Walsh Bay Arts Precinct

BCA Assessment Report

REPORT 2013/1651 R1.2

April 2014

Report Revision History

Revision	Date	Reason for Revision	Prepared by	Reviewed	Approved by
R1.0	24/02/2014	Draft	Andrew Rys	Steve Watson	Steve Watson
R1.1	10/03/2014	Final review	Andrew Rys	Steve Watson	Steve Watson
R1.2	17/03/2014	DA issue	Andrew Rys	Steve Watson	Steve Watson

EXECUTIVE SUMMARY

An assessment of the proposed design of the Walsh Bay Arts Precinct has been undertaken against the Deemed-to-Satisfy provisions of the relevant sections of the BCA. The assessment has revealed that in order to comply a number of issues need to be resolved.

The Walsh Bay Arts Precinct comprises Piers 2 / 3, Piers 4 / 5 and the associated Shore Sheds and the waterfront square. The work proposed on wharf 4 / 5 under does not constitute a change in use, or works comprising 50 % of the building volume, or result a reduction in fire safety. As such there is no statutory requirement to undertake upgrade works to the base building of Piers 4 / 5 and the Shore Sheds.

The waterfront square is proposed to accommodate a limited population as previously identified. The detail layout of the square must be resolved and details assessed.

Regardless all new building works, whether partitions or base building works, must comply with the current BCA. This is not significant in relation to the partition work, but any new floors and supporting structures will have to comply with Specification C1.1 of the BCA. Some areas within Piers 4 / 5 and the Shore Sheds are proposed to be changed to commercial tenancies. As the area affected comprises less 10% of the floor area of the storey regulatory upgrades will not be triggered.

The work proposed to Pier 2 / 3 constitute both a change in use and work to over 50 % of the building this triggered full base building upgrades. This means not only that the new work proposed must comply with the current BCA but that the existing building including services must be upgraded or demonstrated as compliant. Significant areas of BCA compliance include:

- Perimeter vehicular access is required but is not achievable. An Alternative Solution will need to be investigated;
- Hydrant system upgrades to infrastructure including, pumps, requirement for ring mains, boosters;
- Sprinkler system upgrades to infrastructure including booster;
- Smoke hazard management, being there are significant exhaust requirement for theatres.

We note that the services installed to the premises have previously been addressed / upgraded. However, the building codes have changed over time and the proposal in some parts requires the existing services to be upgraded or otherwise demonstrated as compliant on a performance basis. Additional services will also be needed in some areas.

Section 8 of this report details the non-compliances identified that require either amendments to plans or an Alternative Solution to satisfy the Performance Requirements of the BCA.

The following are the main issues that require amendments to plans;

1. Rationalisation of egress paths;

The following are the main issues proposed to be addressed by the Fire Safety Engineer or other Specialist Consultant via an Alternative Solution;

1. Fire resistance of existing and new structure;
2. Fire hazard properties of the existing structure;
3. The premises constitute a large isolated building and is not provided with compliance perimeter vehicular access;
4. A glass lift is proposed and will not met the fire resistance requirements;
5. Some open stairs are proposed to connect four storeys;

6. Egress travel distances exceed the maximum permitted;
7. Non-continuous travel by open stairs;
8. Open stairs connects four storeys and form an Atrium;
9. Travel to the road requires passing through the building;
10. Access to the premises;
11. Energy Efficiency requirements

A number of compliance issues rely on assumptions as outlined in section 7.1 of this report. Key assumptions should be confirmed prior to the issue of a Construction Certificate.

Whilst not precluding the issue of a Construction Certificate, it is noted that many detailed design issues are not indicated on the drawings. These issues are designated “Compliance Readily Achievable” in the “Status” column of the assessment at Appendix B of the report and should be resolved prior to construction. Key issues should be clarified with SWP prior to construction.

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1. INTRODUCTION

This report presents the findings of an assessment of the design of Walsh Bay Arts Precinct comprising the existing Piers 2 / 3 & 4 / 5 and associated Shore Sheds against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia (BCA).

It has been prepared by building regulations consultants and certifiers Steve Watson and Partners for Arts NSW.

2. PURPOSE

The purpose of this report is to provide an assessment of the design documentation for the proposed project against the current requirements of the BCA.

The assessment is undertaken for submission with the Development Application to the Consent Authority under Part 4 of the Environmental Planning and Assessment Act.

3. SCOPE AND LIMITATIONS

3.1. SCOPE

The scope of this assessment is limited to the design documentation referenced in Appendix D of this report.

3.2. LIMITATIONS

The following limitations apply to the assessment:

- The plans are assessed to the extent for submission with the Development Application to the Consent Authority under Part 4 of the Environmental Planning and Assessment Act. This means the design has been assessed to be capable of complying with the BCA without necessarily having all the details required to issue a Construction Certificate.
- Details in regard to access for people with disabilities have been assessed to the extent of the deemed-to-satisfy provisions of the BCA only. An assessment against AS 1428 is outside the scope of this report.
- The assessment does not consider the requirements of legislation other than the nominated sections of the EP&A Act which might address building works such as OH&S, Construction Safety or the like.
- Generally the assessment does not incorporate the detailed requirements of the Australian Standards.
- The waterfront square is assessed commensurate with the details provided.

4. STATUTORY FRAMEWORK

The following table summarises the key statutory issues relating to fire safety and the BCA in relation to the certification of new building works.

Issue	EPAR Clause Ref	Comment	Relevant section of this report
Existing building fire safety	94	Council may require upgrading in some circumstances	8
Alts and adds – change in building use	143(1)	Fire safety to be upgraded in affected part of building Structural adequacy to be signed off Category 1 fire safety provisions to be upgraded. (Hydrants, sprinklers, fire control centres, smoke detection, smoke hazard management, emergency lifts.)	8
Alts and adds – no change in use	143(3)	No reduction in the level of safety permitted	8
New Work	145	All new works must comply	8 and 12

4.1. NEW WORK

Clause 145 of the Environmental Planning and Assessment Regulation 2000 (EPAR) requires that all new work comply with the current requirements of the BCA.

This means that all works proposed in the plans are required to comply but that existing features of an existing building need not comply with the BCA unless required to under other clauses of the legislation.

4.2. CONSENT AUTHORITY MAY REQUIRE BUILDING TO BE UPGRADED

When determining a development application a Consent Authority (Council) is required to assess fire safety in an existing building under Clause 94 of the EPAR.

The assessment must consider whether the measures contained in a building are inadequate

i) to protect persons using the building and facilitate their egress in the event of a fire or

ii) to restrict the spread of fire between buildings.

In determining a development application the consent authority is to take into consideration whether it would be appropriate for the building to be brought into total or partial conformity with the BCA. Normally this discretionary power would only be enacted in the following circumstances:

- the proposed scope of works encompasses a large portion of the building so that a total building upgrade would not be considered an onerous requirement (i.e. ½ the total volume of the building including other works undertaken in the last 3 years);
- the upgrading measure(s) significantly increase the level of safety and are able to be cost-effectively incorporated into the proposed works so that they would not be considered an onerous requirement;
- the existing level of safety is so deficient that the council consider a upgrade is necessary irrespective of the scope of works proposed.

4.3. NO CHANGE OF BUILDING USE – STRUCTURAL STRENGTH & FIRE SAFETY

Clause 143 (3) of the Environmental Planning and Assessment Regulation 2000 (EPAR) prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

4.4. CHANGE OF BUILDING USE – STRUCTURAL STRENGTH & FIRE SAFETY

If a change in use is involved under the application, Clause 143 (1) of the EPAR requires that the fire protection, structural capacity and Category 1 Fire Safety provisions must be applicable to the new use of the building.

Note: The detailed assessment of the above issues will be undertaken in Sections 8, 12 and 0 of this report as appropriate.

5. METHODOLOGY

5.1. PROCESS ADOPTED

The following method of assessment has been used in the preparation of this report:

1) Determine the basic assessment data for the building.
2) Assess the design of the building against the current Deemed-to-Satisfy requirements of Sections B, C, D, E, F, G, H and J of the BCA. Establish the status of each clause into the following categories:
   a) Clause is administrative information only **(Noted)**.
   b) Clause is or is not relevant to the proposed work **(Applicable or Not Applicable)**.
   c) The proposed work complies with the requirements of the clause **(Complies)**.
   d) Compliance with the requirements of the clause is unable to be determined from the documentation provided **(Compliance Readily Achievable)**. A recommendation in the "Comments" column will indicate what is required to achieve compliance. The design and construction teams are responsible to ensure compliance is achieved.
   e) Compliance with the requirements of the clause is unable to be determined from the documentation provided. Additional details or relevant information required to verify compliance (**Additional Details Required / Not Specified**);
   f) Proposed work does not comply with the requirements of the clause **(Does Not Comply)**. An indication will be given in the Comments field as to the nature of the issue and whether an alternative solution has been proposed to address the issue.
   g) Proposed work is to be addressed on a performance basis via an Alternative Solution satisfying the relevant Performance Requirements. (**Alternative Solution**).
   h) In the event the report is intended to address Council's discretionary upgrading responsibility, the existing feature of the building does not comply and is recommended to be upgraded to provide adequate safety. **(Upgrade Required)** This status may be concurrent with the status of the proposed new work.
   i) In the event of a change of building use, the existing feature of the building does not comply and must be upgraded to provide safety adequate to the new use **(Upgrade Required)** This status may be concurrent with the status of the proposed new work.
   j) In the event of alterations and extensions to an existing building, a base building non-compliance may exist which is not exacerbated by the new works. **(No Reduction in Safety)**
   k) In the event of alterations and extensions to an existing building, a base building non-compliance may exist which is being exacerbated by the new works. **(Reduction in Safety)**
3) Nominate the status of the design against each BCA requirement.
4) Provide comments against each BCA requirement as appropriate
5) In the case of alterations to, and/or a change in building use, assess the proposal against the aspects of The Act and EPAR nominated in Section 4 above.

6. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development comprises the re-development of the Walsh Bay Arts Precinct comprising piers 2 / 3 & 4 / 5 and associated Shore Sheds. It is proposed to make minor modifications to Pier 4 / 5 and the Shore Sheds with the uses essentially remaining as they are. Pier 2 / 3 is proposed to be significantly altered and added to upgrade the events / arts and with the addition of two new auditoriums.

7. ASSESSMENT DATA SUMMARY

The following basic assessment data has been drawn from the provisions of the BCA 2013.

7.1. ASSUMPTIONS

Assumptions made in the preparation of this report are listed below:

1. That the fire services to Pier 2 / 3 will be upgraded to full compliance with current standards;

7.2. INTERPRETATIONS

A number of issues within the BCA are recognised to be interpretive in nature. Where these issues are encountered, interpretations are made that are consistent with Standard Industry Practise and/or Steve Watson & Partners policy formulated in regard of each issue.

1. Only minor modifications are proposed to Pier 4 / 5 and the Shore Sheds without a change of use to the premises and thus regulatory upgrade requirements are not proposed;
2. The whole premises are classified as class 9b being assembly buildings or ancillary uses;
3. The follow interpretations are made with regards to the Energy Efficiency requirements of Part J:
   i. Where walls forming part of the building envelope are to be new walls or be provided with a new internal lining / wall compliance with Parts J1, J2 & J3 will be required. Existing walls will remain as they are;
   ii. All new mechanical ventilation and air conditioning systems must comply with Part J5. If these systems serve existing areas that do not meet the requirements of Part J1, J2 or J3 the envelope of these areas do not need to be upgraded.
   iii. All new lighting, power and hot water supplies must comply with parts J6 & J7.

7.3. BUILDING CHARACTERISTICS

The following assessment data has been drawn from the provisions of the BCA.

7.3.1. Classification

The significant spaces in the proposed design have been classified in accordance with the requirements of Clause A3.2 of the BCA and are summarised in the table below for each of the major areas:

Pier 2 / 3

Floor	*Use*	*Classification*
Ground	Commercial events and arts space and associated offices and ancillary space. Office space and facilities associated with performance space on upper levels	9b
Level 1	Office and wardrobe	9b
Level 2	Auditoriums / performances space, rehearsal rooms and ancillary areas	9b
Level 3	Auditoriums / performances space, ancillary areas including offices	9b

Pier 4 / 5

Floor	*Use*	*Classification*
Ground	Studios and ancillary space with some commercial space and cafe	9b
Level 1	Studios and ancillary space	9b
Level 2	Studios, auditorium, wardrobe, rehearsal rooms and ancillary space and restaurant	9b
Level 3	Ancillary spaces	9b

Shore Sheds

Floor	*Use*	*Classification*
Ground	Commercial space and rehearsal rooms and ancillary space	9b
Level 1	Commercial space and ancillary space and restaurant	9b
Level 2	Wardrobe and ancillary space	9b
Level 3	Ancillary space	9b

7.3.2. Summary of construction determination

The type of construction required for the proposed design is summarised in the table below. Refer to Appendix B for further detailed assessment data on the proposed development.

Classification	9b Entertainment Venue
Number of storeys contained	4
Rise in storeys	4
Type of construction required	A
Effective height	< 12m

8. ISSUES REQUIRING RESOLUTION

8.1. ISSUES REQUIRING AMENDMENTS TO PLANS

The following issues need to be resolved before issuing the Construction Certificate.

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
1.	D1.4 & D1.5	Egress travel distances	Redesign egress paths where travel distances are excessive (greater than permitted by the Alternative Solution)

8.2. ITEMS REQUIRING ADDITIONAL DETAILS OR DOCUMENTATION

The following items have been identified which require further details or documentation to be provided to ensure compliance is achieved before issuing the Construction Certificate.

Item	DTS Clause	Description	Requirement to Satisfy BCA
2.	Part D	Waterfront square egress	Population to be limited to correspond to egress widths.

8.3. ALTERNATIVE SOLUTIONS PROPOSED / REQUIRED

It is proposed to satisfy the following non-compliances by alternative solutions:

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
1.	FRL's	C1.1	Some existing building elements and proposed new elements will not achieve the FRL's nominated in the BCA	CP2	All of the existing structure including: ▪ the structural stability of the Shore Sheds brick façade; ▪ lateral support of members; ▪ attachments not to impair fire resistance;
2.	Fire hazard properties	C1.10	Fire hazard properties of existing structure	CP4	
3.	Large isolated building	C2.2, C2.3, C2.4	A single compartment exceeds the limits of C2.2	CP2	

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
4.	New glass lift	C2.10	Glass shaft not proposed to be fire rated	CP2	
5.	Stairs and lifts in one shaft	C2.11	The stair and lift shafts will be enclosed in one shaft at level 3 as part of the Alternative Solution	CP2	This is part of the Alternative Solution for stairs connecting four storeys
6.	Lift landing doors	C3.10	Glass lift doors not proposed to be fire rated in accordance with this clause	CP2	
7.	Enclosure of egress stairs	D1.3	The two new open stairs connect or pass by or through four storeys	CP3 & DP5	The open stairs connect all levels and is adjacent the lift shafts. See atrium comments below.
8.	Exit travel distances	D1.4	Travel to the point of choice is up to 46 m nearest of two exits exceeding the maximum 20 m permitted. The distance to the nearest exit is approximately 68 exceeding the 40 m permitted.	DP4	
9.	Distance between alternative exits	D1.5	The distance between exits measures through the point of choice exceeds 60 m by up to 180 m.	DP4	
10.	Exit width	D1.6	Aggregate exit width are not provided in accordance with this clause	DP4 & DP6	
11.	Travel by fire isolated stairs	D1.7	Continuous travel is not provided via a single stair.	DP4	
12.	Travel via a non-fire isolated stair	D1.9	Some open egress stairs do not provide a continuous means of travel by their own flights to a level that egress to open space is available. Travel by a non-fire isolated stair exceeds 80 m to open space and is up to 300 m	DP4	The deck is not open space as defined by the BCA. All measurements to open space are taken to Hickson Road.
13.	Discharge from exits	D1.10	Most exits from the piers require person egressing the premises to pass through the building to reach open space.	DP4	

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
14.	Access	Part D3, E3.6, F2.4	Access is not provided to and within the premises in accordance with Part D3. The Access to Premises standard applies throughout the building.	DP1	The building is listed as a significant heritage item. Any work to the premises would permanently compromise the heritage value of the premises. An whole site Access strategy is required.
15.	Energy Efficiency	Part J	A whole of building performance-based compliance approach is proposed.	JP1	An equivalence assessment is proposed. The certifier must review the proposed base case and comment on suitability.
16.	Atriums	Part G3	The bounding construction and associated services to the atrium do not meet the requirements of Part G3.	EP2.2	The atrium provisions apply if the open stairs connect more than three storeys.

8.4. REGULATORY ISSUES REQUIRED TO BE ADDRESSED

The following matters are required to be addressed in order to satisfy the applicable parts of the EPAR

Item	Issue	EPAR Ref	Description	Comments
1.	Change of use	94	BCA upgrade required	Pier 2 / 3 is required to be bought up to compliance
2.	Minor alts and adds	143	New work to comply	Pier 4 / 5 and Shore Sheds will not require BCA upgrades

9. STATUTORY FIRE SAFETY MEASURES

The Statutory Fire Safety Measures listed in Appendix H of this report are required to be certified upon completion of the project and prior to occupation of the building by the owner of the building, by issuing a Final Fire Safety Certificate under the Act.

The owner is also required under the Act to certify each of the Fire Safety Measures annually by issuing a Fire Safety Statement.

10. CONCLUSIONS

The design is capable of complying with the requirements of the relevant sections of the BCA subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

A large number of significant BCA issues are proposed to be addressed by Alternative Solutions. The Fire engineer, Access consultant and Energy Efficiency consultant should be consulted in regards to the feasibility of these solutions.

11. APPENDIX A – DETAILED ASSESSMENT DATA

11.1. FLOOR AREAS AND VOLUMES FIRE COMPARTMENTS

Floor	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
PIER 2 / 3			
Ground	**3,700**		Total for storey
Art Space	2000		
Offices	740		
Level 1	**500**		Total for storey
Level 2	**3,800**		Total for storey
ATYP Auditorium			
ACO Auditorium			
Rehearsal rooms	850		
Bar 2	360		
Function	300		
Level 3 – office and dressing rooms	1000		Excl. theatres

Compartment	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Pier 4 / 5			
Ground	**5,300**		Total for storey
Studio 1 / theatre			
Studios	2500		
Commercial tenancies	1000		
Cafe	150		
Level 1 - office and dressing rooms	**1,300**		Total for storey
Level 2	**6,000**		Total for storey
Props / wardrobe	2400		
Rehearsal	600		
Office	400		
Dining	550		
Level 3 - office	**150**		Total for storey

Compartment	*Approx Area (m^2)*	*Approx Volume (m^3)*	*Comment*
Shore sheds			
Ground	**1,000**		Total for storey
Rehearsal	500		
Commercial tenancy	500		
Level 1	**800**		Total for storey
Commercial tenancy			
office			
Level 2 – Props wardrobe	**1,000**		Total for storey
Level 3 - office	**150**		Total for storey

* The whole of the premises form one compartment

11.2. POPULATION

Relevant populations for the building are set out below.

Location	*Use*	*Class*	*Approx Area (m^2)*	*Density m^2/person*	*Population*	*Comments*
Pier 2 / 3						
Ground	**Total**	**9b**	**3,700**			
	Art Space	9b	2000	1	2000	
	Offices wardrobe	9b	740	10 \ 30	42	
Level 1	**Office (main) \wardrobe**	**9b**	**370**	10 / 30	31	Level 1 office in the arts space will have a population of 5 – 10 persons each
Level 2	**Total**	**9b**	**3,800**			
	ATYP Auditorium	9b			200	Based on seats
	ACO Auditorium	9b			500	Based on seats
	Rehearsal rooms	9b	850	1	850	
	BoH adjacent shared rehearsal	9b	200	4	50	
	Bar 2	9b	360	1	252	Calculated as 2/3 of the area being patron area at 1 person / m^2 and the rest staff area at 10 m^2 / person.
	Function	9b	300	1	210	
Level 3	**Total**	**9b**	**770**			
	dressing rooms	9b	360		100	

Location	*Use*	*Class*	*Approx Area (m²)*	*Density m²/person*	*Population*	*Comments*
Pier 4 / 5						
Ground	**Total**	**9b**	**5,300**			
	Studio 1 / theatre	9b				
	Studios	9b	1465	1	1465	
	Commercial tenancies incl. office (Hickson Rd)	6 / 5	900	3 / 10	236	
	Commercial central	6	150	3	50	
	Workshops	9b	620	30	21	
	Café north	9b	150	1	105	Calculated as 2/3 of the area being patron area at 1 person / m2 and the rest staff area at 10 m2 / person
	Café south	9b	300	1	210	
Level 1 -	**Total**	**9b**	**1,300**			
	office (Hickson Rd)	9b	100	10	10	
	Wardrobe	9b	150	30	5	
	office central	9b	460	10	46	
	dressing rooms	9b	70	4	18	
Level 2	**Total**	**9b**	**6,000**			
	Props / wardrobe	9b	2400	30	80	
	Rehearsal \ auditorium	9b	830	1	830	
	Dressing	9b	120	4	30	
	Office	9b	200	10	20	
	Dining	9b	550	1	325	Calculated as 1/2 of the area being patron area at 1 person / m2 and the rest staff area at 10 m2 / person
Level 3	**Total**	**9b**	**1400**			
	Office total	9b	380	10	38	
	Exhibition area	9b	400			

Location	*Use*	*Class*	*Approx Area (m²)*	*Density m²/person*	*Population*	*Comments*
Shore Sheds						
Ground	**Total**	**9b**	**1000**			
	Commercial	9b	350	3	117	
	Office	9b	200	10	20	
	Rehearsal	9b	470	1	470	
Level 1	**Total**	**9b**	**800**			
	Commercial tenancy	9b	640	5	128	
	office	9b	220	10	22	
Level 2	**Props wardrobe**	**9b**	**1,000**	30	34	
Level 3	**office**	**9b**	**150**	10	15	

11.3. EXITS

The exits from the building are set out below:

Exit No	*Location*	*Type*	*Grid Ref*	*No of storeys connected / passed by*	*Comments*
Pier 2 / 3					
1.	Ground	Doors		1	Multiple door to apron
2.	Level 1	Open stair		2	
3.		Open stair		4	
4.		Open stair		4	
5.		Open stair		2	
6.		Open stair		2	
7.	Level 2	External		2	
8.		External		2	
9.		External		2	
10.		External		2	
11.		Open stair		2	
12.		Open stair		2	
13.		Open stair		2	
Pier 4 / 5					
14.	Ground	Doors		1	Multiple door to apron
15.	Level 1	Open stair		2	
16.		Open stair		2	
17.		Open stair		3	
18.		Open stair		2	
19.		Open stair		2	
20.	Level 2	External		2	
21.		External		2	
22.		External		2	
23.		Open stair		2	
24.		Open stair		2	
25.		Open stair		2	
26.		Doors to balcony		1	
27.		Fire tunnel		2	
28.	Level 3	Open stair		2	
29.		Open stair		2	
30.		Open stair		2	

Exit No	*Location*	*Type*	*Grid Ref*	*No of storeys connected / passed by*	*Comments*
31.		Open stair		2	
32.		Open stair		2	
33.		Open stair		2	
34.		Open stair		2	
Shore Sheds					
35.	Ground	Doors		1	Multiple door to apron
36.	Level 1	Open stair		2	
37.		Open stair		2	
38.	Level 2	external		2	
39.	Level 3	Open stair		2	
40.		Open stair		2	

12. APPENDIX B – CLAUSE BY CLAUSE ASSESSMENT

12.1. SECTION B – STRUCTURE

Clause	Description	Status	Comments
B1.1	Resistance to actions	Compliance Readily Achievable	The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions. Certification from a qualified structural engineer to be provided.
B1.2	Determination of individual actions	Compliance Readily Achievable	The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA. Certification from a qualified structural engineer to be provided.
B1.3	-	-	No provisions.
B1.4	Determination of structural resistance of materials and forms of construction	Compliance Readily Achievable	The structural resistance of materials and forms of construction must be determined in accordance with the relevant Australian Standards in accordance with Clause B1.4 of the BCA. Certification from a qualified structural engineer to be provided.
B1.5	Structural Software	Compliance Readily Achievable	Structural software used in computer aided design of a building or structure that uses design criteria based on DTS provisions of the BCA must comply with the ABCB Protocol for Structural Software. Certification from a qualified structural engineer to be provided.
B1.6	Construction of buildings in flood hazard areas	Not Applicable	

12.2. SECTION C - FIRE RESISTANCE

Clause	Description	Status	Comments
C1.1	Type of construction required	Additional Details Required / Alternative Solution	The building is required to be of Type A fire resisting construction in accordance with Specification C1.1 of the BCA. The premises are primarily a timber frame and clad building and unlikely to meet the requirements of this clause. This issue will form part of the alternative Solution. Refer to Appendix E for the relevant fire resisting requirements. Note, a concession is provided for roofs of sprinkler protected buildings.
Spec C1.1	Fire Resisting Construction	Alternative Solution	Where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part must have an FRL and be non-combustible as required by Clause 2.2 of the Specification. Certain lintels must have the FRL require for the part of the building in which they are situated in. A combustible material may be used as a finish or lining to a wall or roof, or in a sign, sunscreen or blind, awning, or other attachment to a building element which has the required FRL if the material is exempt under Clause C1.10 or complies with the fire hazard properties prescribed in Specification C1.10. It must not be located near or directly above a required exit and must not constitute an undue risk of fire spread via the façade. Certain columns, structures on roofs, and balconies and verandas are provided with concessions. Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non- loadbearing shaft in the same building. The top of a shaft, other than one enclosing a fire-isolated stairway or ramp, is exempt if it extends beyond the roof covering. The bottom of a shaft is exempt if it is non-combustible and laid directly on the ground. Type A Construction A loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be of concrete or masonry. Generally, external walls, common walls, internal walls required to have an FRL and shaft walls must be of non-combustible construction. The roof is not required to have an FRL if its covering is non-combustible, as the building is proposed to be sprinkler protected throughout. Specification C1.8 if it is of lightweight construction and is required to have an FRL.
C1.2	Calculation of rise in storeys	Noted	Refer to Section 7.3.2 of this report.
C1.3	Buildings of multiple classification	Noted	The building is required to be constructed of Type A fire resisting construction as the classification of the top storey is a Class 9b EV
C1.4	Mixed types of construction	Not Applicable	

Clause	Description	Status	Comments
C1.5	Two storey Class 2, 3 or 9c buildings	Not Applicable	
C1.6	Class 4 parts of buildings	Not Applicable	
C1.7	Open spectator stands and indoor sports stadiums	Not Applicable	
C1.8	Lightweight construction	Compliance Readily Achievable	Lightweight construction used in a wall system must comply with Specification C1.8. Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material.
C1.9	-	-	No provisions.
C1.10	Fire hazard properties (NSW additional requirements for Entertainment Venues)	Alternative Solution	The fire hazard properties of linings materials and assemblies must comply with Specification C1.10 and NSW Specification C1.10.
C1.11	Performance of external walls in fire	Not Applicable	
C1.12	Non-combustible materials	Noted	Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible.
C2.1	Application of Part	Applicable	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.
C2.2	General floor area limitations	Applicable	The premises comprise a large isolated building
C2.3	Large isolated buildings	Alternative Solution	The building exceeds the maximum size of fire compartment permissible under table C2.2, but does not exceed 18,000m2. As the building is class 5 to 9, the building must be protected with a sprinkler system complying with Specification E1.5 and provided with perimeter vehicular access in accordance with Clause C2.4(b).
C2.4	Requirements for open spaces and vehicular access	Alternative Solution	Vehicular access / open space is required to be provided from the public road for emergency vehicular access and is not to be used for the storage or processing of materials and must not be built upon except for guard houses and service structures as long as they do not unduly impede fire fighting. Vehicular access must have a loadbearing capacity and unobstructed height to permit the operation and passage of fire brigade vehicles. Vehicular access must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from the public road around the entire building.
C2.5	Class 9a and 9c buildings (NSW modified requirements for Class 9c Buildings)	Not Applicable	

Clause	Description	Status	Comments
C2.6	Vertical separation of openings in external walls	Not Applicable	In a building of Type A construction that is sprinkler protects, a spandrel is not required.
C2.7	Separation by fire walls	Not Specified	Separation of a Building: A fire wall must extend through all storeys of the building, be carried through to the underside of the roof covering. Separation of fire compartments: A fire wall must extend to the underside of a floor having an FRL required for a fire wall or the roof covering.
C2.8	Separation of classifications in the same storey	Not Applicable	
C2.9	Separation of classifications in different storeys	Not Applicable	
C2.10	Separation of lift shafts	Alternative Solution	A glass lift is proposed to serve the performance spaces. Any lift connecting more than 2 storeys or more than 3 storeys in a sprinkled building must be separated from the remainder of the building as specified in Clause C2.10. Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA
C2.11	Stairways and lifts in one shaft	Alternative Solution	The proposed new stair and lift shafts will be enclosed in one shaft at level 3 as part of the Alternative solution
C2.12	Separation of equipment	Compliance Readily Achievable	Equipment that comprises lift motors, lift control panels, central smoke control plant, boilers or batteries must be separated from the remainder of the building by construction with an FRL as required under Specification C1.1 but not less than 120/120/120.
C2.13	Electricity supply system	Compliance Readily Achievable	Electrical substations and main switchboards sustaining emergency equipment operating in the emergency mode must be separated from the remainder of the building by construction with an FRL not less than 120/120/120. All switchboards and electrical conductors are to comply with the requirements of Clause C2.13.
C2.14	Public corridors in Class 2 and 3 buildings	Not Applicable	
C3.1	Application of Part	Applicable	Concessions and definition of certain openings.
C3.2	Protection of openings in external walls	Not Applicable	
C3.3	Separation of external walls and associated openings in different fire compartments	Not Specified	External walls within the distances specified in Table C3.3 of the BCA are to be protected by construction with an FRL not less than 60/60/60 and the associated openings protected in accordance with Clause C3.4 of the BCA.
C3.4	Acceptable method of protection	Not Specified	Window openings that are required to be protected are to be protected by wall wetting sprinklers with windows that are automatic closing or permanently fixed in the closed position, -/60/- fire windows or -/60/60 automatic fire shutters. Doorways are to be protected by wall wetting sprinklers used with doors that are self-closing or automatic closing, or -/60/30 self-closing or automatic closing fire doors.

Clause	Description	Status	Comments
C3.5	Doorways in fire walls	Not Specified	Doorways in firewalls are to be protected by a fire door or fire shutter that has an FRL of not less than that required for the firewall except that the insulation rating must be at least 30.
C3.6	Sliding fire doors	Not Specified	Doorways fitted with a sliding fire door are to be held open by an electromagnetic device, de-activated and the warning system activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1 The automatic closure of the door must allow the door to be closed in not less than 20 seconds and not more than 30 seconds after release. An audible alarm together with a red flashing light of adequate intensity must be located near the doorway and activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1. The doorway is to have the sign "**WARNING - SLIDING FIRE DOOR**" in capital letters not less than 50mm high in a colour contrasting with the background on each side of the doorway.
C3.7	Protection of doorways in horizontal exits	Not Specified	Doorways in horizontal exits are to be protected by a fire door, which has an FRL of not less than that required for the firewall except that the insulation rating must be at least 30.
C3.8	Openings in fire isolated exits	Compliance Readily Achievable	-/60/30 self-closing fire doors are required to doorways providing access to fire isolated stairways.
C3.9	Service penetrations in fire isolated exits	Compliance Readily Achievable	Service penetrations other than electrical wiring for essential service installations, pressurisation ducts with an FRL of -/120/60, or water pipes for fire services are not permissible.
C3.10	Openings in fire isolated lift shafts	Compliance Readily Achievable	Openings in lift shafts are to be protected by -/60/- fire doors complying with AS1735.11. Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 (175 X 200 mm).
C3.11	Bounding construction: Class 2, 3, 4 and 9 buildings (NSW Requirements for Class 3 changed and additional requirements for Class 9 Entertainment Venue)	Additional Details Required	Doorways which open into a public corridor, public lobby or the like are to have self-closing -/60/30 fire doors fitted. Openings in construction required to separate one space from another in a Class 9b Entertainment Venue are to be protected in accordance with Clause C3.4.
C3.12	Openings in floors for services	Compliance Readily Achievable	Services passing through floors are to be placed within fire resisting shafts or in accordance with Clause C3.15. Loadbearing shafts are required to have an FRL of not less than 120/90/90 , and for non-loadbearing shafts an FRL of not less than --/90/90.

Clause	Description	Status	Comments
C3.13	Openings in shafts	Compliance Readily Achievable	In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by: ▪ If it is a sanitary compartment - a door or panel which together with its frame, is non combustible or has an FRL of not less than -/30/30, or ▪ A self closing -/60/30 fire door or hopper, or ▪ An access panel with an FRL of not less than -/60/30, or ▪ If the shaft is a garbage shaft - a door or hopper of non-combustible construction.
C3.14	-	-	No provisions
C3.15	Openings for service installation	Compliance Readily Achievable	Methods and materials used are to be identical to tested prototypes and in accordance with AS4072.1 and AS1530.4, and having achieved the required FRL or resistance to the incipient spread of fire or other specified method.
C3.16	Construction Joints	Compliance Readily Achievable	Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4.
C3.17	Columns protected with lightweight construction	Compliance Readily Achievable	Columns must be protected in accordance with the identical tested prototype.

12.3. SECTION D – ACCESS AND EGRESS

Clause	Description	Status	Comments
D1.1	Application of Part	Applicable	Does not apply to the internal parts of a sole occupancy unit in a Class 2, 3 or 4 building.
D1.2	Number of exits required (NSW Extra Entertainment Venue subclause)	Complies	
D1.3	When fire isolated exits are required	Alternative Solution	Stairs connecting more than three storey in sprinkler protected building are required to be fire isolated
D1.4	Exit travel distances	Complies	
		Alternative Solution	Travel of up to 46 m to a point of choice exists exceeding the 20 m permitted and up to 68 m to the nearest exit exceeding the maximum of 40 m.
D1.5	Distance between alternative exits	Complies	
		Alternative Solution	The distance to alternative exits exceeds 120 m and 60 m is permitted.
D1.6	Dimensions of exits (NSW Differing requirements for Entertainment Venue)	Alternative Solution	An aggregate egress width of 14 m is required and only 11 m is provided

Clause	Description	Status	Comments
		Compliance Readily Achievable	In a required exit or path of travel, the unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway must be reduced to not less than 1980mm. The unobstructed width of each exit or path of travel to an exit except a doorway must not be less than 1m.
D1.7	Travel via fire-isolated exits	Alternative Solution	Continuous travel by a single open stair is not provided to all areas of the premises.
D1.8	External stairways in lieu of fire-isolated exits	Not Applicable	The external stair only serves one storey and discharges to the ground level and would not be required to be fire isolated thus this clause does not apply.
D1.9	Travel by non-fire-isolated stairways or ramps	Alternative Solution	Some open egress stairs do not provide a continuous means of travel by their own flights to a level that egress to open space is available. Travel by a non-fire isolated stair exceeds 80 m to open space and is up to 300 m. as the deck is not open space as defined by the BCA. Egress is measured to Hickson Road.
D1.10	Discharge from exits (NSW Additional requirements for Entertainment Venues)	Alternative Solution	Egress from the premises require pass back through the building to reach open space (i.e. Hickson Road)
		Compliance Readily Achievable	A least half of all exits must discharge through other than the main entrance. Suitable barriers such as bollards are to be provided to prevent the blockage of exits by vehicles, etc. An unobstructed path of travel to the road must be provided with a width not less than the width of the required exit.
D1.11	Horizontal exits		
D1.12	Non-required stairs, ramps or escalators	Not Applicable	
D1.13	Number of persons accommodated (NSW Differing requirements for Entertainment Venues)	Noted	Refer to section 11.3 of this report
D1.14	Measurement of distance	Noted	
D1.15	Method of measurement	Noted	
D1.16	Plant rooms and lift machine rooms: Concession	Not Applicable	
D1.17	Access to lift pits	Not Applicable	
D2.1	Application of Part (NSW Differing requirements for Entertainment Venue)	Applicable	
D2.2	Fire isolated stairs or ramps	Compliance Readily Achievable	Stairs or ramps within fire resisting shafts are to be constructed of non-combustible materials. The construction of the stairs is not to cause structural damage or impair the fire resistance of the shaft if there is local failure.
D2.3	Non-fire-isolated stairways and ramps	Compliance Readily Achievable	Required stairs that are not required to be within a fire-resting shaft are to be constructed of concrete, steel, or timber of specified minimum dimensions.

Clause	Description	Status	Comments
D2.4	Separation of rising and descending stair flights	Not Applicable / Complies	Rising and descending fire isolated stairways must not be directly connected.
D2.5	Open access ramps and balconies	Not Applicable	
D2.6	Smoke lobbies	Not Applicable	
D2.7	Installations in exits and paths of travel	Compliance Readily Achievable	Electrical boards and the like are to be located within and enclosed by non-combustible construction or have a fire-protective covering with the doorway suitably sealed against smoke spreading from the enclosure. Generally the services or equipment may be enclosed in non-combustible construction such as MDF with a solid core door. Electrical wiring may only be installed in a fire-isolated exit if the wiring is associated with: ▪ a lighting, detection, or pressurisation system serving the exit, or ▪ a security, surveillance or management system serving the exit, or ▪ intercommunication system or audible or visual alarm system in accordance with Clause D2.22 or ▪ the monitoring or hydrant or sprinkler isolation valves.
D2.8	Enclosure of space under stairs and ramps	Additional Details Required	The space below non fire-isolated stairs must not be enclosed to form a cupboard or similar enclosed space unless the enclosing walls have an FRL of not less than 60/60/60 and any doorway to the enclosed space is fitted with a self closing -/60/30 fire door.
D2.9	Width of stairways	Additional Details Required	A stairway more than 2m in width is only counted as having a width of 2m unless it is divided by a continuous handrail or balustrade between landings and each division is less than 2m wide.
D2.10	Pedestrian ramps	Compliance Readily Achievable	Ramps serving as required exit must have a gradient not less steeper than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1. The surface of the ramp must have a non-slip finish.
D2.11	Fire-isolated passageways	Compliance Readily Achievable	Fire isolated passageways are to have an FRL equivalent to the fire resisting stair shaft as specified in Specification C1.1.
D2.12	Roof as open space	Not Applicable	

Clause	Description	Status	Comments
D2.13	Goings and risers (NSW Differing requirements for Entertainment Venue)	Compliance Readily Achievable / Additional Details Required	Stairs are to have risers measuring between 115-190mm and goings between 250-355mm. Goings and Risers are to satisfy the equation of 2R+G=700(max) and 550(min). Goings and risers are to be consistent throughout in one flight. Under the requirements of AS1428.1-2009 open riser are not permitted. All treads to be fitted with non-slip finish or non-skid strips. Treads must be of solid construction if the stairway is more than 10m high or connects more than 3 storeys.
D2.14	Landings	Compliance Readily Achievable	Landings must comply with the requirements of Clause D2.14 of the BCA. Landings must be not less than 750mm long and have a non-slip finish throughout or an adequate non-skid strip near the edge of the landing where it leads to a flight below.
D2.15	Thresholds (NSW Differing requirements for Entertainment Venue)	Compliance Readily Achievable	A threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless: ▪ In a building required to be accessible the door opens to a road or open space and is provided with a threshold ramp or step ramp in accordance with AS1428.1. ▪ In other cases the door opens to a road or open space, external stair landing or external balcony, and the doorsill is not more than 190mm above the finished surface of the ground balcony or the like to which the door opens.
D2.16	Balustrades (NSW Differing requirements for Entertainment Venue)	Additional Details Required	Balustrades complying with Deemed-to-Satisfy provisions of the BCA are to be provided to where the level of the surface below is 1m or more. Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor. Any opening in the balustrade must not permit a 125mm sphere to pass through the balusters. Wire balustrades must be constructed to comply with Clause D2.16(i) and Tables D2.16a and D2.16b. External balustrades in a Class 9b Entertainment Venue are required to be not less than 1.2m in height above the floor.
D2.17	Handrails	Additional Details Required	Handrails are to be provided to at least one side of stair flights and located not less than 865mm above the nosings of stair treads and the floor surfaces of landings. Handrails must be not more than 2m apart in the case of intermediate handrails.
D2.18	Fixed platforms walkways, stairways, and ladders	Compliance Readily Achievable	Fixed platforms, walkways, stairways, ladders, landings, handrails, balustrades and any tread or riser in a plant room, lift motor room or the like is to comply with AS1657.

Clause	Description	Status	Comments
D2.19	Doorways and doors (NSW Additional requirements for Entertainment Venue)	Compliance Readily Achievable	As the main entry door leads to an open space it must automatically open if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door. The power-operated sliding doors must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source. Doors that are not exits must have notices indicating there use.
D2.20	Swinging doors	Compliance Readily	Exit doors must swing in the direction of egress.
D2.21	Operation of latch (NSW Additional requirements for Entertainment Venue)	Compliance Readily Achievable	The latch of a door in a required exit, forming part of a required exit or in the path of travel is to be readily openable without a key from the side of that faces a person seeking egress. It is to have a single downward action and be located between 900mm and 1.1m from the floor. This means lever handles are generally required. If serving an area required to be accessible the hardware must be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch. *A Class 9b Entertainment Venue requires panic bolts instead of latchsets and main entry must yield to pressure from within.*
D2.22	Re-entry fire-isolated exits	Not Applicable	

Clause	Description	Status	Comments
D2.23	Signs on doors (NSW Additional requirements for Entertainment Venue)	Compliance Readily Achievable	Fire doors providing direct access into fire isolated exits and required smoke doors are required to have signage on the side of the door that faces the person seeking egress. If the doors are held up by a hold open device the signage is to be provide on the wall adjacent the doorway or on both sides of the door. Horizontal exits, smoke doors that swing in both directions and doors leading from a fire isolated exit to a road or open space must have signage on each side of the door. An automatic door held open by an automatic hold-open device: **FIRE SAFETY DOOR DO NOT OBSTRUCT** Or for a self-closing door **FIRE SAFETY DOOR** **DO NOT OBSTRUCT** **DO NOT KEEP OPEN** or for a door discharging from a fire-isolated exit **FIRE SAFETY DOOR DO NOT OBSTRUCT** Under Clause 183 of the Environmental Planning and Assessment Regulation 2000 a notice is to be displayed in a conspicuous location adjacent to a doorway providing access to but not within a fire isolated stairway, passageway or ramp. The words "**OFFENCES RELATING TO FIRE EXITS**" are to be provided in letters at least 8mm high and the remaining words are to be at least 2.5mm high. The notice is to state the following: OFFENCES RELATING TO FIRE EXITS It is an offence under the Environmental Planning and Assessment Act 1979: a) to place anything in or near this fire exit that may obstruct persons moving to and from the exit, or b) interfere with or obstruct the operation of any fire doors, or c) to remove, damage or otherwise interfere with this notice.
D2.24	Protection of openable windows	Not Applicable	
NSW D2.101	Doors in path of travel in a Entertainment Venue	Compliance Readily Achievable	A doorway in the path of travel to an exit must comply with Clause NSW D2.16(b)(v). The door must be a swing door that swings in the direction of egress.
D3.1	Application of Part	Applicable / Alternative Solution	All buildings and parts of buildings as specified under Table D3.1 must be accessible unless exempted under Clause C3.4

Clause	Description	Status	Comments
D3.2	Access to buildings	Additional Details Required	Access must be provided to a building from 1. the main points of a pedestrian entry at the allotment boundary, and 2. another accessible building connected by a pedestrian link, and 3. from any accessible carparking space on the allotment. An accessway is required to be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances. In a building with a floor area over 500m^2, a pedestrian entrance which is not accessible must not be located more than 50m from an accessible entrance. If a pedestrian entrance consists of more than 3 doorways then not less than 50% of those doorways must be accessible.
D3.3	Parts of buildings to be accessible	Additional Details Required	Every ramp, except a fire isolated ramp, must comply with Clause 10 if AS 1428.1. Every stairway, except a fire isolated stairway, must comply with Clause 11 of AS 1428.1. A fire isolated stairway must comply with Clause 11(f) and (g) of AS 1428.1. Every passenger lift must comply with Clause E3.6. Accessways must have passing spaces and turning spaces complying with AS 1428.1. Pile height or pile thickness of carpets shall comply with the requirements of this Clause and AS 1428.1.
D3.4	Concessions	Noted	Concession is only available to plant rooms
D3.5	Carparking	Not Applicable	

Clause	Description	Status	Comments
D3.6	Signage	Additional Details Required	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deafness in accordance with AS1428.1 must identify every accessible sanitary facility and space with a hearing augmentation system. Every doorway required to be provided with an exit sign under Clause E4.5 is to be provided with braille and tactile signage that states "**EXIT**" and identify the floor level "**LEVEL #**". Signage must be provided within a room containing hearing augmentation identifying the type of hearing augmentation, the area covered in the room and if receivers are being used and where the receivers can be obtained. Signage identifying ambulant accessible sanitary facilities in accordance with AS 1428.1 must be located on the door of the facility. Where the pedestrian entrance is not accessible, directional signage in accordance with AS 1428.1 must be provided to direct a person to the location of the nearest accessible pedestrian entrance. Where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility, directional signage must be placed at the location of the sanitary facilities that are not accessible, to direct a person to the location of the nearest accessible unisex sanitary facility.

Clause	Description	Status	Comments
D3.7	Hearing augmentation	Additional Details Required	A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed— (i) in a room in a Class 9b building; or (ii) in an auditorium, conference room, meeting room or room for judicatory purposes; or (iii) at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider An induction loop must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system; or A system requiring the use of receivers or the like, it must be available to not less than 95% of the floor area of the room or space served by the inbuilt amplification system, and the number of receivers provided must not be less than— (A) if the room or space accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and (B) if the room or space accommodates more than 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 or space accommodates more than 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 or space accommodates more than 2000 persons, 55 receivers plus 1 receiver for every 100 persons or part thereof in excess of 2000 persons.
D3.8	Tactile indicators	Additional Details Required	Tactile indicators are to be provided to all stairways, ramps and escalators must be provided to warn people who are blind or have a vision impairment that they are approaching: • a stairway, other than a fire-isolated stairway, • an escalator, passenger conveyor or moving walk, • a ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp, or • in the absence of a suitable barrier an overhead: o obstruction less than 2 m above floor level, other than a doorway o an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D3.4, if there is no kerb or kerb ramp at that point Tactile ground surface indicators must comply with sections 1 and 2 of AS/NZS 1428.4.1

Clause	Description	Status	Comments
D3.9	Wheel Chair Seating Spaces in Class 9b Assembly Buildings	Additional Details Required	Where fixed seating is provided in a Class 9b assembly building, wheelchair seating spaces comply with AS 1428.1 must be provided in accordance with Table D3.9. Spaces must be provided at a rate of 3 spaces for the first 150 fix seats plus one space for each additional 50 fixed seats. These spaces should be evenly distributed throughout the auditorium with at least one single space, one double space and not more than five spaces in any other group.
D3.10	Swimming Pools	Not Applicable	
D3.11	Ramps	Not Applicable	
D3.12	Glazing on an accessway	Compliance Readily Achievable	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.

12.4. SECTION E – SERVICES AND EQUIPMENT

Clause	Description	Status	Comments
E1.1	-	-	No provisions
E1.2	-	-	No provisions
E1.3	**Fire Hydrants**	**Upgrade Required**	**The hydrant system serving Pier 2 / 3 must conform to the pressure and flow requirements and distance limitations specified in AS 2419.1 – 2005.**
		Complies	Any new work to the hydrant system serving Pier 4 / 5 and the Shore Sheds must comply with the current standard
		Additional Details Required	Hydraulic plans identifying the locations of all fire hydrants and booster assembly to be provided. The hydraulic engineer will also need to provide certification certifying that the design complies with Clause E1.3 of the BCA and AS2419.1 – 2005.
E1.4	**Hose reels**	**Upgrade Required**	**Fire hose reels are to be installed internally within 4m of an exit or internally adjacent to a fire hydrant so that the fire hose reel will not need to pass through fire and smoke doors.** **Additional hose reels are permitted to be installed further then 4m from exit to achieve coverage.** **Fire hose reels are to be installed accordance with AS2441.**
		Additional Details Required	Fire hose reels must be located so as not to require to pass through fire doors to achieve coverage
E1.5	**Sprinklers**	**Upgrade Required**	**The sprinkler system to Pier 2 / 3 must be upgraded to comply with the current standard.** **A sprinkler valve enclosure must be located in a secure room or enclosure that has direct egress to road or open space.**

Clause	Description	Status	Comments
E1.6	Portable fire extinguishers	Compliance Readily Achievable	Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and Sections 1, 2, 3 and 4 of AS 2444. Portable extinguishers to cover Class A risk fires are only required in fire compartments less than 500m^2 not provided with hose reels.

Clause	Description	Status	Comments
E1.7	-	-	No provisions.
E1.8	Fire control centres	Not Applicable	
E1.9	Fire precautions during construction	Compliance Readily Achievable	During construction, not less than one fire extinguisher to suit Class A, B and C fires is required for each storey, and is required to be located adjacent to each exit. After the building has reached an effective height of 12m, hydrants and hose reels must be operational in at least every storey, except the 2 uppermost storeys, covered by the roof or the floor structure above and any required booster connections must be installed.
E1.10	Provisions for special hazards	Not Applicable	No issues identified
E2.1	Application of Part	Applicable	Part is not applicable to ▪ open deck car parks ▪ open spectator stands ▪ storerooms, etc less than 30m^2 ▪ sanitary compartments ▪ plantrooms or the like
E2.2	General requirements (NSW Replacement of provisions for Class 9b buildings)	Compliance Readily Achievable	An air-handling system that does not form part of the smoke hazard management system and recycles air from one fire compartment to another must be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1 or incorporate smoke dampers and automatically shutdown upon activation of smoke detectors in accordance with Clause 4.10 of AS/NZS 1668.1. The building must be provided with a sprinkler system complying with Specification E1.5. The building must be provided with an automatic smoke exhaust system complying with Specification E2.2.
		Alternative Solution	It is proposed design the automatic smoke exhaust system via a fire engineered alternative solution satisfying the Performance Requirements of the BCA
E2.3	Provisions for special hazards	Not Applicable	No issues identified
E3.1	Lift installations	Compliance Readily Achievable	An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification E3.1
E3.2	Stretcher facility in lifts	Compliance Readily Achievable / Not Applicable	The stretcher lift is to have the minimum dimension of 600mm wide x 2000mm long and 1400mm high above floor level.
E3.3	Warning against use of lifts in fire	Compliance Readily Achievable	A warning sign is to be displayed where it can be readily seen near every call button of the passenger lift. The warning sign is to comply with the details and dimensions set out in Figure E3.3 of the BCA.
E3.4	Emergency lifts	Not Applicable	

Clause	Description	Status	Comments
E3.5	Landings	Compliance Readily Achievable	Access and egress to and from the liftwell landings is to comply with the Deemed-to-Satisfy provisions of Section D of the BCA.
E3.6	Passenger lifts	Compliance Readily Achievable	Every passenger lift must be one of the types identified n Table E3.6a, have accessible features in accordance with Table E3.6b and not reply on a constant pressure device for its operation if the lift car is fully enclosed.
E3.7	Fire Services Control	Not Applicable	
E3.8	Aged care buildings	Not Applicable	
E3.9	Fire service recall operation switch	Compliance Readily Achievable	The switch must be located at the landing nominated by the appropriate authority, be labelled '**FIRE SERVICE**" in indelible white lettering on red background. The "**OFF**" and "**ON**" positions are to be identified.
E3.10	Lift car fire service drive control switch	Compliance Readily Achievable	The lift car service drive control must be activated from within the lift car. The switch is to be located between 600mm and 1500mm above the lift car floor and be labelled '**FIRE SERVICE**" in indelible white lettering on red background. The "**OFF**" and "**ON**" positions are to be identified.
E4.1	-	-	No provisions.
E4.2	**Emergency light requirements**	**Upgrade Required**	**Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the BCA. Pier 2 / 3 is to be fully upgraded and all new work within piers 4 / 5 and the shore sheds must comply with the below.** **Emergency lighting is to be provided in :** ▪ **every fire-isolated stairway, fire-isolated ramp or fire-isolated passageway.** ▪ **Every passageway, hallway, corridor or the like, that is part of the path of travel to an exit.** ▪ **In every room having a floor area more than 100m² that does not open to a corridor or space that has emergency lighting or to a road or open space.** ▪ **In any room having a floor area more than 300m².** ▪ **In every required non-fire isolated stairway** ▪ **To every room or space that has public access in a Class 6 or 9b building if:** o **the floor area is more than 300m²;** o **or if any point on the floor is more than 20m from the nearest doorway opening directly to the road or open space; or** o **if the egress involves a vertical rise within the building of more than 1.5m.**
E4.3	Measurement of distance	Noted	

Clause	Description	Status	Comments
E4.4	**Design and operation of emergency light**	**Upgrade Required**	**Emergency lighting shall be provided throughout the building in accordance with the requirements of Clause E4.4 of the BCA and AS 2293.1. Pier 2 / 3 is to be fully upgraded and all new work within piers 4 / 5 and the shore sheds must comply with the below.**
E4.5	**Exit signs**	**Upgrade Required**	**Exit signs are to be provided in accordance with Clause E4.5 of the BCA. Pier 2 / 3 is to be fully upgraded and all new work within piers 4 / 5 and the shore sheds must comply with the below.** **Exit signs must be clearly visible to person approaching the exit and must be installed on, above or adjacent to;** **1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit.** **2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space.** **3. A horizontal exit.** **4. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting.**
E4.6	**Direction signs** **(NSW Entertainment Venue has additional requirements)**	**Upgrade Required**	**Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit in accordance with Clause E4.6 of the BCA. Pier 2 / 3 is to be fully upgraded and all new work within piers 4 / 5 and the shore sheds must comply with the below.** **External to the building where the exit does not open directly onto a street additional exit signs are required.**
E4.7	Class 2, 3 and 4 buildings: Exemptions	Not Applicable	
E4.8	**Design and operation of exit signs**	**Upgrade Required**	**Exit signs are to operate in accordance with AS 2293.1 and be clearly visible at all times while the building is occupied. Pier 2 / 3 is to be fully upgraded and all new work within piers 4 / 5 and the shore sheds must comply with the below.**
E4.9	**Sounds systems and intercom systems for emergency purposes**	**Upgrade Required**	**A sound system and intercom system for emergency purposes (SSISEP) complying with AS 1670.4 must be installed throughout the building.**

12.5. SECTION F – HEALTH AND AMENITY

Clause	Description	Status	Comments
F1.1	Stormwater drainage	Compliance Readily Achievable	Stormwater drainage design shall be in accordance with AS/NZS 3500.3
F1.2	-	-	No provisions
F1.3	-	-	No provisions

Clause	Description	Status	Comments
F1.4	External above ground membranes	Compliance Readily Achievable	Waterproofing membranes for external above ground use must comply with AS 4654 Parts 1 and 2.
F1.5	Roof coverings	Compliance Readily Achievable	Roof coverings are to comply with the relevant Australian Standards as per Clause F1.5.
F1.6	Sarking	Compliance Readily Achievable	Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.
F1.7	Waterproofing of wet areas	Compliance Readily Achievable	Shower enclosure surfaces, floor surfaces in bathrooms, shower rooms, slop hoppers, sink compartments, laundry and sanitary compartments is required to be waterproofed in accordance with AS 3740.
F1.8	-	-	No provisions
F1.9	Damp-proofing	Compliance Readily Achievable	Moisture from the ground must be prevented from reaching the lowest floor timber and the walls above the lowest floor joists, the walls above the dam proof course and the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders. Damp proof course must consist of a material that complies with AS/NZS 2904 or an impervious termite shield in accordance with AS 3660.1.
F1.10	Damp-proofing of floors on the ground	Not Applicable	
F1.11	Provision of floor wastes	Not Applicable	
F1.12	Sub-floor ventilation	Not Applicable	
F1.13	Glazed assemblies	Compliance Readily Achievable	Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047 requirements for resistance to water penetration.
F2.1	Facilities in residential buildings	Not Applicable	
F2.2	Calculation of number of occupants and fixtures	Noted	
F2.3	Facilities in Class 3 to 9 buildings	Additional Details Required	
F2.4	Facilities for people with disabilities	Additional Details Required	The number of sanitary facilities for people with disabilities have been provided in accordance with Table F2.4. Sanitary facilities for people with disabilities are to be designed in accordance with AS1428.1.
F2.5	Construction of sanitary compartments	Compliance Readily Achievable	Doors to the fully enclosed toilets are to open outwards, slide or be readily removable from the outside of the sanitary compartment.
F2.6	Interpretation: Urinals and washbasins	Noted	

Clause	Description	Status	Comments
F2.7	Warm water installations (NSW – deleted)	Not Applicable	Not Applicable in NSW
F2.8	Waste	Not Applicable	
F3.1	Height of rooms and other spaces	Compliance Readily Achievable	
F4.1	Provision of natural light	Not Applicable	
F4.2	Methods and extent of natural light	Not Applicable	
F4.3	Natural light borrowed from adjoining room	Not Applicable	
F4.4	Artificial lighting	Compliance Readily Achievable	Lighting shall be provided throughout the building to comply with AS1680.0 in accordance with the requirements of Clause F4.4 of the BCA.
F4.5	Ventilation of rooms (NSW Reference to AS/NZS 3666.1 deleted for NSW)	Compliance Readily Achievable	Ventilation shall be provided throughout the building in by means of natural ventilation complying with Clause F4.6 or mechanical ventilation complying with the requirements of AS1668.2 as required by Clause F4.5 of the BCA.
F4.6	Natural ventilation	Not Applicable	
F4.7	Ventilation borrowed from adjoining room	Not Applicable	
F4.8	Restriction on position of water closets and urinals	Not Applicable	
F4.9	Airlocks	Additional Details Required	
F4.10	-	-	No Provisions
F4.11	Carparks	Not applicable	
F4.12	Kitchen local exhaust	Compliance Readily Achievable	A commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2, where, any cooking apparatus has a total maximum electrical power input exceeding 8kW, or a total gas power input exceeding 29 MJ/h, or the total maximum power input to more than one apparatus exceeds 0.5kW electrical power or 1.8 MJ gas per metre square of the room or enclosure.
Part F5	Sound Transmission and Insulation	Not Applicable	

12.6. SECTION G – ANCILLARY PROVISIONS

Clause	Description	Status	Comments
G1.1	Swimming Pools (NSW – added subclause (c))	Not Applicable	
G1.2	Refrigerated chambers, strong-rooms and vaults	Compliance Readily Achievable	A refrigerator, cooling chamber, strong room or vault that is sufficient in size for a person to enter, must be provided with a door openable from the inside, internal lighting controlled internally, and indicator lamp positioned outside the chamber, and an alarm controllable from within the chamber.
G1.101	Provision for cleaning windows	Compliance Readily Achievable	A safe manner of cleaning windows is to be provided as windows are located 3 or more storeys above ground level. The windows must either be able to be cleaned wholly from within the building, or a method complying with the Construction Safety Act 1912 and Regulations is required.
Part G2	Minor Structures and Components	Not Applicable	
G3.1	Atriums affected by this Part	Applicable / Alternative Solution	3 storeys or more than 3 storeys if sprinkler protected. If the open stairs connects more than three storeys then the provisions of this part apply.
G3.2	Dimensions of atrium well	Alternative Solution	
G3.3	Separation of atrium by bounding walls	Alternative Solution	
G3.4	Construction of bounding walls	Alternative Solution	
G3.5	Construction of balconies	Alternative Solution	
G3.6	Separation at roof	Alternative Solution	
G3.7	Means of egress	Alternative Solution	
G3.8	Fire and smoke control systems	Alternative Solution	
Part G4	Construction in alpine areas.	Not Applicable	
Part G5	Construction in bushfire prone areas.	Not Applicable	

12.7. SECTION H – SPECIAL USE BUILDINGS

Clause	Description	Status	Comments
Part H1	Theatres, Stages & Public Halls	Not Applicable	Replaces the requirements for Class 9b buildings in NSW
Part H2	Public transport building		

Clause	Description	Status	Comments
NSW H101.1	Application of Part	Not Applicable	NSW Part H101 is applicable to Entertainment Venues ***'Entertainment venue'*** means a building used as a cinema, theatre or concert hall or an indoor sports stadium. This applies to the auditoriums in Pier 2 /3 and any new works in piers 4 / 5 aswell as the Waterfront Square.
NSW H101.2	Fire separation	Additional Details Required	The Entertainment Venue is required to be separated from the remainder of the building by construction having a FRL of at least 60/60/60.
NSW H101.3	Foyer space	Additional Details Required	Foyer space must be provided at a rate of at least 0.25 m^2 per person. With the propose population of 700 175 m^2 is required.
NSW H101.4	Sprinkler systems for common foyers	Complies	A maximum of two auditoriums are served by the foyer, sprinkler protection not required
NSW H101.5	Conventional stages	Not Applicable	
NSW H101.6	Non-conventional stages	Additional Details Required	Two exits are required from the back stage area as the stage is more than 50 m^2.
NSW H101.7	Flying scenery	Not Applicable	
NSW H101.8	Load notice	Additional Details Required	A notice indicating the actual distributed and concentrated load for which the stage floor has been designed must be conspicuously and permanently displayed in a position adjacent to the stage floor. This notice must be in legible letters and figures— (a) at least 50 mm high; and (b) on a contrasting background
NSW H101.9	-	-	No provisions.
NSW H101.10	Safety curtains	Not Applicable	

Clause	Description	Status	Comments
NSW H101.11	Seating in rows	Additional Details Required	Where seating is arranged in rows, the maximum of seats in each row must not exceed— ▪ 8 where there is an aisle at one end only of the row, or ▪ 16 where there are aisles on both ends of the row ▪ Chairs used for seating must: ▪ where they have arms, be at least 500 mm from centre to centre, and ▪ where they do not have arms, be at least 450 mm from centre to centre; and ▪ have a minimum lateral clearance of at least 300 mm between- o the front of each chair and the back of the chair in front; or o if a guardrail is provided in front of the chairs, between the front of each chair and the guardrail; and ▪ have a distance of at least 950 mm between the back of each chair and the back of the chair in front ▪ The chairs must be securely fastened. ▪ Where seating is securely fastened to the floor and arranged in rows of concentric circles, semi-circles or segments of circles, with radiating aisles: ▪ the number of seats in each row between 2 aisles must not exceed 24, and ▪ each seat must have a minimum lateral clearance of at least 325 mm between the front of the seat and the back of the seat in front and have a distance of at least 975 mm between the back of the seat and the back of the seat in front. Each aisle must have a width of at least 1000 mm and each cross-over must have a width of at least 1500 mm
NSW H101.12	Continental seating	Additional Details Required	Spacing of seating must meet the requirements of Table 101.12.
NSW H101.13	Provision of guardrails	Not Applicable	
NSW H101.14	Guardrails	Not Applicable	
NSW H101.15	Dressing rooms	Additional Details Required	A dressing room or 2 or more adjoining dressing rooms, having a total floor area of more than 50 m2, must ▪ be separated from other parts of the building by construction having an FRL of not less than 60/60/60; ▪ have at least 2 means of egress as remote from each other as possible, one of which must discharge o directly to a road or open space; or o through a fire-isolated exit to a road or open space
NSW H101.16	Storerooms	Additional Details Required	A storeroom must be separated from other parts of the building by construction having an FRL of not less than 60/60/60.

Clause	Description	Status	Comments
NSW H101.17	Projection suites	Not Applicable	
NSW H101.18	Basement storeys	Not Applicable	
NSW H101.19	Electric mains installation	Additional Details Required	The switchboard containing the main isolation switch must: • be located in a position that is readily accessible to authorised persons, and to the Fire Brigade in the case of an emergency; and • be enclosed by construction having an FRL not less than 60/60/60 Protection of a final sub-circuit originating at a switchboard or distribution board must be by means of circuit breakers. Where an entertainment venue has its mains supply in common with that of another building or where it is a part of a building: • the entertainment venue must be served by a separate and independent sub-main from the main switchboard; and • each such sub-main, the consumer's main and the supply authority's conductors within the building must be protected against fire by means of: o mineral-insulated metal-sheathed cables or other cables that provide at least 2 hours' fire protection; or o heavy-duty PVC conduit or metallic pipe, concrete encased in walls or slabs with a minimum of 50 mm cover; or o heavy-duty PVC conduit or metallic pipe, buried at least 500 mm below ground level, for underground cabling
NSW H101.20	Lighting	Additional Details Required	Any switch controlling the lighting system must not be accessible. Where, during normal use, general lighting may be dimmed or switched off, an override switch to switch on all the general lighting instantaneously must be installed in the auditorium in a position accessible to management. Where general lighting is to be either dimmed or extinguished when the public is in attendance and where the floor is stepped or at an inclination greater than 1 in 12, aisle lights must be provided to illuminate the length of each aisle and the tread of each step therein. Where an aisle light is installed in a seat frame, it must be supplied at a voltage of not more than 32 volts AC or 115 volts DC. Aisle lighting must be provided with an alternative electricity supply that— • is capable of being automatically energised in the event of failure of the primary lighting electricity supply; and • complies with the provisions applying to emergency lighting.

Clause	Description	Status	Comments
NSW H101.21	-	-	No provision
NSW H101.22	Automatic smoke-and-heat vents for stages	Not Applicable	
NSW H101.23	Solid fuel burning stoves and open fire places	Not Applicable	
NSW H101.24	Fuel gas cylinders	Not Applicable	
NSW Part H102	Temporary structures	Not Applicable	NSW Part H102 applies to temporary structures used as entertainment venues.

12.8. SECTION J – ENERGY EFFICIENCY

Clause	Description	Status	Comments
NSW J(B)	**Energy Efficiency - Class 3 and Class 5 to 9 Buildings**	**Noted / Alternative Solution**	**The building is located in climate zone 5**
NSW J(B)1	Compliance with BCA provisions	Not Applicable	Class 3 and Class 5 to 9 buildings must comply with all of the national provisions of Section J that are applicable to the relevant classifications, except as varied by NSW J1.6 for Class 3 buildings, NSW J3.1 and NSW J8.2 for Class 3 and Class 5 to 9 buildings.
J1.1	Application of Part	Applicable	Applies to building elements forming the envelope of a Class 3 and Class 5 to 9 building.
J1.2	Thermal construction general	Compliance Readily Achievable	Insulation must comply with AS/NZS 4859.1 and be installed in accordance with Clause J1.2. Insulation must abut or overlap adjoining insulation, form a continuous barrier with ceilings, walls, bulkheads, floors or the like and not affect the safe or effective operation of services.
J1.3	Roof and ceiling construction	Compliance Readily Achievable	A roof or ceiling that is part of the envelope must achieve the Total R-Value specified in Table J1.3 for the direction of heat flow. The minimum total R-Value required for roofs or ceilings are specified in Appendix G. A roof that - i. is required to achieve a minimum *Total R-Value;* and ii. has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and iii. does not have a ceiling lining or ha a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see specification J1.3 Figure 2(c) and (f), must have a thermal break, consisting of a material with an *R-Value* of not less than R0.2, installed between the metal roofing and its supporting metal purlins, metal rafters or metal battens.

Clause	Description	Status	Comments
J1.4	Roof lights	Compliance Readily Achievable	Roof lights, including any associated shaft and diffuser, that form part of the envelope must, if the roof lights are not required for compliance with Part F4, comply with Table J1.4. If the roof lights are required for compliance with Part F4 they must have an area not more than 150% of the minimum area required by F4.6; and have transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of not more than 0.29 Total System SHGC; and 2.9 Total System U-Value.
J1.5	Walls	Compliance Readily Achievable	Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a or Table J1.5b except as specified in Clause J1.5. Refer to Appendix G for required minimum R-Values and other requirements. A wall that - i. is required to achieve a minimum *Total R-Value;* and ii. has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and iii. does not have a wall lining or has a wall lining that is fixed directly to the same metal frame, must have a thermal break, consisting of a material with an *R-Value* of not less than R0.2, installed between the external cladding and the metal frame.
J1.6	Floors	Compliance Readily Achievable	Floors are required to achieve a minimum R-Value in accordance with Table J1.6. A concrete slab-on-ground with an in-slab heating or cooling system; or located in climate zone 8 must have insulation installed around the vertical edge of its perimeter. The insulation must have an R-Value of not less than 1.0, be water resistant and be continuous from the adjacent finished ground level to a depth of not less than 300 mm or for the full depth of the vertical edge of the concrete slab-on-ground
J2.1	Application of Part	Applicable	
J2.2	-	-	No Provisions
J2.3	-	-	No Provisions

Clause	Description	Status	Comments
J2.4	Glazing	Compliance Readily Achievable	The glazing in each storey including a mezzanine must be assessed separately in accordance with Clause J2.4(b) and (c) for- i) *glazing* in the external *fabric* facing each orientation; and ii) *glazing* in the internal *fabric* using the south orientation sector energy constants in Table J2.4b and shading multipliers in Table J2.4c and Table J2.4d. The aggregate *air-conditioning* energy value attributable to the *glazing* must not exceed the allowance obtained by multiplying the facade area that is exposed to the *conditioned space* for the orientation by the energy index in Table J2.4a. The glazing calculator must be completed and submitted with the Construction Certificate application as evidence of compliance.
J2.5	Shading	Compliance Readily Achievable	Where shading is required to comply with Clause J2.4, it must; a) be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves or shading hood which i. extends horizontally on both sides of the glazing for the same projection distance P in figure J2.4 of the BCA, or ii. provides the equivalent shading to that above with a reveal or the like, or b) be provided an external shading device such as a blind, vertical or horizontal building screen with blades, battens or slats, which i. is capable of restricting at least 80% of summer solar radiation, and ii. if adjustable is operated automatically in response to the level of solar radiation.
NSW J3.1	Application of Part	Applicable	Applies to elements forming the envelope of a Class 3, and Class 5 to 9 building other than as specified.
J3.2	Chimneys and flues	Not Applicable	
J3.3	Roof lights	Compliance Readily Achievable	A roof light must be sealed or capable of being sealed when serving a conditioned space.
J3.4	Windows and doors	Compliance Readily Achievable	A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like when serving a conditioned space.
J3.5	Exhaust fans	Compliance Readily Achievable	A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space.

Clause	Description	Status	Comments
J3.6	Construction of roofs, walls and floors	Compliance Readily Achievable	Roofs, walls, floors and any opening must be constructed to minimise air leakage in accordance with Clause J3.6(b) when forming part of the external fabric of a conditioned space. These requirements do not apply to openings, grilles and the like required for smoke hazard management.
J3.7	Evaporative coolers	Not Applicable	
J4	-	-	No Provisions
J5.1	-	-	No Provisions
J5.2	Air conditioning and ventilating systems	Compliance Readily Achievable	An air-conditioning unit or system must comply with the requirements of Clause J5.2 and Specification J5.2
J5.3	Time switch	Compliance Readily Achievable	A time switch in accordance with Specification J6 must be provided to control: ▪ an air-conditioning system of more than 10kWr, or ▪ a ventilation system with an air flow rate or more than 1000L/s, or ▪ a heating systems of more than $10kW_{heating'}$
J5.4	Heating and chilling systems	Compliance Readily Achievable	Systems that provide heating or chilling for air-conditioning systems must comply with Clause J5.4 and Specification J5.4.
J5.5	Miscellaneous exhaust systems	Compliance Readily Achievable	A miscellaneous exhaust system with an air flow rate of more than 1000L/s that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory must have the means for the operator to reduce the energy used or stop the motor when the system is not needed. It must be designed to minimise exhausting of air conditioning.
J6.1	Application of Part	Applicable	
J6.2	Artificial lighting	Compliance Readily Achievable	In a Class 5, 6, 7, 8, 9a or 9b the artificial lighting must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum power density in Table J6.2a.
J6.3	Interior artificial lighting and power control	Compliance Readily Achievable	The power control for artificial interior lighting must comply with the requirements of Clause J6.3. Artificial lighting of a room or space must be individually operated by a switch or other control device in accordance with Specification J6.
J6.4	Interior decorative and display lighting	Compliance Readily Achievable	Interior decorative and display lighting, such as for foyer mural or art displays, must be controlled separately from other artificial lighting as specified in Clause J6.4. Window display lighting must be controlled separately from other display lighting.
J6.5	Artificial lighting around the perimeter of a building	Compliance Readily Achievable	Artificial lighting around the perimeter of a building must be controlled by a daylight sensor or time switch as specified in Clause J6.5.
J6.6	Boiling water and chilled water storage units	Compliance Readily Achievable	Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.

Clause	Description	Status	Comments
J7.1	-	-	No provisions
J7.2	Hot water supply	Compliance Readily Achievable	A hot water supply system for food preparation and sanitary purposes, other than a solar hot water supply system in climate zones 1, 2 and 3 must be designed and installed in accordance with Section 8 of AS/NZS 3500.4
J7.3	Swimming pool heating and pumping	Not Applicable	
J7.4	Spa pool heating and pumping	Not Applicable	
J8.1	Application of Part	Applicable	
NSW J8.2	Access for maintenance	Compliance Readily Achievable	Access to service must be provided to all services and their components.

13. APPENDIX C – ADDITIONAL ASSESSMENT AGAINST STATUTORY REQUIREMENTS

13.1. CHANGE IN BUILDING USE

The following issues must therefore be addressed prior to the issue of a construction certificate for the pier 2 / 3 portion of the proposal:

i) A statement must be provided by a practising structural engineer as to the structural adequacy of the building;

ii) The fire safety in that part of the building the subject of the proposed change in use must be upgraded to comply with the BCA; and

iii) The existing Category 1 fire safety provisions in that part of the building must be audited and a statement provided in relation to compliance with the current code requirements for the new use.

13.1.1. Fire protection and structural adequacy

The following requirements are to be satisfied.

#	Issue	Description	Status
1	Fire protection	Must be appropriate to new use – assessment of relevant parts of existing building undertaken with assessment of new works in Section 8 and 12	
2	Structural capacity	Statement required from Structural engineer	

13.1.2. Category 1 fire-safety provisions

"Category 1 fire safety provision means the following provisions of the Building Code of Australia, namely, EP1.3, EP1.4, EP1.6, EP2.1, EP2.2 and EP3.2 in Volume One of that Code and P2.3.2 in Volume Two of that Code."

The following services are required to be upgraded to fully comply with current BCA and Australian Standards' requirements for the pier 2 / 3 portion of the proposal. If this is not cost effective then an alternative solution or NSW Fire Brigade exemption must be obtained prior to the issue of a construction certificate.

Perf. Req.	Service	BCA DTS Ref	AS Ref	Assessment / Requirement
EP1.3	Fire hydrants	E1.3	AS2419.1 (Current version)	
EP1.4	Automatic fire suppression systems	E1.5	AS2118 (Current version)	
EP2.2	Smoke hazard management	E2.2, Spec E2.2(b)	AS 1668.1(Current version)	
CP9	Perimeter vehicular access	C2.4	--	Fire & Rescue NSW Guidelines must be meet.

13.2. ALTERATIONS AND EXTENSIONS

Clause 143 (3) of the Environmental Planning and Assessment Regulation 2000 (EPAR) prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a

reduction to the fire protection and structural capacity of the building.

An assessment of the key fire-safety features is therefore proposed to be undertaken for piers 4 / 5 and the shore sheds to ensure that the level of fire safety is not reduced in the building as a result of any alterations or extensions. Where alterations are within the bounds of BCA requirements (either prescriptive or performance) they are deemed to not have resulted in a reduction in the level of safety. Confirmation is required prior to the issue of an Construction Certificate.

BCA Ref	Description of requirements	Status / Comments
Section C	Structural fire resistance Fire compartment size Fire separation	TBC TBC TBC
Section D	Exit travel distances Numbers of exits and aggregate exit width Discharge of exits Construction of exits	TBC TBC TBC TBC
Section E	Hydrants Hose reels Sprinklers Smoke detection Smoke hazard management Emergency Lifts Exit and emergency lighting	TBC TBC TBC TBC TBC TBC TBC
Section G	Atrium requirements	TBC
Section H	Entertainment Venue Requirements	TBC
Section J	Energy Efficiency	TBC

14. APPENDIX D – REFERENCED DOCUMENTATION

The following documentation was used in the preparation of this report:

Drawing No.	*Title*	*Issue*	*Date*	*Drawn By*
A00.000[04]	Existing conditions ground level	04	31/03/2014	BatesSmart
A00.001[04]	Existing conditions level 1	04	31/03/2014	BatesSmart
A00.002[03]	Existing conditions level 2	03	12/03/2014	BatesSmart
A00.003[03]	Existing conditions level 3	03	12/03/2014	BatesSmart
A00.004[03]	Existing conditions plan roof	03	12/03/2014	BatesSmart
A02.000[08]	Floor plan ground level	08	31/03/2014	BatesSmart
A02.001[08]	Floor plan level 1	08	31/03/2014	BatesSmart
A02.002[07]	Floor plan level 2	07	12/03/2014	BatesSmart
A02.003[07]	Floor plan level 3	07	12/03/2014	BatesSmart
A02.004[04]	Floor plan roof plan	04	12/03/2014	BatesSmart
A07.000[04]	Pier 2 / 3 east elevation existing & proposed	04	12/03/2014	BatesSmart
A07.001[04]	Pier 2 / 3 west elevation existing & proposed	04	12/03/2014	BatesSmart
A07.002[04]	Pier 2 / 3 north elevation & Section AA	040	12/03/2014	BatesSmart
A07.003[04]	Pier 2 / 3 sections	04	12/03/2014	BatesSmart

15. APPENDIX E – CONSTRUCTION DETAILS

TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS				
Building element	**Class of building - FRL:** (in minutes) Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
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 3 m	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 1.5 m	-/90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3 m	-/60/60	- / 90/ 90	- /180/120	- /240/180
3 m 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 3 m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
3 m 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
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

16. APPENDIX F – OPTIONS FOR SMOKE HAZARD MANAGEMENT

Requirements and options are set out in the table below:

Position	*Use*	*Class*	*Requirement*
Whole	Entertainment complex	9b	Automatic fire detection and alarm system (smoke detection system)
Entertainment Venue	Entertainment venue	9b EV	Automatic fire suppression systems (Sprinklers)
Theatres with stages	Entertainment venue	9b EV	Smoke exhaust system

* This will vary as part of the Alternative Solution

17. APPENDIX G – ENERGY EFFICIENCY R-VALUES

ROOFS AND CEILINGS - MINIMUM TOTAL R-VALUE (Table J1.3a)

Climate zone	1, 2, 3, 4 & 5	6	7	8
Direction of heat flow	**Downwards**		**Upwards**	
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of not more than 0.4	3.2	3.2	3.7	4.8
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.4 but not more than 0.6	3.7	3.2	3.7	4.8
Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.6	4.2	3.2	3.7	4.8

ADJUSTMENT OF MINIMUM TOTAL R-VALUE FOR LOSS OF CEILING INSULATION (Table J1.3b)

Percentage of ceiling area uninsulated	Minimum R-Value of ceiling insulation required to satisfy J1.3(a)										
	1.0	**1.5**	**2.0**	**2.5**	**3.0**	**3.5**	**4.0**	**4.5**	**5.0**	**5.5**	**6.0**
	Adjusted minimum R-Value of ceiling insulation required to compensate for loss of ceiling insulation area										
0.5% to less than 1.0%	1.0	1.6	2.2	2.8	3.4	4.0	4.7	5.4	6.2	6.9	
1.0% to less than 1.5%	1.1	1.7	2.3	2.9	3.6	4.4	5.2	6.1	7.0		
1.5% to less than 2.0%	1.1	1.7	2.4	3.1	3.9	4.8	5.8	6.8			
2.0% to less than 2.5%	1.1	1.8	2.5	3.3	4.2	5.3	6.5				
2.5% to less than 3.0%	1.2	1.9	2.6	3.6	4.6	5.9	Not Permitted				
3.0% to less than 4.0%	1.2	2.0	3.0	4.2	5.7						
4.0% to less than 5.0%	1.3	2.2	3.4	5.0							
5.0% or more											

Note: Where the minimum *R-Value* of ceiling insulation *required* to satisfy J1.3(a) is between the values stated, interpolation may be used to determine the adjusted minimum *R-Value*.

ROOF LIGHTS - THERMAL PERFORMANCE OF TRANSPARENT AND TRANSLUCENT ELEMENTS (Table J1.4)

Roof light shaft index (see Note 1)	Constant	Total area of roof lights serving the room or space as a percentage of the floor area of the room or space			
		Up to 2%	**More than 2% to and up to 3%**	**More than 3% and up to 4%**	**More than 4% and up to 5%**
Less than 0.5	*Total System SHGC*	Not more than 0.83	Not more than 0.57	Not more than 0.43	Not more than 0.34
	Total System	Not more than	Not more than 5.7	Not more than 4.3	Not more than 3.4

	U-Value	8.5			
0.5 to less than 1.0	*Total System SHGC*	Not more than 0.83	Not more than 0.72	Not more than 0.54	Not more than 0.43
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4
1.0 to less than 2.5	*Total System SHGC*	Not more than 0.83	Not more than 0.83	Not more than 0.69	Not more than 0.55
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4
2.5 and more	*Total System SHGC*	Not more than 0.83	Not more than 0.83	Not more than 0.83	Not more than 0.83
	Total System U-Value	Not more than 8.5	Not more than 5.7	Not more than 4.3	Not more than 3.4

Notes:

1.	The *roof light* shaft index is determined by measuring the distance from the centre of the shaft at the roof to the centre of the shaft at the ceiling level and dividing it by the average internal dimension of the shaft opening at the ceiling level (or the diameter for a circular shaft) in the same units of measurement.
2.	The total area of *roof lights* is the combined area for all *roof lights* serving the room or space.
3.	The area of a *roof light* is the area of the roof opening that allows light to enter the building.
4.	The thermal performance of an imperforate ceiling diffuser may be included in the *Total System U-Value* and *Total System SHGC* of the *roof light*.
5.	The total area of *roof lights* serving the room or space as a percentage of the *floor area* of the room or space must not exceed 5% unless allowed by J1.4(b).

OPTIONS FOR EACH PART OF AN EXTERNAL WALL THAT IS PART OF AN ENVELOPE (Table J1.5a)

Climate zone	Options
1, 2 and 3	(a) (i) Achieve a minimum *Total R-Value* of 3.3. (ii) The minimum *Total R-Value* in (i) is reduced— (A) for a wall with a surface density of not less than 220 kg/m^2, by 0.5; and (B) for a wall that is— (aa) facing the south orientation as described in Figure J2.3, by 0.5; or (bb) shaded with a projection shade angle in accordance with Figure J1.5 of— (AA) 15 degrees to not more than 45 degrees, by 0.5; or (BB) more than 45 degrees, by 1.0; and (C) if the outer surface solar absorptance value is not more than 0.6, by 0.5.
	(b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like— (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.
4, 5 and 6	(a) (i) Achieve a minimum *Total R-Value* of 2.8. (ii) The minimum *Total R-Value* in (i) is reduced— (A) for a wall with a surface density of not less than 220 kg/m^2, by 0.5; and (B) for a wall that is— (aa) facing the south orientation as described in Figure J2.3, by 0.5; or (bb) shaded with a projection shade angle in accordance with Figure J1.5 of— (AA) 30 degrees to not more than 60 degrees, by 0.5; or (BB) more than 60 degrees, by 1.0.
	(b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like— (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.

7	(a) Achieve a minimum *Total R-Value* of 2.8. (b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like— (i) achieve a minimum *Total R-Value* of 1.4; and (ii) satisfy *glazing* energy index Option B of Table J2.4a.
8	(a) Achieve a minimum *Total R-Value* of 3.8.
	(b) Where the wall is an earth retaining wall or earth-berm, achieve a minimum *Total R-Value* of 2.0.

AN ENVELEOPE WALL OTHER THAN AN EXTERNAL WALL - MINIMUM TOTAL R-VALUE (Table J1.5b)

Location			Climate zone							
			1	2	3	4	5	6	7	8
(a)	Where the adjacent enclosed non- *conditioned space* has—		1.0	1.0	Nil	Nil	1.0	1.0	1.5	2.5
	(i)	ventilation of not more than 1.5 air changes per hour of outside air during occupied hours; and								
	(ii)	glazing in the external *fabric* as *required* by Part J2; and								
	(iii)	*roof lights* in the external *fabric* as *required* by J1.4.								
(b)	For other than (a)		2.3	2.3	2.3	1.8	1.8	1.8	2.8	3.8
Note:	When assessing the glazing and *roof lights* as *required* by Part J2 and J1.4, assess the glazing and *roof lights* as if the non- *conditioned space* is the same separate *conditioned space*.									

FLOORS - MINIMUM TOTAL R-VALUE *(Table J1.6)*

Location			*Climate zone*							
			1	2	3	4	5	6	7	8
Direction of heat flow			Upwards	Downwards and upwards		Downwards				
(a)	A slab on ground:									
	(i)	Without an in-slab heating or cooling system	Nil	Nil	Nil	Nil	Nil	Nil	1.0	2.0
	(ii)	With an in-slab heating or cooling system	1.25	1.25	1.25	1.25	1.25	1.25	1.25	2.25
(b)	A suspended floor without an in-slab heating or cooling system where the non- *conditioned space* is—		1.0	1.0	Nil	Nil	1.0	1.0	1.5	2.5
	(i)	enclosed; and								
	(ii)	where mechanically ventilated by not more than 1.5 air changes per hour.								
(c)	A suspended floor with an in-slab heating or cooling system where the non- *conditioned space* is—		1.25	1.25	1.25	1.25	1.25	1.25	1.75	2.75
	(i)	enclosed; and								
	(ii)	where mechanically ventilated by not more than 1.5 air changes per hour								
(d)	For other than (a), (b) or (c)		2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.5
Note: A sub-floor space with not more than 150% of the *required* sub-floor ventilation is considered enclosed.										

18. APPENDIX H – STATUTORY FIRE SAFETY MEASURES

Schedule of Statutory Fire Safety Measures

Measure	Standard of Performance
Access panels, doors and hoppers to fire resisting shafts	BCA2013 Clause C3.13 and tested prototypes (AS 1530.4 – 2005)
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2013 Clause D2.21.
Automatic fire detection and alarm system *(smoke detection system)*	BCA2013 Specification E2.2a and AS 1670.1 – 2004
Automatic fire suppression systems *(Sprinklers)*	BCA2013 Specification E1.5 and AS 2118.1 – 1999
Emergency lighting	BCA2013 Clause E4.2, E4.4 and AS 2293.1 – 2005
Sound System and Intercommunication System for Emergency Purposes (aka EWIS)	BCA2013 Clause E4.9, Specification G3.8 and AS 1670.4 – 2004
Exit signs	BCA2013 Clause E4.5, NSW E4.6, E4.7, E4.8 and AS 2293.1 – 2005
Fire dampers	BCA2013 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2013 Specification C3.4 and AS 1905.1 – 2005
Fire hydrants systems	BCA2013 Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2013 Clause C3.15, Specification C3.15 and AS 1530.4 – 2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Hose reel system	BCA2013 Clause E1.4 and AS 2441 – 2005
Lightweight construction	BCA2013 Specifications C1.8, Clause A2.3 and AS 1530.4-2005
Mechanical air handling system *(automatic shut down of air-handling system)*	BCA2013 Clause E2.2 and AS/NZ 1668.1-1998
Mechanical air handling system *(automatic smoke exhaust system)*	BCA2013 Specification E2.2b
Perimeter vehicle access for emergency vehicles	BCA2013 Clause C2.4
Portable fire extinguishers	BCA2013 Clause E1.6 and AS 2444 – 2001
Wall wetting sprinkler and drencher systems	BCA2013 Clause C3.4, Specification G3.8 and AS 2118.2 – 1995
Warning and operational signs	BCA2013 Clauses C3.6, D1.17, NSW D2.19, D2.23, D3.6, E3.3, E3.9, E3.10, G4.3, NSW H101.8 and NSW H101.10 and Specifications D1.12, E1.8, E3.1 and G3.8

Note that the fire safety schedule may need to be amended subject to the inclusion of a fire engineered alternative solution.