with AS 4654 Parts 1 and 2.	To comply.
F1.5 Roof coverings	Concrete roof tiles and terracotta roof tiles must comply with AS 2049 and fixed as per AS 2050. Cellulose cement roofing must comply with AS/NZS 2908.1 and installed as per AS/NZS 1562.2. Metal roofing must comply with AS 1562.1. Plastic roofing must comply with AS/NZS 4256.1, 2, 3, 5 and AS/NZS 1562.3. Asphalt shingles must comply with ASTM D3018-90, Class A.	To comply.
F1.6 Sarking	Sarking materials for roof and walls must comply with AS/NZS 4200.1 and 2.	To comply.
F1.7 Water proofing of wet areas in buildings	Building elements in wet areas in a Class 2, 3, & 4 buildings must be water-resistant or waterproof in accordance with Table F1.7 and must comply with AS 3740. The bathroom or shower room, slop hopper or sink compartment, laundry or sanitary compartment must be water-resistant or waterproof in accordance with Table F1.7 and must comply with AS 3740. Where a slab or stall type urinal is installed, the floor surface of the room must be impervious and if no step is installed, the floor must be graded to the urinal channel for a distance of 1.5m from the urinal channel and the remainder of the floor be graded to a floor waste. Where a step is installed, the step must have an impervious surface and be graded to the urinal channel and the floor behind the channel be graded to a floor waste. In both cases, the junction between the floor surface and the urinal channel must be impervious. Where a wall hung urinal is installed, the wall must be surfaced with impervious material extending from the floor to >50mm above the top of the urinal and >225mm on each side of the urinal. The floor must also be surfaced with impervious material and graded to a floor waste. Where a urinal is installed in a room with timber or steel framed walls, the wall must be surfaced with an impervious material extending from the floor to >100mm above the urinal and the junction between the floor surface and the urinal channel must be impervious.	To comply.
F1.9 Damp-proofing	Moisture from the ground must be prevented from reaching the lowest floor timbers and the walls above the lowest flor joists; walls above the damp-proof course and underside of suspended floor. Damp proof material must comply with AS/NZS 2904 or impervious termite shields as per AS 3660.1. Exemption for Class 7 & 8; garage, tool shed, sanitary compartment; open spectator stand or open deck carpark.	To comply.
F1.10 Damp-proofing of floors on the ground	Vapour barrier complying with AS 2870 required to protect the slab on ground. Damp proofing not required at base of stair, lift or similar shafts which is adequately drained.	To comply.
F1.11 Provision of floor wastes	Floor wastes to be provided in Class 2, 3 or 4 buildings.	To comply.

Clause Description	Clause Requirements/Comments	Status
F1.12 Sub-floor ventilation		Not applicable.
F1.13 Glazed assemblies	Windows, glazed sliding doors with a frame, glazed shopfronts, glazed window walls with one piece framing and adjustable louvres must comply with AS 2047 for resistance to water penetration. Exemptions given to Class 7 & 8 buildings, open spectator stand, open deck carpark, garage, tool shed, sanitary compartment or the like unless they contribute to weatherproofing of other parts. Further exemptions granted for all glazed assemblies not in an external wall, hinged doors, revolving doors, fixed louvres, skylights, roof lights, horizontal windows, sliding doors without a frame, shopfront doors, second hand windows and heritage windows.	To comply.
Part F2 Sanitary and Other Facilities		
F2.1 Facilities for residential buildings	Facilities such as bath/shower and wc must be provided in Class 3 buildings. In addition, laundry and tub and kitchen must be provided in Class 2 and 4 buildings. A kitchen sink or a washbasin cannot be used as a laundry tub. A wc and washbasin must be provided for use by employees at or near ground floor if there are >10 sou in a Class 2 building. Refer to Table F2.1 for specific requirements. *It is assumed that the toilet in B1 car park (grid F-04) can be used by the employees.*	To comply.
F2.2 Calculation of number of occupants and fixtures	Population calculation based on Table D1.13. Population based on equal numbers of males and females. A unisex disabled facility is counted once for each sex.	To note.
F2.3 Facilities in Class 3 to 9 buildings	Sanitary facilities must be provided as per Table F2.3.	Not applicable as buildings are Class 2.

Clause Description	Clause Requirements/Comments	Status
F2.4 Facilities for people with disabilities	(a) Disabled toilets must be provided to Class 1b, 2 to 9 and 10a buildings which are required to be accessible in accordance with Table F2.4(a). (b) Where accessible showers are required, they must be provided in accordance with Table F2.4(b). (c) At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 must be provided for use by males and females. (d) An accessible unisex sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels. (e) The design of the accessible sanitary compartment and shower must comply with AS 1428.1. (f) An accessible unisex sanitary facility must be located so that it can be entered without crossing an area reserved for one sex only. (g) Where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible. (h) Where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations. (i) An accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey that is not required to be accessible by a passenger lift or ramp under clause D3.3(f).	To comply.
F2.5 Construction of sanitary compartments	Unisex toilet must have full height partition. For primary school, the partition must be <1.5m or <1.8m in all other cases. Fully enclosed compartment must have door open outwards, slide or readily removable from outside. If door swings inwards, the clear space between the closet pan and the doorway must >1.2m. Measurement is taken as an arc with1.2m radius from the hinge.	To comply.
F2.6 Interpretation: Urinals and washbasins	Each 600mm length of a continuous urinal trough or a closet pan is equivalent to a urinal. A washbasin may be a part of a hand washing trough served by a single tap.	Not applicable.
NSW F2.7 Warm water installations	Deleted. NOTE: Installation of hot water, warm water and cooling water systems (and their operation and maintenance) is regulated in the Public Health Regulation, 2012, under the Public Health Act, 2010.	To note.
F2.8 Waste Management		Not applicable.
Part F3 Room Heights		

Clause Description	Clause Requirements/Comments	Status
F3.1 Height of rooms and other spaces	Minimum ceiling heights are: • Class 2, 3 & 4 – 2.4m for habitable room and 2.1m for kitchen, laundry and corridor. In an attic or sloping ceiling or projection below ceiling line: For a *habitable room* – In an attic: height of not less than 2.2m over 2/3 of the floor area of the room. In other rooms: height not less than 2.4m over 2/3 of the floor area of the room. For a *non-habitable room* – A height of not less than 2.1m over 2/3 of the floor area of the room NB: Floor area of the room is defined as any part that has a ceiling height of less than 1.5m is not included. • In any building – 2.1m for bathroom, shower, wc, airlock, tea room, store room, garage, car park (car park for disabled requires 2.5m) and 2.4m for commercial kitchen. • Above a stairway, ramp or landing – 2m measured vertically above the nosing line of stairway treads or ramp surface or landing.	To comply. Refer also to DA consent.
Part F4 Light and Ventilation		
F4.1 Provision natural light	Natural light must be provided in all habitable rooms of Class 2 and 4 parts; in all bedrooms and dormitories of Class 3 buildings.	To note.
F4.2 Methods and extent of natural lighting	Natural light must be derived from clear transmitting area of windows or roof lights. In the case of windows, clear glazed area not less than 10% of the floor area of the room and in the case of roof lights, clear glazed area of not less than 3%. The windows must open to the sky or courtyard or open verandah or carport while the roof lights must open to the sky. Natural light can also be via a proportional combination of windows and roof lights. The required window must set back >1m from the boundary or external wall of the same building or another building on the allotment. In the case of Class 9a, in the patient care area or sleeping area, the set back must >3m. Furthermore, the set back must > 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill. *Ensure the size of the glazed windows providing natural light complies with this requirement.*	To comply. Architect to confirm.
F4.3 Natural light borrowed from adjoining room	For borrowed light, the principle window area that provides light to both rooms must have an area of not less than 10% of combined floor area. The window area that provides the borrowed light to the secondary room must have an area of not less than 10% of the floor area of the secondary room. Same principle applies to roof lights except that the clear transmitting area of roof lights must be not less than 3%. Borrowed light can also be derived from a combination of windows and roof lights.	To comply.

Clause Description	Clause Requirements/Comments	Status
F4.4 Artificial lighting	Artificial lighting complying with AS 1680.0 must be provided in required stairways, passageways, ramps Also required in the sanitary compartments, bathrooms, shower rooms laundries and common areas in Class 2 and 4 buildings. In other buildings, lighting must be provided in areas accessible to the occupants. Exemptions given to theatre, cinema, museum, gallery, discotheque and nightclub where low level lighting is required.	To comply.
F4.5 Ventilation of rooms	Habitable room, sanitary compartment, bathroom, laundry and any other room occupied by a person for any purpose must have natural ventilation or mechanical ventilation or air condition.	To comply.
NSW F4.5 Ventilation of rooms	Mechanical ventilation and air condition to comply with AS 1668.2.	To note.
F4.6 Natural ventilation	Natural ventilation through openable windows and doors must have an opening area >5% of the room required to be ventilated except for Class 8 ens building. This must open to the sky, open varandah or carport. *The new requirement D2.24 (protection of openable windows) introduced in BCA 2013. It is applicable to bedrooms only. Where window incorporates device to restrict the opening size in D2.24(b)(ii), the calculation of the natural ventilation will be based on the ventilated opening size of the window. Architect to check if the adopted window system satisfies F4.6.*	Architect to advise.
F4.7 Ventilation borrowed from adjoining room	Borrowed ventilation must not come via a sanitary compartment. In Class 2, 3 & 4 building, the ventilation opening must >5% of the floor area. For borrowed ventilation, the ventilation opening of the provider must >5% of the total floor area of the rooms (both provider and receiver). In class 5 to 9 building (except a Class 8 ens building), ventilation opening must be >10% of floor area of the room and must be located <3.6m above the floor. For borrowed ventilation, the opening of the provider must be >10% of the combined floor area (both provider and receiver).	To comply.
F4.8 Restriction position of water closets, urinals	Toilet must not open directly into a kitchen, dining area, dormitory in a Class 3 building, a room used for public assembly (excluding early childhood centre, primary school or open spectator stand) or a workplace occupied by >1 person.	To comply.
F4.9 Airlocks	Airlock must be provided to prevent toilet opening directly into rooms specified in E4.8. For Class 5 to 9 (excluding early chiildhood centre, primary school or open spectator stand) the airlock must be >1.1m^2 and fitted with self closing doors. Alternatively, the toilet can be mechanically ventilated and the doorway must be adequately screened from view.	To note.

Clause Description	Clause Requirements/Comments	Status
F4.11 Car parks	Enclosed carpark must be mechanically ventilated as per AS 1668.2. Open deck carpark must be naturally ventilated. A mechanical ventilation system serving a car park with > 40 vehicle spaces and controlled by an atmospheric contaminant monitoring system in accordance with AS 1668.2, may be stopped when monitored condition is below the determined maximum concentration if the system operates intermittently to provide a minimum of 0.5 air changes per hour (ACH) during any 24 hour period or a supplemental natural ventilation system equivalent to the above.	To comply.
F4.12 Kitchen local exhaust ventilation	Kitchen exhaust hood complying with AS 1668.1 and 2 must be provided if the cooking apparatus has total maximum input of 8 KW or 29 MJ/h or the total maximum input of one apparatus >0.5W or 1.8 MJ gas per m^2 of floor area of the room.	To comply.
Part F5 Sound Transmission and Insulation		
F5.1 Application of Part	The DTS applies to Class 2, 3 and 9c buildings.	
F5.2 Determination of airborne sound insulation ratings	The weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) must be determined as per AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements. Alternatively, the sound insulation rating must comply with Specification F5.2 of BCA.	To note. Acoustic report from a qualified acoustic consultant must be submitted at lodgment of Construction Certificate.
F5.3 Determination of impact sound insulation ratings	For floor, ($L_{n,w} + C_l$) must be determined in accordance with AS/ISO 717.2 using results from laboratory measurements, or must comply with Specification F5.2. A wall required to have impact sound insulation rating must be of *discontinuous construction* for Class 2 or 3 building and for Class 9c aged care building, the wall must: • Other than masonry, be 2 or more separate leaves without rigid mechanical connection except at the periphery; or • Equivalent to or better than the wall listed in Table 2 of Specification F5.2 when tested in accordance with Specification F5.5. Discontinuous construction means a wall having a minimum 20mm cavity between 2 separate leaves and: For masonry, where wall ties are required, they must be of resilient type; and Other than masonry, there is no mechanical linkage between leaves except at the periphery.	To comply.
F5.4 Sound insulation rating of floors	Class 2 or 3 building $R_w + C_{tr}$ (airborne) of >50 and $L_{n,w} + C_l$ (impact) not more than 62 between units and also between unit and plantroom, lift shaft, stairway, public corridor, public lobby or parts of a different classification.	To comply.

Clause Description	Clause Requirements/Comments	Status
F5.5 Sound insulation rating of walls	Class 2 or 3 building $R_w + C_{tr}$ (airborne) >50 between sou and R_w (airborne) >50 if it separates sou from a plant room, lift shaft, stairway, public corridor, public lobby or parts of a different classification. A wall separating a bathroom, sanitary compartment, laundry or kitchen in one sou from a habitable room (other than a kitchen) in an adjoining sou or separating an sou from a plantroom or lift shaft must have impact sound insulation construction detailed in F5.3(b). A door assembly which incorporated in a wall that separates a sou from a stairway, public corridor or public lobby must have R_w >30 The wall that provides sound insulation must be extended to the underside of the floor above or the underside of the roof above or the ceiling that provides the sound insulation for the wall.	To comply.
F5.6 Sound insulation rating of services	If a duct, soil, waste or water supply pipe (including those that are located in a wall or floor cavity) passing through more than one sou the pipes must be separated from habitable room (other than kitchen) in construction having $R_w + C_{tr}$ (airborne) of >40 or >25 if the adjacent room is a kitchen or non-habitable room. The above also applies to a storm water pipe which passes through a sou.	To comply.
F5.7 Sound isolation of pumps	Flexible coupling connection must be provided between the service pipes in a building and any circulating or other pump.	To comply.
F5.8 Walls between a bedroom and kitchen or laundry in a Class 9c building		Not applicable.
Spec F5.2 Sound insulation for building elements	The specification provides various criteria for some common materials and construction. Refer to specification.	To note.
Spec F5.5 Impact Sound – Test of Equivalence	The specification describes a method of test to determine the comparative resistance of walls to the transmission of impact sound. Refer to specification.	To note.

4.6 Part G - Ancillary provisions

Clause Description	Clause Requirements	Status
Part G1 Minor Structures and Components		
G1.1 Swimming pools	The provision of safety barrier to restrict the access to swimming pools is regulated under the Swimming Pools Act 1992 and Swimming Pools Regulation 2008 in NSW. In a Class 2, 3 or 4 building, where the swimming pool has a depth of water >300mm, safety barrier must be constructed in accordance with AS 1926.1 and 2. Water recirculation and filtration system in the swimming pool with a depth of water >300mm must comply with AS 1926.3.	Further details must be submitted for assessment.

Clause Description	Clause Requirements	Status
G1.2 Refrigerated chambers, strong-rooms and vaults	The entrance door to the room must be openable from inside without a key and the switch controlling the internal lighting must be located adjacent to the entrance doorway inside the room. An indicator lamp must be positioned outside the room and illuminated whenever the interior light is turned on. An audible alarm which achieves a sound pressure level of 90dB(A) when measured 3m from the alarm must be installed outside the room and controlled inside the room. The doorway must be >600mm wide and >1500mm high.	Not applicable.
G1.3 Outdoor play spaces		Not applicable.
NSW G1.101 Provision for cleaning windows	Building >3 storey above ground level must be provided with safe window cleaning method complying with Occupational Health and Safety Act 2000. Windows which can be cleaned wholly from within the building satisfies this requirement.	To comply.

4.7 Part I - Maintenance

Clause Description	Clause Requirements/Comments	Status
Part I1 EQUIPMENT AND SAFETY INSTALLATIONS		
NSW I1.1 Application of Part	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 (EP&A) Regulation, 2000.	To note.
NSW I1.2 Mechanical ventilation and hot water, warm water and cooling water systems	Note: For the purposes of public health, it is regulated in the Public Health (Microbial Control) Amendment (Miscellaneous) Regulation, 2003, under Public Health Act, 1991.	To note.

4.8 Part J – Energy Efficiency

Clause Description	Clause Requirements	Status
NSW Section J Energy Efficiency –	Section J consists of two subsections J(A) Energy Efficiency – Class 2 buildings & Class 4 parts and J(B) Energy Efficiency – Class 3 buildings and Class 5 to 9 buildings. J(A) is applicable to Class 2 and 4 buildings. It is implemented via a development consent or CDC. In addition, Class 1, 2, and 4 buildings are subject to BASIX (Building Sustainability Index). Generally, BASIX compliance will be required at a DA stage. The provisions under J(A) must be implemented in the final design if called up by the DA or CDC. Provisions of J(A) is to complement BASIX. Therefore, for Class 1, 2 and 4 buildings, the design must comply with BASIX and J(A) requirements, if the later is called up in the DA or CDC. *Note: all the variations in NSW Part J(A), 2009 are still applicable. Each of the national clause called up should relate to BCA 2009. Refer to BCA 2009 for detailed requirement for each clause.* J(B) contains energy efficiency requirements for Class 3 and Class 5 to 9 buildings. These buildings are not subject to BASIX. National Section J, 2010 applies to Class 3 to 9 buildings unless amended by NSW variations (Refer to J(B)1 below). Refer to National Section J for details for each clause requirement whenever a reference is made to that clause.	To comply. *As Part J is a technical provision, it is mandatory to engage an Energy Efficiency consultant to audit the design and a Certificate of Compliance will be required to be submitted at the lodgement of Construction Certificate.*

5.0 CONCLUSION

This report identified some areas of non-compliance with the Deemed To Satisfy provisions of the BCA. Where non-compliances are not addressed by re-design, they must be addressed by Alternative Solutions. The matters which are listed under "To comply" must be incorporated in the final design documentation.

Appendix A – Table A of Specification C1.1 of BCA

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS				
Building Element	Class of building – FRL: (in minutes) Structural adequacy / Integrity / Insulation			
	2	5, 7a carpark	6	7b (other than a carpark)
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is -				
For *loadbearing* parts -				
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3 or more	90/60/30	120/60/30	180/120/90	240/180/90
For non-loadbearing parts -				
Less than 1.5m	- /90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3m	- /60/60	- /90/90	- /180/120	- /240/180
3m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any *fire-source feature* to which it is exposed is -				
Less than 3m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
3m or more	- / - / -	- / - / -	- / - / - /	- / - / - /
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
INTERNAL WALLS Fire-resisting lift and stair shafts-				
Loadbearing	90/90/90	120/120/120	180/120/120	240/120/120
Non-loadbearing	- /90/90	- /120/120	- 120/120/120	- 120/120
Bounding *public corridors*, public lobbies and the like –				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding *sole-occupancy units*-				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion-				
Loadbearing	90/90/90	120/90/90	180/120/120	240/120/120
Non-loadbearing	- /90/90	- /90/90	- /120/120	- /120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS	90/ - / -	120/ - / -	180/ - / -	240/ - / -
FLOORS	90/90/90	120/120/120	180/180/180	240/240/240
ROOFS	90/60/30	120/60/30	180/60/30	240/90/60