BLACKETT MAGUIRE+ GOLDSMITH

BCA Assessment Report

Phase 2 - State Significant Development Application (SSDA) Documentation

Walsh Bay Arts Precinct
Pier 2 & 3 + Wharf 4 & 5, Waterfront Square

Prepared for: Infrastructure NSW
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REPORT STATUS				
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1. INTRODUCTION

This report has been prepared to verify that Blackett Maguire + Goldsmith Pty Ltd have undertaken a review of the architectural documentation for the proposed redevelopment of Pier 2/3 and the refurbishment of part of Wharf 4/5 of the Walsh Bay Arts precinct (WBAP) against the Building Code of Australia 2016 (BCA).

2. PROJECT DESCRIPTION

The subject site is located on the eastern end of the piers and shoresheds which make up Walsh Bay precinct, and is bounded by Hickson Road to the south. The proposed project consists of two (2) buildings alternatively known as Pier 2/3 and Wharf 4/5.

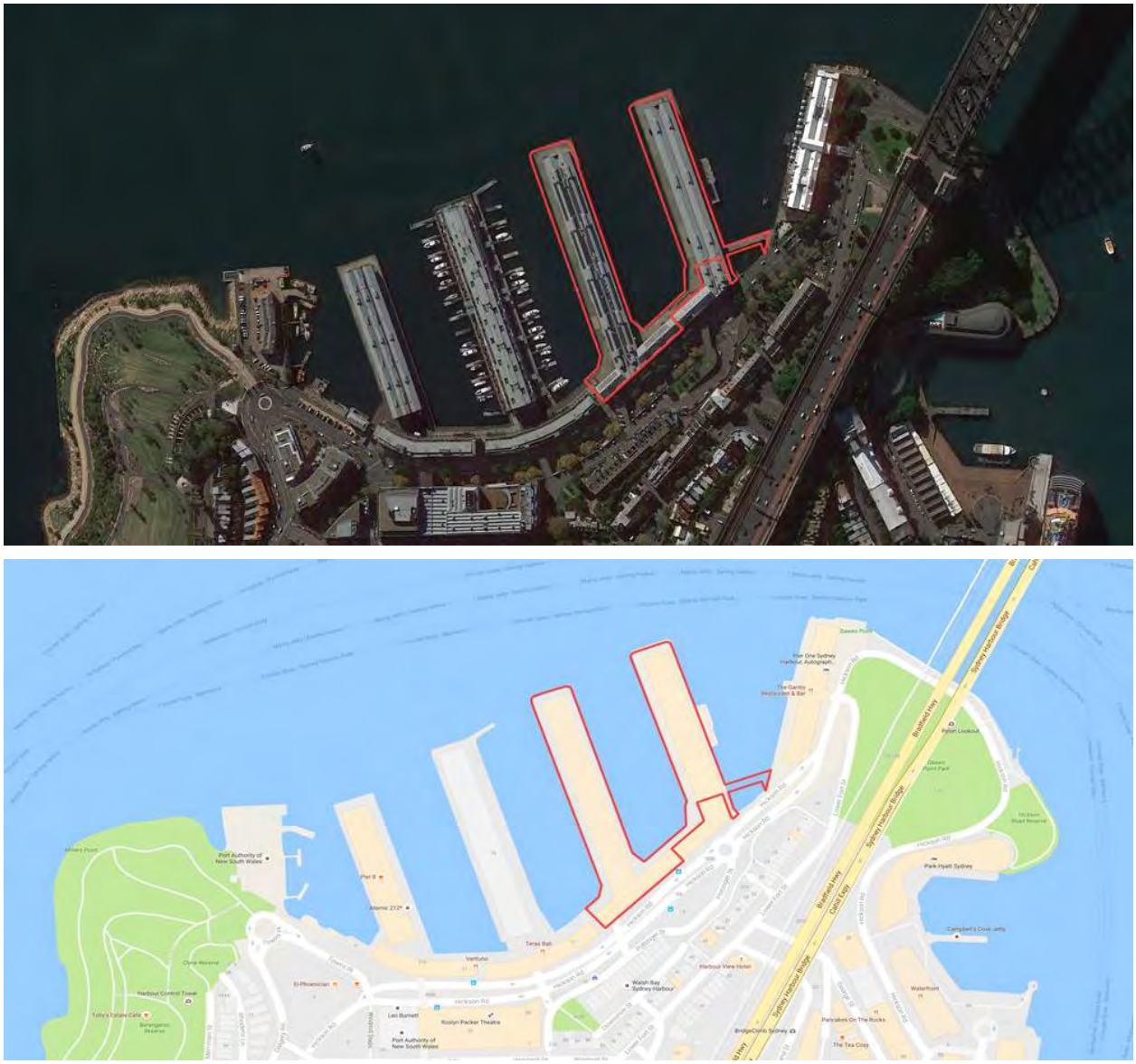

Figure 1: Location Plan

Source: maps.google.com.au

The proposed development comprises the

- The adaptive re-use of Pier 2/3 providing new arts facilities including a 200-seat and a 450-seat theatre, rehearsal rooms, studios, production spaces, associated office space, bars and cafes; a large heritage commercial events/art space to support a wide range of commercial and artistic events;
- Refurbishment of the ground floor arts facilities of Wharf 4/5 and its associated shore sheds; new commercial retail opportunities;
- Creation of a major waterfront public square to become an innovative external platform for collaborative performances, festivals, public art, cafés, restaurants, commercial and community activities; and
- Coordination with the Sydney Theatre Company (STC) to develop the external fabric works to support future internal upgrades to levels 3 and 4 of Wharf 4/5.

3. REPORT OBJECTIVES

The objectives of this report are to:

a) confirm that the referenced documentation has been reviewed by an appropriately qualified Building Surveyor and Accredited Certifier; and

b) confirm that the proposed new building works can readily achieve compliance with the BCA pursuant ultimately to Section 109R of the *Environmental Planning & Assessment Act, 1979*.

4. RELEVANT VERSION OF THE BCA

Pursuant to clause 145(1)(b) the proposed building is subject to compliance with the relevant requirements of the BCA as in force at the time of the invitation for tender.

For the purpose of this report, it is assumed that the date of the invitation for tender will fall between 1 May 2016 and 30 April 2019 and accordingly the proposed development will be subject to compliance with the BCA 2016.

5. LIMITATIONS

The limitations and exclusions of this report are as follows:

- This report is based on a review of the referenced documentation.
- Our assessment with respect to the Disability Discrimination Act 1992 (DDA) is limited to matters covered by the Disabilities (Access to Premises-Buildings) Standards 2010. The building owner should be satisfied that all their obligations under the DDA have been addressed.
- The Report does not address matters in relation to the following:
  i. Local Government Act and Regulations.
  ii. Occupational Health and Safety Act and Regulations.
  iii. WorkCover Authority requirements.
  iv. Water, drainage, gas, telecommunications and electricity supply authority requirements.
- Blackett Maguire + Goldsmith Pty Ltd cannot guarantee acceptance of this report by the Consent Authority, Certifying Authority, NSW Fire Brigades or other approval authorities.
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6. REFERENCED DOCUMENTATION

This report has been prepared based on a review of:

- Building Code of Australia 2016 (BCA)
- Guide to the Building Code of Australia.
- Population Amenities schedule prepared by Tonkin Zulaikha Greer Architects dated 16th October 2016
- Architectural floor plans prepared by Tonkin Zulaikha Greer .

Drawing Number	Date	Drawing Number	Date
A-101	3 November 2016	A-102	3 November 2016
A-103	3 November 2016	A-104	3 November 2016
A-105	3 November 2016	A-106	3 November 2016

- Fire compartmentation plan prepared by Tonkin Zulaikha Greer dated 7 October 2016
- Fire Engineering Memo prepared by ARUP dated 27/10/2016.

7. BUILDING CLASSIFICATION

The new building works have been classified as follows:

Pier 2/3

	Existing	Proposed
▪ **BCA CLASSIFICATION:**	Class 6 Café/Restaurant/Bar Class 9b Assembly Building Class 9b Entertainment Venue	Class 5 Office/Administration Class 6 Café/Restaurant/Bar Class 8 Production workshops Class 9b Assembly Building Class 9b Entertainment Venue
▪ **RISE IN STOREYS:**	3	4
▪ **TYPE OF CONSTRUCTION:**	Type A	Type A
▪ **EFFECTIVE HEIGHT:**	Less than 12m	Less than 12m *(RL3,440 – RL 13,400 = 9.960m)**
▪ **MAXIMUM FLOOR AREA:**	Class 5, 9b - 8,000m^2 Class 6 – 5,000m^2	Class 5, 9b - 8,000m^2 Class 6 – 5,000m^2
▪ **MAXIMUM VOLUME:**	Class 5, 9b - 33,000m^3 Class 6 - 30,000m^3	Class 5, 9b - 33,000m^3 Class 6 - 30,000m^3
▪ **CLIMATE ZONE:**	5	5

Wharf 4/5

	Existing	Proposed
▪ **BCA CLASSIFICATION:**	Class 6 Café/Restaurant/Bar Class 9b Assembly Building Class 9b Entertainment Venue	Class 5 Office/Administration Class 6 Café/Restaurant/Bar Class 8 Production workshops Class 9b Assembly Building Class 9b Entertainment Venue
▪ **RISE IN STOREYS:**	4	4
▪ **TYPE OF CONSTRUCTION:**	Type A	Type A
▪ **EFFECTIVE HEIGHT:**	Less than 12m	Less than 12m
▪ **MAXIMUM FLOOR AREA:**	Class 5, 9b - 8,000m^2 Class 6 – 5,000m^2	Class 5, 9b - 8,000m^2 Class 6 – 5,000m^2
▪ **MAXIMUM VOLUME:**	Class 5, 9b - 33,000m^3 Class 6 - 30,000m^3	Class 5, 9b - 33,000m^3 Class 6 - 30,000m^3
▪ **CLIMATE ZONE:**	5	5

8. MATTERS REQUIRING PLAN AMENDMENTS AND/OR SUBMISSION OF FURTHER INFORMATION

The following comprises a summary of the DTS non-compliances that required either the submission of additional information or further consideration under an Alternative Solution.

	BCA CLAUSE/S	DESCRIPTION
1.	C2.7	Where it is proposed to consider Pier 2/3 and Wharf 4/5 as separate buildings, the existing masonry separating wall between Pier 2/3 and Wharf 4/5 will need to be inspected and verified as to their adequacy by an appropriately qualified Structural Engineer.
2.	C3.5 & C3.6	The method of protection of the various openings proposed within the various fire walls will need to be confirmed and nominated on the architectural documentation as the design develops.
3.	D1.13 & D1.6	The use of the various commercial tenancies to the ground and mezzanine floors will need to be confirmed. It is noted that for the purpose of this clause they have been assessed as a retail shop use. In this regard, where proposed to be used as a restaurant/café bar use this will need to be reviewed further in order to determine the aggregate egress requirements
4.	D1.10	Suitable barriers such as bollards and the like should be placed outside of the required exits where there is the potential for a vehicle to block access or discharge from the exit in the event of an emergency. It is understood that vehicular movement is expected around the outside of the wharfs. In this regard, Bollards will need to be allowed for and should be documented as the design develops
5.	D2.16	All balustrades must comply with the requirements of this clause. Particular attention will need to be paid to any existing balustrades affected by the new works which will need to be upgraded to comply with the requirements of this clause. In this regard, details demonstrating compliance will need to be submitted for review accordingly.
6.	Part D3 & AS 1428.1-2009	Refer Access report for further details regarding the requirements applicable to the proposed development under The Disability (Access to Premises-Buildings) Standards 2010 (the Access to Premises Standards). Notwithstanding the above, we anticipate a number of Alternative Solutions will be developed as the design progresses. In this regard, further consultation with an appropriately qualified Access Consultant will be required.
7.	D2.8	Architect to confirm if there are any storage enclosures proposed under the internal stairways. Where proposed they will need to appropriately fire rated in accordance with this clause. Furthermore where it is not proposed to enclose the space below the non-fire isolated stairways particular attention will need to be given to reduced head height issues that may arise as a result of the position of the stair soffits. In this regard, suitable allowances should be made for barriers and the like to restrict access where applicable.
8.	D2.9	The central stair which is approximately 2.5m wide and required for the purpose of achieving compliant aggregate egress width to Level 1 of Pier 2/3 will need to be provided with a central handrail or alternatively rationalized by the projects Fire Safety Engineer as it is not currently divided by a handrail as it is greater than 2m in width.

	BCA CLAUSE/S	DESCRIPTION
9.	E1.3	New works will need to comply with the requirements under E1.3 and AS 2419.-2005. Having regards to the existing infrastructure, prior to determining the full extent of upgrade works that will be required throughout the building, the current status of the system including the coverage, pressure and flows will need to be confirmed by the projects hydraulic consultant. Outlet locations will need to be noted on the final architectural documentation and submitted to BM+G for review and comment.
10.	E1.4	Hydraulic consultant to review and provide coverage mark-ups demonstrating compliance with the requirements of this clause, also that all points on the floor are provided with fire hose reel coverage in accordance with AS 2441. Outlet locations will need to be noted on the final architectural documentation and submitted to BM+G for review and comment.
11.	E1.5	The new fire suppression system installation is to comply with BCA Specification E1.5 and AS 2118.1-1999, unless otherwise augmented with additional requirements for justification of alternative solutions.
12.	E1.8	Floor area of the subject building is to be confirmed by the project architect. Where in excess of 18,000m2 a fire control centre is to be nominated on the final architectural documentation.
13.	E2.2b (NSW)	Having regards to the smoke hazard management requirements for the subject building we note the following; + Table E2.2b (NSW) – Class 9b Parts: Must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 11 of AS/NZS 1668.1) which does not form part of the smoke hazard management system, on the activation of smoke detectors installed complying with Specification E2.2a; and any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5. + Table E2.2b (NSW) – Class 9b 'Other Assembly Buildings': Any fire compartment exceeding 2,000m^2 must be provided with an automatic smoke exhaust system. ***Note:*** *We understand that it is proposed to divide the subject building into fire compartments to less than 2,000m2 so as to avoid the need for smoke exhaust within the existing building.* *The final location of the proposed fire compartment walls will need to be denoted on the architectural documentation and the maximum fire compartment sizes will need to be confirmed accordingly.* ***Note 1:*** *For the purposes of this Table E2.2b, where a stage is separated from the auditorium by a proscenium wall incorporating a proscenium opening, a backstage room or area that is not separated from the stage by construction having an FRL of not less than 60/60/60, is taken to form part of the stage.* ***Note 2:*** *We understand that there is no flying scenery proposed over the stage as part of the works this will need to be confirmed as the design progresses.*
14.	F2.3 & F2.4	Further to the comments under D1.13 & D1.6 above the proposed use of the various commercial tenancies will need to be confirmed in order to determine the required sanitary facilities. The projects Access Consultant will need to review the proposed accessible sanitary facilities throughout particularly with respect of an accessible sanitary facility not being provided at 50% of the sanitary facilities on each floor, also the provision for ambulant facilities within the dressing rooms. Where strict compliance is not achieved an Alternative Solution will need to be developed and submitted to BM+G for review and comment accordingly.

	BCA CLAUSE/S	DESCRIPTION
15.	F3.1	The referenced plans indicate that there will be reduced head heights in a number of locations within the building particularly within Pier 2/3. In this regard, a suitably qualified BCA Consultant will need to be engaged to prepare an Alternative Solution to address the reduced head heights also the various ceiling projections throughout the building.
16.	H101.12, H101.13 and H101.14	Details will need to be submitted for review as the design progresses particularly with respect of the seating arrangement within each auditorium space.
17.	H101.15	It is understood that the dressing rooms will be located outside of the entertainment venue portion of the building and therefore no additional fire separation will be required under this clause. Final location of fire compartmentation to be confirmed accordingly.
18.	H101.12.6	Egress doorways through the walls of the auditorium must have an aggregate width of at least twice the sum of the clearances specified in Column 3 of Table H101.12 for each row of the auditorium to be served by those doorways. Whilst compliance appears readily achievable, the width provided will need to be confirmed by Architect accordingly to the number of occupants within the auditorium.

9. FIRE SAFETY ENGINEERED ALTERNATIVE SOLUTIONS

The following comprises a summary of the DTS non-compliances that required either the submission of additional information or further consideration under an Alternative Solution.

	BCA CLAUSE/S	DESCRPTION
19.	C2.2 & H101.2	Excessive compartmentation sizes to be rationalised under the proposed Fire Safety Strategy as the design develops
20.	C2.7	Given the inherent conditions within the existing building we anticipate a number of building elements such as; roof trusses, floor joists and bearers, will pass through the proposed fire walls. In this regard, early consultation with the projects Fire Safety Engineer having regards to the proposed fire wall locations will be required accordingly.
21.	C2.8, C2.9 & Specification C1.1	We note that it is proposed under the concept fire safety strategy to rationalise the fire resistance levels throughout the building to generally 60min. This strategy will need to be further developed in consultation with the project stakeholders however we note that it is clear further investigations will need to be undertaken to determine the inherent rating associated with the existing structure and what, if any additional works will be required as part of the Fire Engineered Strategy for the building.
22.	C2.10	As the proposed lifts connect more than three (3) storeys they will need to be contained within a fire resistant shaft complying with Table 3 of Spec C1.1. Architect to note as the design progresses. Where it is proposed to utilise a glass enclosure as part of the shaft itself the construction will need to be rationalised under the Fire Engineered strategy for the building and further consultation with the projects Fire Safety Engineer will be required accordingly
23.	C3.12	It is proposed to rationalise the Fire ratings to the various services shafts equivalent to that required for the remainder of the building. In this regard, further consultation with the projects Fire Safety Engineer will be required accordingly.

	BCA CLAUSE/S	DESCRPTION
24.	D1.3 & C2.11	We note that the non-fire isolated stairways within Pier 2/3 are shown to connect four (4) storeys in a sprinkler protected building in lieu of three (3) and therefore this will need to be rationalised under the fire engineered strategy for the building. In addition to the above, the projects Fire Engineer is to address the lift and stairway being contained within the same fire resistant shaft
25.	D1.4	Exit travel distances generally comply throughout the building with the exception of the following: **Pier 2/3 –** + ***Level 1*** **–** Up to 48m worst case to one of two alternative exits in lieu of 40m from the Chair store, Rehearsal store and Bell rehearsal 1 areas. ***Note 1:*** *Egress from the Bar store and bar area will need to be confirmed.* ***Note 2:*** *Refer also comments below with respect of extended travel distances within the ATYP theatre space.* + ***Level 2*** **-** Up to 34m to a point of choice between alternative exits worst case in lieu of 20m when measured from Dimmer Room, ATYP theatre and the female sanitary facilities + Up to 48m to one of two alternative exits in lieu of 40m when measured from the rack room. **Wharf 4/5** + ***Ground Floor*** **–** Up to 22m to a point of choice between alternative exits worst case when measured from Costume making/laundry space In light of the above, it is clear that further plan amendments will be required to address the extended travel to Lv2, given the extent of the extended travel distances. Notwithstanding, we note that it is expected that the projects Fire Engineer will rationalise extended travel within the building as the design progresses and in this regard further consultation will be required accordingly.
26.	D1.5	Distances between alternative exits will generally comply throughout the building with the exception of the following: **Pier 2/3 –** + ***Level 1*** **–** Up to 80m worst case between alternative exits when measured back through the point of choice from the rehearsal store area. + ***Level 2*** **-** Up to 66m between alternative exits in lieu of 60m when measured through the ACO balcony area. *The above extended travel distances will need to be rationalised by the projects Fire Safety Engineer accordingly.*
27.	D1.6	We note that there will be a number of doorways within the Entertainment Venue parts which are less than 1m (900mm approx.) in unobstructed width. In this regard, the doorways which do not comply with the requirements of the NSW variations are to be nominated and submitted to the projects Fire Safety Engineer in order to rationalise door widths accordingly.
28.	D1.8 & D1.9	By virtue of the connection of the internal and external stairs forming the required exits from the subject building the projects Fire Safety Engineer will need to address the exposure of the external stairs to the existing building having regards to the proximity to the building served being approximately 1m worst case in lieu of 6m, also the means of travel by the internal stairs by virtue of the means of travel being via external stairways, also disconnected internal stairways at each level.
29.	D1.10	The projects Fire Safety Engineer will need to rationalize the path of travel to the road not being open to its sky for its entire length noting that occupants are required to pass under the existing breezeway structures.

	BCA CLAUSE/S	DESCRPTION
30.	D1.16	Access to the plant rooms within Pier 2/3 which are greater than 200m2, is proposed to be via access hatches and ladders complying with AS1657 in lieu of stairways.
31.	D2.9	The width of the central non-fire isolated stair being approximately 2.5m, which is required for the purpose of aggregate egress width, is to be rationalized by the projects Fire Safety Engineer noting that a central handrail is not proposed.
32.	D2.13	It is understood that the external stairways consist of more than 36 risers in consecutive flight without a change in direction. In this regard this will need to be rationalized as part of the proposed Fire Safety Strategy,
33.	D2.19, D2.20 & D2.21	The projects Fire Safety Engineer will need to rationalize the existing sliding doors to the ground floor commercial tenancy noting that they would not be of a type that would comply with the requirements of this clause particularly with respect of the latch type and force required to operate the subject doors. We note that there are a number of doors within the EV parts that are greater than 1m approximately 1.3m in a case where not swung in two leafs. Architect to note doors not complying with this clause including the NSW variations and submit to the Projects Fire Safety Engineer for review and comment accordingly.
34.	E1.3	It is clear that the existing hydrant outlets to Wharf 4/5 will need to be addressed by the projects Fire Safety Engineer given their location being less than 10m from the building served.
35.	E1.4	Having regards to fire hose reel coverage throughout the building, particular attention will need to be paid to the various fire separating walls noting that a fire hose reel must not pass through a fire door in calculating system coverage. In this regard, where there is a shortfall either additional outlets will need to be provided alternatively it will need to be considered by the projects Fire Safety Engineer accordingly.
36.	E1.5	In line with the concept fire engineering brief, we understand that in addition to a compliant sprinkler system as noted above, the building will be provided with fast response sprinkler heads. In this regard, hydraulic consultant to note and make allowances accordingly.
37.	E2.2b (NSW)	Having regards to the smoke hazard management requirements for the subject building we note the following; + An automatic smoke exhaust system complying with Specification E2.2b (including Figure 2.1) is required to be provided over stages more than 50m2 in floor area. We note that there are no backstage areas proposed that would give rise to any additional requirements under this clause. In line with the concept fire safety strategy prepared by ARUP we note that it is proposed to rationalize smoke control systems over the proposed stages. In this regard, a copy of the Fire Engineering Report will need to be submitted for review accordingly. + The fire compartment within Wharf 4/5 which is greater than 2,000m2 (approx. 2060m2) is to be considered under the proposed fire safety strategy particularly with respect of rationalizing smoke exhaust which would otherwise be required. ***Note:*** *We understand that the building will have fire detection and alarm system complying with AS 1670.1-2015 installed throughout in addition to a SSISEP system. In this regard, further consultation with the projects Fire Safety Engineer will be required to determine any additional essential fire safety systems required under the fire safety strategy.*
38.	G3	We note by virtue of the void spaces the building will contain an atrium between Ground and Second Floor. It is clear however that this will need to be addressed by the projects Fire Safety Engineer noting that compliance with this part will not be achieved.

	BCA CLAUSE/S	DESCRPTION
39.	H101.11	We note that some of the configurations of the Theatre options will result in departures from the prescriptive requirements of Clause 101.11
40.	H101.12.6	Having regards to the doorways serving the auditorium, particular attention will need to be paid to the provision of egress doors though the wall of the auditoriums at each end of every fifth row, excluding the first 2 rows and the last 2 rows in the auditorium if those rows each contain no more than 16 seats. Where strict compliance cannot be achieved, further consultation with the projects Fire Safety Engineer will be required to rationalise the location of egress doors.

10. CONCLUSION

This report contains an assessment of the referenced architectural Phase 1 concept design drawings for the proposed redevelopment of Pier 2+3 and Wharf 4+5 at the Walsh Bay Arts Precinct buildings on Hickson Road, Sydney against the deemed-to-satisfy provisions of the Building Code of Australia 2016 (BCA).

Arising from the assessment, we are of the opinion that the subject development can readily achieve compliance with the BCA by way of compliance with the BCA DTS provisions and via Performance Solutions from practising Fire Engineers and Accessibility Consultants.

APPENDIX 1: CLAUSE-BY-CLAUSE BCA ASSESSMENT

KEY:

- **Alternative Solution** — Will required further consideration under an Alternative Solution
- **Complies**: — The referenced plans show compliance with this clause
- **Does not comply**: — The referenced plans do not comply with this clause
- **Further information required**: — Whilst the referenced plans do not show sufficient information to establish compliance with this clause it is considered that compliance is readily achievable. In this regard, further details and/or design certification, should be submitted with the application for Crown Certificate to the satisfaction of the Accredited Certifier.
- **Noted**: — Provisions contained within this BCA clause are provided for guidance, or are to be read in conjunction with other BCA clauses.
- **Not applicable**: — This clause is not applicable to the proposed development.

CLAUSE	REFERENCE	COMMENT
SECTION A – GENERAL PROVISIONS		
Part A3.2	Classification	Class 5 Office/Administration Class 6 Café/Restaurant/Bar Class 8 Production workshops Class 9b Assembly Building Class 9b Entertainment Venue ***Note-*** *In accordance with A3.3 of the BCA where the workshop areas constitute less than 10% of the floor area of the major use the classification of the major use has been extended throughout.*
SECTION B – STRUCTURE		
Part B1	***Structural Provisions***	
B1.2	Determination of individual actions	**Noted** Structural engineering details prepared by an appropriately qualified structural engineer must be submitted prior to issue of the Construction Certificate. ***Note:*** *The projects structural engineer will need to pay particular attention to the Importance level as required under Section B of the BCA (Table B1.2a)*
B1.3	Loads	**Noted** As above
B1.4	Materials & Forms of Construction	**Noted** The structural resistance of materials and forms of construction must be determined in accordance with the following, details of which should accompany the Application for Construction Certificate: + Masonry (including masonry-veneer, unreinforced masonry and reinforced masonry): AS 3700. + Concrete construction (including reinforced and prestressed concrete): AS 3600. + Steel construction— (i) Steel structures: AS 4100.

CLAUSE	REFERENCE	COMMENT
		(ii) Cold-formed steel structures: AS/NZS 4600. + Composite steel and concrete: AS 2327.1. + Aluminium construction: AS/NZS 1664.1 or AS/NZS 1664.2. + Timber construction: (i) Design of timber structures: AS 1720.1. (ii) Timber structures: AS 1684 Part 2, Part 3 or Part 4. + Piling: AS 2159. + Glazed Assemblies: (i) The following glazed assemblies in an external wall must comply with AS 2047: (A) Windows excluding those listed in (ii). (B) Sliding doors with a frame. (C) Adjustable louvres. (D) Shopfronts. (E) Window walls with one piece framing. (ii) All glazed assemblies not covered by (i) including the following glazed assemblies must comply with AS 1288 as applicable to the subject development: (A) All glazed assemblies not in an external wall. (B) Hinged doors, including French doors and bi-fold doors. (C) Revolving doors. (D) Fixed louvres. (F) Sliding doors without a frame. (G) Shopfront doors. + Termite Risk Management: Where a primary building element is subject to attack by subterranean termites: AS 3660.1.
SECTION C - FIRE RESISTANCE		
Part C1	***Fire Resistance & Stability***	
C1.1	Type of Construction	**Noted** Type A Construction is required. Building elements are required to achieve the required FRL's nominated under Table 3 of Specification C1.1 (refer to comments below under Specification C1.1 & Appendix 2).
C1.2	Calculation of Rise In Storeys	**Noted** Upon completion of the works the buildings will have a Rise in Storeys of four (4);
C1.3	Buildings of Multiple Classification	**Noted** Type A Construction applies.
C1.4	Mixed Types of Construction	**Noted** TYPE A construction will apply throughout.
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 & Indoor Sports Stadiums	**Not Applicable**

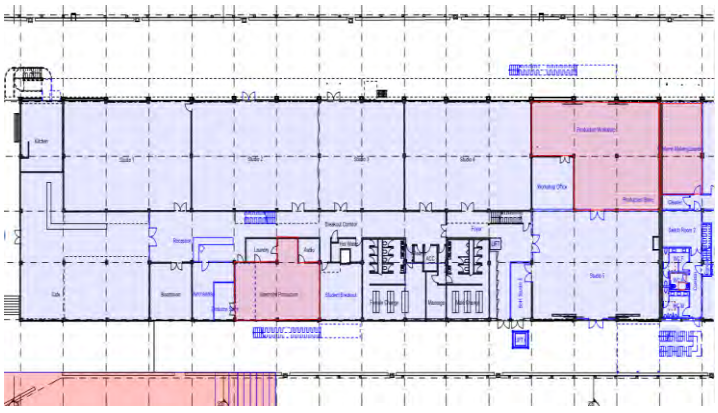
CLAUSE	REFERENCE	COMMENT
C1.8	Lightweight Construction	**Further Information Required** Lightweight construction must comply with Specification C1.8 if it is used in a wall system that is required to have an FRL. If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if— (i) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and (ii) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material. Particular attention will need to be paid to any proposed lightweight separating construction as part of the compartmentation strategy for the subject building and rationalisation of fire resistance levels within the building under the Fire Safety Strategy. In this regard, further consultation with the projects Fire Safety Engineer will be required. Architect to note during the design development and confirm the full extent of lightweight construction required as the design develops. ***Note:*** *Details demonstrating compliance along with Installation Certification will need to be provided prior to the Occupation Certificate accordingly.*
C1.9	*Repealed*	-
C1.10	Early Fire Hazard Properties	**Further Information Required** The fire hazard properties of any proposed floor or wall finishes, assemblies, or sarking material are to comply with Specification C1.10 and C1.10a. Product data sheets and/or test reports showing the fire hazard properties of materials complying with C1.10 will need to be provided prior to issue of the Occupation Certificate accordingly. ***Note:*** *Refer also the requirements under the NSW variations which are applicable to Entertainment Venues.*
C1.11	Performance of External Walls	**Not Applicable**
C1.12	Non-Combustible Material	**Noted.** Materials listed in clause C1.12, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required.
Part C2	**Fire Compartmentation & Separation**	
C2.1	Application	**Noted.**
C2.2	General Floor Area Limitations	**Further Information Required.** Following an assessment of the fire compartmentation plans provided by TZG architects dated 7/10/16 we note that the building will comply with the maximum floor area limitations set out in this clause. Volume to be confirmed, however we note that compliance is readily achievable.
C2.3	Large Isolated Buildings	**Not applicable**
C2.4	Requirements for open space	**Not applicable**
C2.5	Class 9a & 9c Buildings	**Not applicable**
C2.6	Vertical separation of openings in external Walls	**Complies.** We note that the existing building is provided with a sprinkler system throughout.

CLAUSE	REFERENCE	COMMENT
C2.7	Separation by fire walls	**Further Information Required/Alternative Solution** Fire walls must be constructed in accordance with the following: + Fire walls must be constructed so that it achieves the relevant FRL prescribed by Spec C1.1 for each respective part and if they are different the greater of the adjoining part. (i.e. 120min Class 9b, 180min Class 6 and 240min Class 8) + Fire Walls must extend to the underside of a floor with the same FRL, or to the underside of a non-combustible roof covering. + Any openings in a fire wall must not reduce the, except where permitted by the Deemed-to-Satisfy Provisions of Part C3 (i.e. fire doors; protection of services). + Building elements, other than roof battens with dimensions of 75mm x 50mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire resisting performance of the fire wall is maintained. + A part of building separated from the remainder of the building by a fire wall may be treated as a separate building for the purposes of the provisions of Sections C, D and E if the wall concerned extends through all storeys and spaces in the nature of the storeys, carried to the underside of the roof covering. Notwithstanding there are additional requirements where one of the roofs is lower than the roof of another part. We note that the building is to be divided up into fire compartments not exceeding 2,000m2 as per the fire compartmentation plan prepared by TZG architects dated 7/10/16, with the exception of 4/5 south (Refer below)

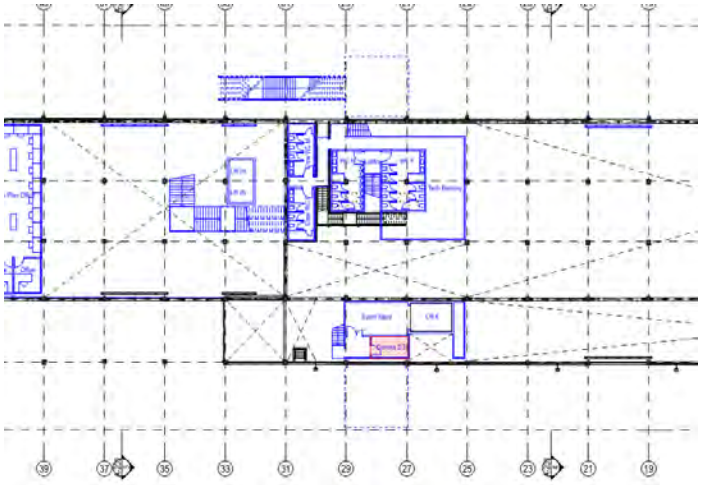
Fire Compartment	Level	Floor Area
2/3 CENTRAL		
	GROUND FLOOR	668
	LEVEL 1	742
	LEVEL 2	412
	MEZZANINE	100
		1,922 m²
2/3 NORTH LOWER		
	GROUND FLOOR	1,665
	MEZZANINE	49
		1,714 m²
2/3 NORTH UPPER		
	LEVEL 1	1,118
	LEVEL 2	506
		1,624 m²
2/3 SOUTH		
	GROUND FLOOR	748
	LEVEL 1	410
	LEVEL 2	172
	MEZZANINE	429
		1,759 m²
4/5 NORTH		
	GROUND FLOOR	1,190
	MEZZANINE	41
	MEZZANINE	581
		1,812 m²
4/5 SOUTH		
	GROUND FLOOR	1,758
	MEZZANINE	302
		2,060 m²
4/5 SOUTH (CLASS 5)		
	MEZZANINE	436
		436 m²

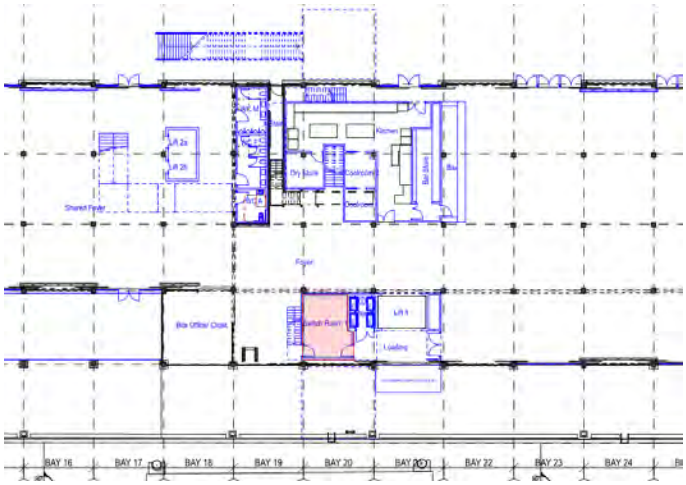
Figure 1: Proposed Fire compartmentation sizes as nominated by TZG architects (draft)

Note: *Refer also comments later in this report with respect of smoke exhaust requirements over stages greater than 150m2*

CLAUSE	REFERENCE	COMMENT
		and 9b parts greater than 2,000m2 The fire walls bounding the class 8 and 6 parts will need to be reviewed by the projects Fire Safety Engineer particularly with respect of the rationalising the FRL's to the fire walls bounding these parts. Given the inherent conditions within the building we anticipate a number of building elements such as; roof trusses, floor joists and bearers, will pass through the proposed fire walls. In addition, we note that the floor will not achieve the required FRL for the fire wall concerned. In this regard, the Projects Fire Safety Engineer will need to consider these penetrations under the proposed Fire Safety Strategy accordingly as the design progresses. Moreover, where the buildings are considered separate buildings in accordance with the requirements of this clause, the existing masonry wall between Pier 2/3 and Wharf 4/5 will need to be inspected and verified as to their adequacy by an appropriately qualified Structural Engineer accordingly. ***Note 1:*** *Refer also the comments under C2.8 and C2.9 below with respect of separation between classifications.* *Note 2: Further to the comments above, refer also* ***H101.2 Fire Separation*** *covered later in this report with respect of the additional requirements applying as a result of the Entertainment Venue classification.*
C2.8	Separation of classifications in the same storey	**Alternative Solution** As no fire separation is proposed between the Class 6, Class 8 and Class 9b parts, the deemed-to-satisfy provisions of the BCA require the FRL each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned, i.e. generally 3hr class 6 and 4hr fire rating arising from the Class 8 classification. Notwithstanding the above, we note that a fire engineered Alternative Solution is proposed for reduced FRLs having regard to the Class 6/8 parts respectively given that they comprise a minor portion of the development and the sprinkler protection throughout the development.  *Figure 2:Area of concern with respect of separation between classifications (Wharf4/5)* ***Note:*** *Refer also the comments under Spec C1.1 with regards to Fire Engineered Strategy to rationalize a reduction in FRL's to 60min throughout in lieu of 120min.*

CLAUSE	REFERENCE	COMMENT
C2.9	Separation of classifications in different storeys	**Alternative Solution** Where parts of different classification are situated one above the other in adjoining storeys the floor between the adjoining parts must have an FRL of not less than that prescribed in Specification C1.1 for the classification of the lower storey. We note that it is proposed to rationalize reduced FRL's throughout including the separating floors to 60min. Further consultation with the projects fire safety engineer will be required to determine the full trial design requirements and any additional works required to the existing structure. Note: Refer also comments above with respect of separation between separate classifications.
C2.10	Separation of lift shafts	**Further Information Required/Alternative Solution** Any lift which connects more than 2 storeys, or more than 3 storeys if the building is sprinklered, (other than lifts which are wholly within an atrium) must be separated from the remainder of the building by enclosure in a shaft in which— (i) in a building required to be of Type A construction—the walls have the relevant FRL prescribed by Specification C1.1; and (ii) in a building required to be of Type B construction — the walls— (A) if loadbearing, have the relevant FRL prescribed by Table 4 of Specification C1.1; or (B) if non-loadbearing, be of non-combustible construction. Moreover any openings for lift landing doors and services must be protected in accordance with the requirements of Part C3 of the BCA. In light of the above, particular attention will need to be paid to the new lifts proposed which connect more than three (3) floors in a sprinkler protected building and therefore are required to be within a fire resistant shaft complying with Table 3 of Spec C1.1 accordingly. In this regard, architect to note and specify the shaft construction accordingly. Where it is proposed to utilise a glass enclosure the construction will need to be rationalised under the Fire Engineered strategy for the building. ***Note:*** *Refer also the comments under C2.11 below having regards to the proposed lifts and the non-fire isolated stairway connecting all floors.*
C2.11	Stairways and lifts in one shaft	**Alternative Solution** A stairway and lift must not be within the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft. Further to the comments above, particular attention will need to be paid to the proposed non-fire isolated stairways serving all floors within Pier 2/3 which upon completion of the works will be within the same fire resistant shaft. The projects Fire Safety Engineer will need to develop an Alternative Solution addressing the stair/lift being contained within the same fire resistant shaft in the proposed Fire Engineered Strategy. ***Note:*** *Refer also D1.3 below with regards to the number of storeys connected by the internal non-fire isolated stairway.*

CLAUSE	REFERENCE	COMMENT
C2.12	Separation of equipment	**Further Information Required** (a) Equipment other than that described in (b) and (c) must be separated from the remainder of the building with construction complying with (d), if that equipment comprises (i) lift motors and lift control panels; or (ii) emergency generators used to sustain emergency equipment operating in emergency mode; or (iii) central smoke control plant; or (iv) boilers; or (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours; (b) Equipment need not be separated in accordance with (a) if the equipment comprises— (i) smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or (ii) stair pressurising equipment installed in compliance with the relevant provisions of AS/NZS 1668.1; or (iii) a lift installation without a machine-room; or (iv) equipment otherwise adequately separated from the remainder of the building. (c) Separation of on-site fire pumps must comply with the requirements of AS 2419.1. (d) Separating construction must have— (i) except as provided by (ii)— (A) an FRL as *required* by Specification C1.1, but not less than 120/120/120; and (B) any doorway protected with a *self-closing* fire door having an FRL of not less than –/120/30; or (ii) when separating a lift *shaft* and lift motor room, an FRL not less than 120/-/-. Particular attention will need to be paid to the various comms rooms which may contain batteries greater than the limitations set out above. Electrical consultant to confirm and where applicable, fire ratings will need to be noted on the final architectural documentation accordingly.  *Figure 3: Typical example of proposed comms room's which will require further consideration*

CLAUSE	REFERENCE	COMMENT
C2.13	Electricity supply system	**Further Information Required** Where the proposed switchroom will sustain emergency equipment operating in the emergency mode it must be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and have any doorway in that construction protected with a self-closing fire door having an FRL of not less than - /120/30. All switchboards in the electrical distribution system, which sustain the electricity supply to the emergency equipment, must provide full segregation by way of enclosed metal partitions designed to prevent the spread of any fault from non-emergency equipment switchgear to the emergency equipment switchgear. Where applicable, fire ratings to be noted on the final architectural documentation. Particular attention should be paid to the proposed switch rooms within the building such as Switch room 1 and 2 to the ground floor as shown in the figure below.  *Figure 4: Typical example of proposed switch room location requiring further review.*
C2.14	Public corridors in Class 2 & 3 buildings	**Not applicable**
Part C3	***Protection of Openings***	
C3.1	Application of Part	**Noted**
C3.2	Protection of openings in external walls	**Complies** Openings in external walls will be situated more than 3m from the rear (northern) allotment boundary, and more than 6m from the far boundary of the adjoining roads. ***Note:*** *We note that where it is proposed to treat Pier 2/3 and Wharf 4/5 as separate buildings it will not give rise to any additional protection requirements under this clause because the buildings will not be exposed to a fire source feature.*

CLAUSE	REFERENCE	COMMENT
C3.3	Separation of openings in different fire compartments	**Further Information Required** This clause sets out requirements for fire ratings and protection of opening requirements where one part is exposed to another as noted under Table C3.5. Whilst we note that there are a number of fire walls proposed to form fire compartments that have floor areas of not more than 2000m2, it is not anticipated to give rise to any exposure issues or the requirement for additional protection of opening. Notwithstanding the above, given the location of the proposed fire walls are yet to be determined this will need to be further assessed as the design progresses.
C3.4	Acceptable methods of protection	**Further Information Required** Where protection is required, doorways, windows and other openings must be protected as follows: (i) Doorways: wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing, or –/60/30 fire doors (self-closing or automatic closing). (ii) Windows: wall-wetting sprinklers as appropriate used with windows that are automatic or permanently fixed in the closed position, –/60/– fire windows (automatic or permanently fixed in the closed position) or –/60/— automatic fire shutters. (iii) Other openings: wall-wetting sprinklers as appropriate or construction having an FRL not less than –/60/–. Where required, method of protection to be denoted on final architectural documentation accordingly.

CLAUSE	REFERENCE	COMMENT
C3.5	Doorways in fire walls	**Further Information Required** (a) The aggregate width of openings for doorways in a fire wall, which are not part of a horizontal exit, must not exceed ½ of the length of the fire wall, and each doorway must be protected by— (i) 2 fire doors or fire shutters, one on each side of the doorway, each of which has an FRL of not less than ½ that required by Specification C1.1 for the fire wall except that each door or shutter must have an insulation level of at least 30; or (ii) a fire door on one side and a fire shutter on the other side of the doorway, each of which complies with (i); or (iii) a single fire door or fire shutter which has an FRL of not less than that required by Specification C1.1 for the fire wall except that each door or shutter must have an insulation level of at least 30. (b) (i) A fire door or fire shutter required by (a) (i), (a)(ii) or (a)(iii) must be self-closing, or automatic closing in accordance with (ii) and (iii). (ii) The automatic closing operation must be initiated by the activation of a smoke detector, or any other detector deemed suitable in accordance with AS 1670.1 if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located on each side of the fire wall not more than 1.5 m horizontal distance from the opening. (iii) Where any other required suitable fire alarm system, including a sprinkler system complying with Specification E1.5, is installed in the building, activation of the system in either fire compartment separated by the fire wall must also initiate the automatic closing operation. Particular attention will need to be paid to any proposed openings within the fire walls proposed. Architect to note the above and specify protection of doorways accordingly.
C3.6	Sliding fire doors	**Further Information Required** We understand that it is proposed to introduce a sliding fire door between the commercial 1 and foyer space within Pier 2/3 for the purpose of the compartmentation strategy. Location of sliding fire door to be shown on final architectural documentation accordingly. ***Note:*** *The findings of this report have considered this sliding door location particularly with respect of egress requirements.*
C3.7	Protection of doorways in horizontal exits	**Not Applicable** We understand that there are no horizontal exits proposed as part of the works.

CLAUSE	REFERENCE	COMMENT
C3.8	Openings in fire isolated exits	**Further Information Required** Doorways that open into the fire-isolated stairways must be protected by –/60/30 FRL fire doors that are self-closing, or automatic-closing in accordance with the following: (i) The automatic-closing operation must be initiated by the activation of a smoke detector, or a heat detector if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located not more than 1.5 m horizontal distance from the approach side of the opening. (ii) Where any other required suitable fire alarm system, is installed in the building, activation of the system must also initiate the automatic-closing operation. We note that there are no fire isolated exits proposed to which this clause would apply.
C3.9	Service penetrations in fire Isolated exits	**Not Applicable** The fire-isolated exit must not be penetrated by any services other than: (a) electrical wiring permitted by BCA cl. D2.7(e) to be installed within the exit; or (b) ducting associated with a pressurisation system if it— (i) is constructed of material having an FRL of not less than –/120/60 where it passes through any other part of the building; and (ii) does not open into any other part of the building; or (c) water supply pipes for fire services. We note that there are no fire isolated exits proposed to which this clause would apply.
C3.10	Openings in fire isolated lift shafts	**Further Information Required** (a) Doorways: The entrance doorways to the lift shafts must be protected by –/60/– fire doors that comply with AS 1735.11; and are set to remain closed except when discharging or receiving passengers or goods. (b) Lift indicator panels: A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000 mm^2 in area. The proposed lift shafts will need to comply with the requirements of this clause. Architect to note during the design development.
C3.11	Bounding construction Class 2, 3 and 4 buildings	**Not applicable**

CLAUSE	REFERENCE	COMMENT
C3.12	Openings in floors and ceilings for services	**Further Information Required/Alternative Solution** Where a service passes through the new floors, or a ceiling required to have a resistance to the incipient spread of fire, the service must be protected by a shaft complying with Specification C1.1, or in accordance with C3.15. Where a service passes through a floor which is required to be protected by a fire-protective covering, the penetration must not reduce the fire performance of the covering. By virtue of the building being of TYPE A construction the service must be protected by a shaft complying with the requirements of Spec C1.1, alternatively the requirements of C3.15 of the BCA. ***Note:*** *Notwithstanding the requirements above, given the reduction in FRL's throughout the subject building, there may be scope for a Fire Engineered Alternative Solution to rationalise the ratings to service shafts equivalent to that of the fire compartment concerned. This will need to be further developed as part of the Fire Safety Strategy for the subject building.*
C3.13	Openings in shafts	**Further Information Required** an opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be protected by— (a) if it is in 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 (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an FRL of not less than –/60/30; or (d) if the shaft is a garbage shaft — a door or hopper of non-combustible construction. Penetrations within shafts will need to comply with the requirements of this clause. In this regard, architect to note during the design development and specify protection accordingly.
C3.14	Repealed	-
C3.15	Openings for service installations	**Further Information Required** Where electrical, plumbing, mechanical ventilation, air-conditioning or other service penetrates a building element (other than an external wall or roof) that is required to have an FRL or a resistance to the incipient spread of fire that installation must comply with clause C3.15. Penetrations through fire rated elements within the building will need to be protected in accordance with the requirements of this clause. Services consultants to note with particular attention being paid to the large number of fire walls proposed within the building.
C3.16	Construction Joints	**Further Information Required** Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL.

CLAUSE	REFERENCE	COMMENT
C3.17	Columns protected with lightweight construction to achieve an FRL	**Further Information Required** A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL or resistance to the incipient spread of fire. Note: Notwithstanding the above, we note that it is proposed to rationalise fire ratings to the existing building including the existing internal loadbearing columns. A copy of the Fire Engineering Report will need to be provided to BM+G for review and comment accordingly.
SPEC C1.1 Fire Resistance Construction		
1.	Scope	**Noted**
2.1	Exposure to fire source feature	**Noted**
2.2	Fire protection for support of another part	**Further Information Required** (a) 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, subject to (b), must— (i) have an FRL not less than that required by other provisions of this Specification; and (ii) if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required— (A) for the supporting part itself; and (B) for the part it supports; and (iii) be non-combustible— (A) if required by other provisions of this Specification; or (B) if the part it supports is required to be non-combustible. (b) The following building elements need not comply with (a)(ii) and (a)(iii)(B): (i) A roof providing lateral support it complies with Clause 3.5(a), (b) or (d); (ii) A column providing lateral support to a wall where the column complies with Clause 2.5(a) and (b). (iii) An element providing lateral support to a fire wall or fire-resisting wall, provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall.
2.3	Lintels	**Further Information Required**
2.4	Attachments not to impair fire-resistance	**Further Information Required** (a) 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— (i) the material is exempted under C1.10 or complies with the fire hazard properties prescribed in— (A) Clause 2 of Specification C1.10; or (B) Clause 2 and 3 of Specification C1.10a; and (ii) it is not located near or directly above a required exit so as to make the exit unusable in a fire; and (iii) it does not otherwise constitute an undue risk of fire spread via the facade of the building. (b) The attachment of a facing or finish, or the installation of ducting or any other service, to a part of a building required

CLAUSE	REFERENCE	COMMENT
		to have an FRL must not impair the required FRL of that part.
2.5	General concessions	**Further Information Required** Structures on roofs — A non-combustible structure situated on a roof need not comply with the other provisions of this Specification if it only contains:- (i) lift motor equipment; or (ii) one or more of the following: (A) Hot water or other water tanks. (B) Ventilating ductwork, ventilating fans and their motors. (C) Air-conditioning chillers. (D) Window cleaning equipment. (E) Other service units that are non-combustible and do not contain combustible liquids or gases.
2.6	Mezzanine floors: Concession	**Further Information Required** Not Applicable
2.7	Shafts	**Further Information Required** 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, except that these provisions need not apply to— (a) the top of a shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway or ramp; or (b) the bottom of a shaft if it is non-combustible and laid directly on the ground.
2.8	Carparks in Class 2 & 3 buildings	**Not Applicable**
2.9	Residential Aged care buildings	**Not Applicable**
3.1	Type A Construction	**Alternative Solution** In a building required to be of Type A construction— (a) each building element listed in Table 3 and any beam or column incorporated in it, must have an FRL not less than that listed in the Table for the particular Class of building concerned; and (b) external walls, common walls and the flooring and floor framing of lift pits must be non-combustible; and (c) any internal wall required to have an FRL with respect to integrity and insulation must extend to— (i) the underside of the floor next above; or (ii) the underside of a roof complying with Table 3; or (iii) if under Clause 3.5 the roof is not required to comply with Table 3, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or roof sarking, must not be crossed by timber or other combustible building elements; or (iv) a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes; and (d) a loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be of concrete or masonry; and (e) a non-loadbearing— (i) internal wall required to be fire-resisting; and (ii) lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion,

CLAUSE	REFERENCE	COMMENT
		must be of non-combustible construction; and (f) the FRLs specified in Table 3 for an external column apply also to those parts of an internal column that face and are within 1.5 m of a window and are exposed through that window to a fire-source feature. Notwithstanding the requirements under this Specification, we note that under the proposed Fire Engineering Strategy it is proposed to rationalise FRL's from generally 120min to 60min. Further to the comments under C2.2, C2.8 and C2.9 we note that it is proposed to rationalise FRL's to the class 8 and 6 parts on the basis that the building is sprinkler protected throughout. In light of the above, a copy of the Fire Engineering Report will need to be submitted for review and comment. ***Note:*** *Refer also comments above with respect of rationalising the ratings to the service shafts equivalent to that required under the proposed fire safety strategy. In addition, ratings between different classifications.*
3.2	Concessions for floors	**Further Information Required** A floor need not comply with Table 3 if it is laid directly on the ground; or it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the required FRL. ***Note:*** *The flooring to the platform seating need only be fire rated if the space below is accessible for storage or the like. In this regard, the full extent of fire separation will need to be confirmed as the design progresses.*
3.3	Floor loading of Class 5 and 9b buildings: Concession	**Further Information Required** It is assumed for the purpose of this clause that the building will need to be designed for a live load exceeding 3kPa.
3.4	Roof superimposed on concrete slab: Concession	**Not applicable**
3.5	Roof: Concession	**Further Information Required** As the building will be sprinkler protected throughout, the roof need not comply with Table 3 of BCA Specification C1.1 provided that its roof covering is non-combustible.
3.6	Rooflights	**Further Information Required** As the roof is required to be non-combustible, rooflights or the like installed in that roof must— (a) have an aggregate area of not more than 20% of the roof surface; and (b) be not less than 3 m from— (i) any boundary of the allotment other than the boundary with a road or public place; and (ii) any part of the building which projects above the roof unless that part has the FRL required of a fire wall and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with C3.4; and (iii) any rooflight or the like in an adjoining sole-occupancy unit if the walls bounding the unit are required to have an FRL; and (iv) any rooflight or the like in an adjoining fire-separated section of the building. ***Note:*** *We note that there does not appear to be any roof lights requiring further consideration under this clause.*

CLAUSE	REFERENCE	COMMENT
3.7	Internal columns and walls: Concession	**Further Information Required** In the storey immediately below the roof, loadbearing internal columns and internal walls (other than fire walls) need not have an FRL.
3.8	Open spectator stands and indoor sports stadiums	**Not Applicable**
3.9	Carparks	**Not Applicable**
3.10	Class 2 buildings: Concession	**Not Applicable**
4	Type B Construction	**Not Applicable**
5	Type C Construction	**Not Applicable**

SECTION D - ACCESS AND EGRESS		
PART D1	***Provision for Escape***	
D1.1	Application	Part D1 applies to the subject building.
D1.2	Number of exits required	**Complies** The number of required exits is also derived from the exit travel distance, aggregate egress width and distances between alternative exits. We note that compliance with this clause is currently achieved. ***Note 1:*** *Refer comments under D1.12 below with respect of the connection of the internal non-required stairways* ***Note 2:*** *NSW H101.7 contains additional provisions relating to number of exits applying to a grid or rigging loft (refer to comments below).* ***Note 3:*** *We note that the various commercial spaces to the mezzanine area will be provided with a single non-fire isolated exit for the purpose of achieving compliance with this clause. The final location will need to be noted on the final architectural documentation however compliance is currently achieved.*
D1.3	When Fire isolated exits are required	**Alternative Solution** We note that the non-fire isolated stairways within Pier 2/3 connect four (4) storeys in a sprinkler protected building in lieu of three (3) and therefore are required to be constructed as fire isolated stairways under the BCA. Notwithstanding, we understand that this will be rationalised under the fire engineered strategy for the building. In this regard, a copy of the Fire Engineering Report will need to be submitted to BM+G for review and comment accordingly. ***Note:*** *Refer also C2.11 with respect of the proposed Fire Engineered Alternative solution with respect of the stairs and lift being contained within the same fire isolated shaft.*
D1.4	Exit Travel Distances	**Further Information Required/Alternative Solution** Exit travel distances generally comply with the BCA DTS provisions with the exception of the following: **Pier 2/3 –** + ***Ground Floor*** – Complies + ***Mezzanine*** – Complies ***Note 1:*** It is understood that access through the workshop office will be provided for the occupants of the open plan office. ***Note 2:*** *Refer also comments under D1.2 above with respect of additional exits required to this storey.* + ***Level 1*** – Up to 48m worst case to one of two alternative exits in lieu of 40m from the Chair store, ATYP theatre, Rehearsal store and Bell rehearsal 1 areas. ***Note 1:*** *Egress from the Bar store and bar area will need to be confirmed.* ***Note 2:*** *Refer also comments below with respect of extended travel distances within the ATYP theatre space.* + ***Level 2*** - Up to 34m to a point of choice between alternative exits worst case in lieu of 20m when measured from Dimmer Room and the female sanitary facilities - Up to 48m to one of two alternative exits in lieu of 40m when measured from the rack room.

		Wharf 4/5 + ***Ground Floor –*** Up to 22m to a point of choice within Studio 1 in lieu of 20m when measured from the north western end of the room. + ***Mezzanine –*** *Complies* ***Note:*** *Egress from the Mechanical plant area will need to be confirmed.* + ***Level 1 & 2 –*** *Outside of scope* **Shore Sheds –** + ***Ground Floor –*** Complies ***Note:*** Egress from the various commercial spaces will need to be confirmed. + ***Mezzanine –*** *Complies* ***Note:*** Egress from the various commercial spaces will need to be confirmed. This will be subject to a further review as a result of future tenancy fit out works. + ***Level 1 & 2 –*** *Outside of scope* In light of the above, either further plan amendments will be required alternatively the above will need to be rationalised under the proposed Fire Engineering strategy for the building. A copy of the Fire Engineering Report will need to be submitted for review accordingly. ***Note 2:*** *The travel distances above will be subject to further review as the design progresses.*
D1.5	Distances between alternative exits	**Further Information Required/Alternative Solution** Distances between alternative exits will comply with the BCA DTS provisions with the exception of the following. **Pier 2/3 –** + ***Ground Floor –*** Complies + ***Mezzanine –*** Complies + ***Level 1 –*** Up to 80m worst case between alternative exits when measured back through the point of choice from the rehearsal store area. + ***Level 2 -*** Up to 66m between alternative exits in lieu of 60m when measured through the ACO balcony area. **Wharf 4/5** + ***Ground Floor –*** Complies + ***Mezzanine –*** *Complies* + ***Level 1 & 2 –*** *Outside of scope* ***Note 1:*** *The provision of additional exits as a result of the findings of D1.2 and D1.4 above will require further consideration of the requirements of this clause.* ***Note 2:*** *The travel distances above will be subject to further review as the design progresses.* **Shore Sheds –** + ***Ground Floor –*** Complies ***Note:*** Egress from the various commercial spaces will need to be confirmed. + ***Mezzanine –*** *Complies* ***Note:*** Egress from the various commercial spaces will need to be confirmed. This will be subject to a further review as a result of future tenancy fit out works. + ***Level 1 & 2 –*** *Outside of scope*
D1.6	Dimensions of exits and	**Does not comply/Alternative Solution Required**

	paths of travel to exits	We note that there are a number of doors within the EV parts that are greater than 1m approximately 1.3m. Architect to note egress doors not complying with this clause including the NSW variations and submit to the Projects Fire Safety Engineer for review and comment accordingly. In a required exit or path of travel to an exit- + the unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; + the unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m; + the unobstructed width of a doorway must be not less than the unobstructed width of each exit minus 250mm. + Doorways serving the areas identified as Entertainment must have an unobstructed clear width of not less than 1m for doors used by the public and not more than 3m. + The double doorways egress from the foyer must have a minimum clear width of not less than 2m. We note that the 1m clear unobstructed width is currently not provided within the building particularly to the landing within Wharf 4/5 providing access to the sanitary facilities and kitchenette to the mezzanine level. Notwithstanding we note that this is an existing compliance issue that is not to be affected as part of the proposed works. Where new works are undertaken and/or this portion of the building altered this will need to be addressed through plan amendments or through the development of a Fire Engineered Alternative Solution. In addition to the above, particular attention will need to be paid during the design development with respect of the clear unobstructed width to the internal stairways given the minimal tolerances currently available and where handrails are to be installed. Having regards to the subject building the population numbers as developed by TZG architects in consultation with the client, we note the following with respect of aggregate egress widths **Pier 2/3 –** + ***Ground Floor -*** *Complies* ***Note:*** *Refer also comments under D2.19-D2.21 later in this report.* + ***Mezzanine –*** *Complies* + ***Level 1 –*** *Complies* ***Note 1:*** *Width of stairs will need to be confirmed however we note that compliance is readily achievable.* ***Note 2:*** *Refer also comments with respect of width of required stairways.* + ***Level 2 -*** *Complies* **Shore Sheds –** + ***Ground Floor -*** *Complies* + ***Mezzanine –*** *Complies* + ***Level 1 –*** *Out of scope* + ***Level 2 –*** *Out of scope* **Wharf 4/5** + ***Ground Floor -*** *Complies* + ***Mezzanine –*** *Complies* + ***Level 1 –*** *Out of scope*

		+ ***Level 2 –*** *Out of scope* ***Important Note:*** *The proposed uses of the commercial spaces will need to be confirmed in order to calculate the maximum population numbers to each respective floor. To date the maximum number of persons accommodated is based on a retail shop use. Where it is proposed to utilise this space as a café, restaurant or bar use aggregate egress width requirements will need to be re-assessed.* ***Note 1:*** *Where the design is amended or proposed population numbers are altered further assessment against the requirements of this clause will be required.* ***Note 2:*** *Particular attention will also need to be paid to the unobstructed width to the required egress doors and the push type hardware which must not encroach on the required unobstructed width.*
D1.7	Travel via fire isolated exits	**Not Applicable** A doorway from a room must not open directly into a stairway, passageway or ramp that is required to be fire-isolated unless it is from— (i) a public corridor, public lobby or the like; or (ii) a sole-occupancy unit occupying all of a storey; or (iii) a sanitary compartment, airlock or the like. + No more than 2 access doorways, not from a sanitary compartment or the like, open to the required fire-isolated exits at each storey. + Where a path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m of any part of an external wall of the same building, measured horizontally at right angles to the path of travel, that part of the wall must have— (i) an FRL of not less than 60/60/60; and (ii) any openings protected internally in accordance with C3.4,for a distance of 3 m above or below, as appropriate, the level of the path of travel, or for the height of the wall, whichever is the lesser. + A ramp must be provided at any change of level less than 600mm in a fire isolated passageway in a Class 9 building. The small stair in Circulation West does not comply in this regard
D1.8	External stairways in lieu of fire-isolated exits	**Alternative Solution** An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit serving a storey below an effective height of 25 m, if the stairway or ramp is— (i) non-combustible throughout; and (ii) protected in accordance with (c) if it is within 6 m of, and exposed to any part of the external wall of the building it serves. Whilst for the purpose of this clause the external stairs are not true external stairs in lieu of, by virtue of the connection to the internal stairways forming the required exits from the building the projects Fire Safety Engineer will need to address the exposure of these stairs to the existing building having regards to the proximity to the building served being approximately 1m in lieu of 6m. ***Note:*** *Refer also comments under D1.9 below with respect of the non-fire isolated stairways.*

D1.9	Travel by non fire isolated stairways or ramps	**Complies** A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided. Moreover the maximum distance from any point of the floor to a point of egress to a road or open space is to be not more than 80m with the discharge point not being more than 20m to a door providing egress to a road or open space or a fire isolated passageway leading to a road or open space or 40m from one of two such doorways or passageways located in opposite directions
D1.10	Discharge from exits	**Further Information Required/Alternative Solution** + Where the required exit leads to an open space, the path of travel to the road must have an unobstructed width throughout of not less than— (i) the minimum width of the required exit; or (ii) 1 m, whichever is the greater. + Where the exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by a ramp or other incline having a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by the Deemed-to-Satisfy Provisions of Part D3. + In addition to the above, where an exit discharges to open space the link between this point and the road connected must be opened to the sky for its entire length. Suitable barriers such as bollards and the like should be placed outside of the required exits where there is the potential for a vehicle to block access or discharge from the exit in the event of an emergency. It is understood that vehicular movement is expected around the outside of the wharfs in this regard bollards will need to be allowed for accordingly. The projects Fire Safety Engineer will need to rationalize the path of travel to the road not being open to its sky for its entire length noting that occupants are required to pass under the existing breezeway structures.
D1.11	Horizontal exits	**Not Applicable** We note that there are no horizontal exits proposed as part of the development.
D1.12	Non-Required stairways ramps or escalators	**Complies** We note that there are no stairs to which this clause will apply.
D1.13	Number of persons accommodated	**Noted** Number of persons accommodated has been developed in consultation with TZG Architects and the client and as detailed TZG amenities schedule dated 18/10/16. The above will need to be reviewed where there are plan amendments in the future and or the proposed use of each space is proposed to be altered in the future.
D1.14	Measurement of distances	**Noted**
D1.15	Method of measurement	**Noted**

D1.16	Plant rooms & lift motor rooms: Concession	**Alternative Solution** (a) A ladder may be used in lieu of a stairway to provide egress from— (i) a plant room with a floor area of not more than 100m^2; or (ii) all but one point of egress from a plant room or a lift machine room with a floor area of not more than 200m^2. (b) A ladder permitted under (a)— (i) may form part of an exit provided that in the case of a fire-isolated stairway it is contained within the shaft; or (ii) may discharge within a storey in which case it must be considered as forming part of the path of travel; and (iii) must comply with— (A) AS 1657 for a plant room; and (B) AS 1735.2 for a lift machine room. It is proposed to provide egress from the plant rooms within Pier 2/3 which are greater than 200m2 in accordance with this clause in lieu of providing internal stairways. In this regard, the projects Fire Safety Engineer will need to rationalize as part of the proposed fire engineering strategy accordingly. ***Note:*** *The number and location of the various ladders/access hatches will be subject to the final layout of the plant rooms and exit travel distances. We note that compliant exit travel distances are readily achievable.*
D1.17	Access to lift pits	**Noted** Access to lift pits must— (a) where the pit depth is not more than 3m, be through the lowest landing doors; or (b) where the pit depth is more than 3m, be provided through an access doorway complying with the following: (i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600mm wide by 1980mm high clear opening, which may be reduced to 1500mm where it is necessary to comply with (ii). (ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (iii) Access to the doorway must be by a stairway complying with AS 1657. (iv) In lieu of D2.21, doors fitted to the doorway must be— (A) of the horizontal sliding or outwards opening hinged type; and (B) self-closing and self-locking from the outside; and (C) marked on the landing side with the letters not less than 35 mm high: “DANGER LIFTWELL – ENTRY OF UNAUTHORIZED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES”

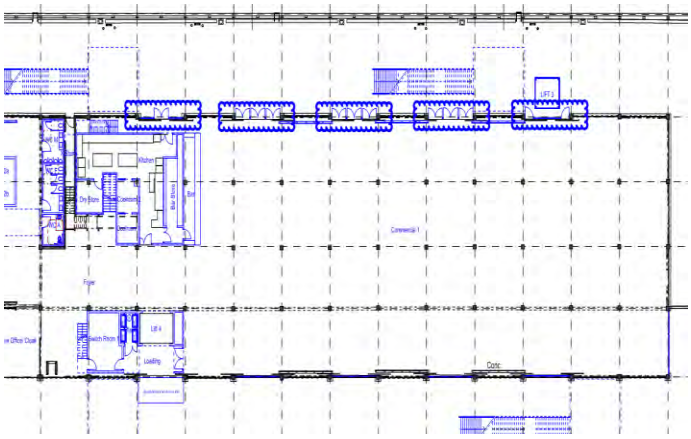
PART D2	***Construction of Exits***	
D2.1	Application of Part	**Noted**
D2.2	Fire-Isolated stairways & ramps	**Noted** A stairway or ramp (including any landings) that is required to be within a fire-resisting shaft must be constructed— (a) of non-combustible materials; and (b) so that if there is local failure it will not cause structural damage to, or impair the fire-resistance of, the shaft.
D2.3	Non-Fire-Isolated stairways and ramps	**Noted** Required stairs and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to D2.2, or only of— (a) reinforced or prestressed concrete; or (b) steel in no part less than 6 mm thick; or (c) timber that— (i) has a finished thickness of not less than 44 mm; and (ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.
D2.4	Separation of rising and descending stair flights	**Not Applicable**
D2.5	Open access ramps and balconies	**Not Applicable**
D2.6	Smoke lobbies	**Noted** A smoke lobby required by D1.7 must— (a) have a floor area not less than 6m^2; and (b) be separated from the occupied areas in the storey by walls which are impervious to smoke, and— (i) have an FRL of not less than 60/60/– (which may be fire-protective grade plasterboard, gypsum block with set plaster, face brickwork, glass blocks or glazing); and (ii) extend from slab to slab, or to the underside of a ceiling with a resistance to the incipient spread of fire of 60 minutes which covers the lobby; and (iii) any construction joints between the top of the walls and the floor slab, roof or ceiling must be smoke sealed with intumescent putty or other suitable material; and (c) at any opening from the occupied areas, have smoke doors complying with Clause 3 of Specification C3.4 except that the smoke sensing device need only be located on the approach side of the opening; and (d) be pressurised as part of the exit if the exit is required to be pressurised under E2.2.
D2.7	Installations in exits and paths of travel	**Further Information Required** (a) Access to service shafts and services other than to fire-fighting or detection equipment, must not be provided from the fire-isolated stairways. (b) An opening to any chute or duct intended to convey hot products of combustion from a boiler, incinerator, fireplace

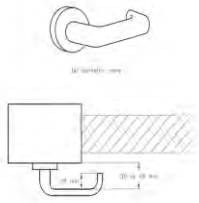
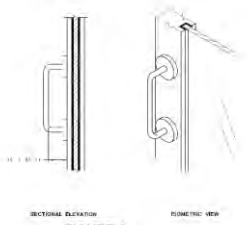
		or the like, must not be located in any part of a required exit or any corridor, hallway, lobby or the like leading to a required exit. (c) Gas or other fuel services must not be installed in a required exit. (d) Services or equipment comprising— i. electricity meters, distribution boards or ducts; or ii. central telecommunications distribution boards or equipment; or iii. electrical motors or other motors serving equipment in the building, may be installed in: iv. a required exit, except for fire-isolated exits specified in (a); or v. in any corridor, hallway, lobby or the like leading to a required exit, if the services or equipment are enclosed by non-combustible construction or a fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure. (e) Electrical wiring may 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 the monitoring of hydrant or sprinkler isolating valves. Architect to note the above and specify construction accordingly. Particular attention will need to be paid to the electrical and communications equipment installed in the building.
D2.8	Enclosure of space under stairs and ramps	**Further Information Required** (a) Fire-isolated stairways and ramps-If the space below a required fire-isolated stairway or fire-isolated ramp is within the fire-isolated shaft, it must not be enclosed to form a cupboard or similar enclosed space. (b) Non fire-isolated stairways and ramps-The space below a required non fire-isolated stairway (including an external stairway) or non fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless- (i) the enclosing walls and ceilings have an FRL of not less than 60/60/60; and (ii) any access doorway to the enclosed space is fitted with a self-closing -/60/30 fire door. We note that there does not appear to be any enclosures under the non-fire isolated stairways to which this clause will apply. Notwithstanding, this will need to be further assessed as the design progresses. ***Note:*** *In addition to the above, where it is not proposed to enclose the space below the non-fire isolated stairways particular attention will need to be paid to reduced head height issues that may arise as a result of the position of the stair soffits. In this regard, suitable allowances should be made for barriers and the like to restrict access where applicable.*

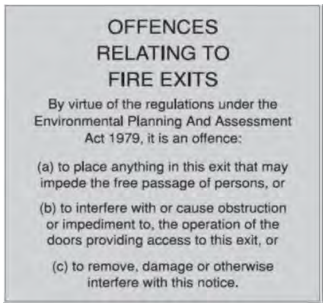
D2.9	Width of stairways	**Further Information Required/Alternative Solution** The required width of a stairway must be measured clear of all obstructions such as handrails, projecting parts of balustrades or other barriers and the like; and extend without interruption, except for ceiling cornices, to a height not less than 2m vertically above a line along the nosings of the treads or the floor of the landing. A required stairway that exceeds 2m in width is counted as having a width of only 2m unless it is divided by a handrail, balustrade or other barrier continuous between landings and each division is less than 2m wide. We note that by virtue of the internal stairway serving as a required exit from Level 1 and the fact that it exceeds 2m (approx. 2.5m) in overall width for the purpose of D1.6 and aggregate egress width calculations it will only count towards 2m of egress width. In this regard, either this stairway will need to be provided with a central handrail alternatively there may be scope under a Fire Engineered Alternative Solution to rationalise this current arrangement and therefore further consultation with the projects Fire Safety Engineer would be required accordingly.
D2.10	Pedestrian ramps	**Noted** The pedestrian ramps must have a no-slip finish.
D2.11	Fire isolated passageways	**Not Applicable** (a) The enclosing construction of a fire-isolated passageway must have an FRL when tested for a fire outside the passageway in another part of the building of- (i) if the passageway discharges from a fire-isolated stairway or ramp-not less than that required for the stairway or ramp shaft; or (ii) in any other case-not less than 60/60/60. (b) Notwithstanding (a)(ii), the top construction of a fire-isolated passageway need not have an FRL if the walls of the fire-isolated passageway extend to the underside of- (i) a non-combustible roof covering; or (ii) a ceiling having a resistance to the incipient spread of fire of not less than 60 minutes separating the roof space or ceiling space in all areas surrounding the passageway within the fire compartment.
D2.12	Roof as open space	**Not Applicable**
D2.13	Treads and risers	**Further Information Required/Alternative Solution** Stairways must have— (a) not more than 18 nor less than 2 risers in each flight. (b) except as permitted by (i), going (G), riser (R) and quantity (2R + G) in accordance with Table D2.13. (c) except as permitted by (i), goings and risers that are constant throughout in one flight. (d) risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads. (e) treads which have a non-slip finish or an adequate non-skid strip near the edge of the nosings. (f) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10m high or connects more than 3 storeys. (g) not more than 36 risers in consecutive flights without a change in direction of at least 30°. (h) in the case of a required stairway, no winders in lieu of a landing.

		(i) in the case of a non-required stairway:- - not more than 3 winders in lieu of a quarter landing. - not more than 6 winders in lieu of a half landing. - the going of all straight treads must be constant throughout the same flight - the going of all winders in lieu of a quarter or half landing may vary from the going of the straight treads within the same flight provided that the going of all such winders is constant. (j) conspicuous edges to the trads of steps must be used in the entertainment venue. It is understood that the external stairs will have more than 36 risers in a consecutive flight without a change in direction of at least 30°. In this regard this will need to be rationalised by the projects fire safety engineer. It is however clear that the rationalising of the number of risers will necessitate the introduction of larger landings between the intermediate flights. ***Note 1:*** *Further to the comments above, particular attention will need to be paid to the bench seating proposed within the public domain space, which will need to be provided with compliant stairs in accordance with the requirements of this clause.* ***Note 2:*** *In addition to the above, particular attention will need to be paid to the requirements under AS 1428.1-2009 relating to stairway construction. We understand that a suitably qualified Access Consultant has been engaged and in this regard they will need to review the proposed design and provide further comments accordingly.*
D2.14	Landings	**Noted** In a stairway landings having a maximum gradient of 1:50 may be used in any building to limit the number of risers in each flight and each landing must: (i) be not less than 750 mm long, and where this involves a change in direction, the length is measured 500 mm from the inside edge of the landing; and (ii) 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	**Further Information Required** The 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 the doorway opens to a road or open space, external stair landing or external balcony and a threshold ramp is provided in accordance with AS 1428.1-2009. Within an entertainment venue, the door sill openings to a road, open space, external stair landing balcony or the like is to be not more than 50mm in overall height. Architect to note the requirements above and specify door thresholds accordingly.

D2.16	Balustrades	**Further Information Required** ▪ Balustrades must be a minimum 1m above FFL, with a maximum opening of 125mm. ▪ In the EV parts of the building, external balustrades must be a minimum 1.2m above FFL. ▪ For floors more than 4m above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing. Whilst compliance is readily achievable for the new works, particular attention will need to be paid to any existing balustrades within the subject building affected by the new works which will need to be upgraded to comply with the requirements of this clause such as the external stair serving the shore sheds In this regard, details demonstrating compliance will need to be submitted for review accordingly.
D2.17	Handrails	**Further Information Required** Handrails must be provided along at least one side of all stairways, and to at least both sides where the stairway exceeds 2m in width. Notwithstanding the above, note also the requirements under AS1428.1-2009 with regards to handrail installations.
D2.18	Fixed platforms, walkways stairways and ladders	**Noted** A fixed platform, walkway, stairway, ladder and any going and riser, landing, handrail, balustrade or other barrier attached thereto may comply with AS 1657 in lieu of BCA clauses D2.13, D2.14, D2.16 and D2.17 if it only serves lift-motor rooms, plant-rooms, and the like.

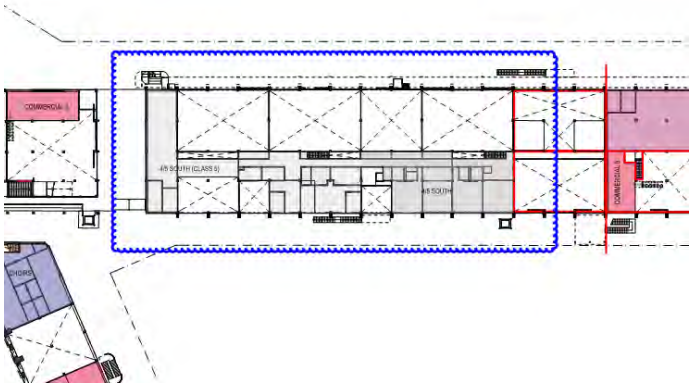
D2.19	Doorways and doors	**Further information Required/Alternative Solution** We note that the plans indicate compliance is readily achievable. It appears there are a number of power operated sliding doors to the ground floor tenancies within the building. These doors are to be fitted with a failsafe device which automatically opens these doors upon fire trip within the building. The egress doors will be subject to further assessment as the design progresses. Notwithstanding the above, further information is to be provided with respect of the ground floor commercial 1 space which is noted as having sliding doors which are currently installed in from of the required egress doors. Given the size of these doors it is unlikely that they will be capable of being opened with a force of not more than 110N. In this regard, further information will need to be provided to demonstrate compliance. Where strict compliance cannot be achieved, the projects Fire Safety Engineer will need to develop and Alternative Solution to permit these existing doors to remain. ***Note 1:*** *All doorways serving the EV parts of the building must swing in the direction of egress other than those addressed by way of a fire engineered Alternative Solution.*  *Figure 5: Existing sliding doors requiring further review*
D2.20	Swinging doors	**Complies** We note that all required swinging doors currently swing in the direction of egress. ***Note:*** *The door required to swing in the direction of egress will be subject to the requirements under section D in particular travel distances and aggregate egress width.* *All doorways within the Entertainment Venue parts are to be of a swinging door that swings in the direction of egress and where the unobstructed width exceeds 1m is to be hung in two leafs. We note that there are a number of doors within the EV parts that are greater than 1m approximately 1.3m and which do not swing in the direction of egress. Architect to note egress doors not complying with this clause including the NSW variations and submit to the Projects Fire Safety Engineer for review and comment accordingly.* ***Note 1:*** *Further to the comments above, any additional egress doors proposed as part of the proposed design will need to comply with the requirements of this clause.* ***Note 2:*** *Refer also comments under D2.19 above with respect of the existing sliding doors to the ground floor of Pier 2/3*
D2.21	Operation of latch	**Further Information Required/Alternative Solution** All doors in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable

		without a key from the side that faces a person seeking egress, by a single hand downward action or pushing action on a single device which is located between 900mm and 1100mm from the floor.  FIGURE 8  FIGURE 9 In the class 9b parts accommodating more than 100 people, all doors in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key by a single hand pushing action on a single device such as a panic bar which is located between 900mm and 1100mm from the floor. It is understood that the exiting sliding doors to the ground floor are not of a type that would comply with the requirements of this clause. In this regard, the projects Fire Safety Engineer will need to develop an Alternative Solution in order to rationalise the hardware to the existing sliding doors. Architect to note the above and specify door hardware accordingly.
D2.22	Re-entry from fire isolated exits	**Not Applicable**
D2.23	Signs on doors	**Further Information Required** (a) A sign, to alert persons that the operation of certain doors must not be impaired, must be installed where it can readily be seen on, or adjacent to, a— (i) (A) required fire door providing direct access to a fire-isolated exit, (B) required smoke door, on the side of the door that faces a person seeking egress and, if the door is fitted with a device for holding it in the open position, on either the wall adjacent to the doorway or both sides of the door; and (ii) (A) fire door forming part of a horizontal exit; and (B) smoke door that swings in both directions; and (C) door leading from a fire isolated exit to a road or open space, on each side of the door. The signs must be in capital letters not less than 20mm high in a colour contrasting with the background and state- (i) for an automatic door held open by an automatic hold-open device-

		 or (ii) for a self-closing door-  or (iii) for a door discharging from a fire-isolated exit-  In addition to the above, the doors which provide access to the fire isolated exits and also the Horizontal Exits must have signage provided adjacent to the entry doorway which states the following (ref Clause 183 of EP&A Reg 2000): 
D2.24	Protection of openable windows	**Not Applicable**
PART D3	***Access for people with disabilities***	
D3.1	Application of part	Refer Access Report, prepared by others

SECTION E - SERVICES AND EQUIPMENT		
PART E1	***Fire fighting equipment***	
E1.3	Fire Hydrants	**Further Information Required/Alternative Solution** Required to serve the whole building. Design and installation to comply with BCA clause E1.3 & AS 2419.1-2005. In particular, please note the following: i) The fire hydrant booster assembly must be located within site of the main entry. ii) The fire hydrant booster assembly must be either affixed to the building or located remotely at least 10m from the building. iii) Where affixed to the building it must be separated from the building by a construction with a fire resistance rating of not less than 90/90/90 FRL for a distance of not less than 2m each side of and 3m above the upper hose connections in the booster assembly. iv) The fire hydrant booster assembly must be located a minimum 10m from the substation. v) Any fixed on-site pumpset which is located within the building must be in a clearly indicated room and have direct egress to a road or open space. Notwithstanding the above, prior to determining the full extent of upgrade works that will be required throughout the building, the current status of the system including the coverage, pressure and flows will need to be confirmed by the projects hydraulic consultant. It is however clear that the existing hydrant outlets to Wharf 4/5 will need to be addressed by the projects Fire Safety Engineer given their location being less than 10m from the building served. ***Note:*** *The location of Fire Hydrant outlets, also the associated infrastructure including pumps and boosters will need to be shown on the final architectural plans accordingly.*
E1.4	Hose Reels	**Further Information Required/Alternative Solution** Required to serve whole building. Design and installation to comply with BCA clause E1.4 & AS 2441-2005. Fire hose reels must provide coverage throughout the building and located within 4m of an exit. Fire Hose reels are to be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors (with the exception of those doors that lead to fire separated ancillary use areas; doors mentioned in Clause C2.12 and C2.13 and C3.13). In light of the above, particular attention will need to be paid to the various fire compartmentation walls that are proposed and hose reel coverage noting that they cannot pass through fire doors in calculating system coverage. There may be scope for hose reel coverage to be rationalised under the Fire Engineered Strategy through the provision of Fire Extinguisher coverage in lieu of. This will need to be confirmed in consultation with the projects Fire Safety Engineer accordingly. Hydraulic consultant to review and provide coverage mark-ups demonstrating compliance with the requirements of this clause, also that all points on the floor are provided with fire hose reel coverage accordingly.

E1.5	Sprinklers	**Further Information Required / Alternative Solution** To be provided throughout the building. Installation to comply with BCA Specification E1.5 and AS 2118.1-1999. In line with the concept fire engineering brief, we understand that in addition to a compliant sprinkler system as noted above, the building will be provided with fast response sprinkler heads. In this regard, hydraulic consultant will need to note the requirements of this concept brief and make allowances accordingly. ***Note:*** *Further consultation with the Projects Fire Safety Engineer will be required to determine the requirements of the trial design and any additional fire safety measures required as a result.*
E1.6	Portable Extinguishers	**Further Information Required** Required to cover Class AE or E fire risks associated with emergency services switchboards and Class F fire risks involving cooking oils and fats in kitchens. To comply with clause E1.6 and AS 2444-2001.
E1.7	Repealed	-
E1.8	Fire Control Centres	**Further Information Required** Fire Control Centres complying with Spec E1.8 of the BCA are required in buildings with an effective height of more than 25m, also buildings with a floor area of more than 18,000m2. Whilst it is clear that the building will have an effective height less than 25m, the total floor area of the building will need to be confirmed. Where required the location of the fire control centre will need to be shown on the final architectural plans and will need to comply with the requirements of Specifications E1.8 of the BCA. Note: Refer also comments under C2.7 above, where it is proposed to considered Wharfs 2/3 and 4/5 as separate buildings.
E1.9	Fire precautions during construction	**Noted.** In a building under construction, not less than one fire extinguisher to suit Class A, B and C fires and electrical fires must be provided at all times on each storey adjacent to each required exit or temporary stairway or exit.
E1.10	Provision for special hazards	**Not Applicable**
PART E2	***Smoke Hazard Management***	
E2.1	Application of Part	**Noted**
E2.2	General requirements (including Tables E2.2a & b)	**Further Information Required / Alternative Solution** + Table E2.2b (NSW) – Class 9b Parts: Must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 l/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 11 of AS/NZS 1668.1) which does not form part of the smoke hazard management system, on the activation of smoke detectors installed complying with Specification E2.2a; and any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5. + Table E2.2b (NSW) – Class 9b 'Other Assembly Buildings': Any fire compartment exceeding 2,000m^2 must be provided with an automatic smoke exhaust system. It is understood

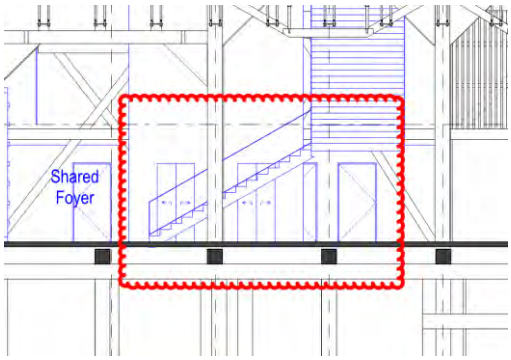
		that the fire compartment 4/5 South shown below will be in excess of 2,000m2 (approx. 2060m2). In this regard, the projects Fire Safety Engineer will need to rationalize smoke exhaust from this compartment.  *Figure 6: Location of fire compartment greater than 2,000m2* ***Note:*** *As shown within the fire compartmentation plan prepared by TZG architects, we understand that it is proposed to divide the subject building into fire compartments to less than 2,000m2 so as to avoid the need for smoke exhaust within the existing building.* *The final location of the proposed fire compartment walls will need to be denoted on the architectural documentation and the maximum fire compartment sizes will need to be confirmed accordingly.* + An automatic smoke exhaust system complying with Specification E2.2b (including Figure 2.1) is required to be provided over stages more than 50m2 in floor area. We note that there are no backstage areas proposed that would give rise to any additional requirements under this clause. + In line with the concept fire safety strategy prepared by ARUP we note that it is proposed to rationalize smoke control systems over the proposed stages. In this regard, a copy of the Fire Engineering Report will need to be submitted for review accordingly. **Note 1:** We understand that the building will have fire detection and alarm system complying with AS 1670.1-2015 installed throughout in addition to a SSISEP system. In this regard, further consultation with the projects Fire Safety Engineer will be required to confirm the full requirements under the trail design of the Fire Safety Strategy and any additional essential fire safety measures required as a result. **Note 2:** For the purposes of this Table E2.2b, where a stage is separated from the auditorium by a proscenium wall incorporating a proscenium opening, a backstage room or area that is not separated from the stage by construction having an FRL of not less than 60/60/60, is taken to form part of the stage. **Note 3:** We understand that there is no flying scenery proposed over the stage as part of the works this will need to be confirmed as the design progresses.
E2.3	Provision for special hazard	**Not Applicable**
PART E3	***Lift Installations***	
E3.1	Repealed	-

E3.2	Stretcher facility in lifts	**Not Applicable** The building does not have any lifts serving an Effective Height of more than 12m.
E3.3	Warning against use of lifts in fire	**Further Information Required** Warning sign will be required adjacent to entry to the lifts in accordance with clause E3.3.
E3.4	Emergency lifts	**Not Applicable**
E3.5	Landings	**Further Information Required** The provisions of Clause 12.2- "Access" of AS 1735.2 do not apply.
E3.6	Facilities for people with disabilities	**Further Information Required** The fitout of the passenger lifts must comply with AS1735.12 – lifts for people with disabilities.
E3.7	Fire Service Controls	**Not Applicable** The building does not have an effective height of more than 12m.
E3.8	Aged Care Buildings	**Not Applicable**
E3.9	Fire Services Recall control switch	**Not Applicable**
E3.10	Lift car fire service drive control switch	**Not Applicable**
PART E4	***Visibility in an emergency, exit signs and warning signs***	
E4.1	Repealed	-
E4.2	Emergency Lighting	**Further Information Required** Required to serve the whole building.
E4.3	Measurement of distances	**Noted**
E4.4	Design and operation of emergency lighting	**Further Information Required** Design and installation to comply with E4.2 & AS/NZS 2293.1-2005.
E4.5	Exit signs	**Further Information Required** Exit signs to be provided to identify exit locations in accordance with E4.5.
E4.6	Direction signs	**Further Information Required** If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.
E4.7	Class 2 and 3 Buildings and Class 4 parts exemptions	**Not Applicable**
E4.8	Design and operation of exit signs	**Further Information Required** Design and installation to comply with E4.2 & AS/NZS 2293.1-2005.
E4.9	Sound Systems and Intercom Systems for Emergency Purposes (SSISEP)	**Further Information Required** Required throughout the building. Installation to comply with AS 1670.4.

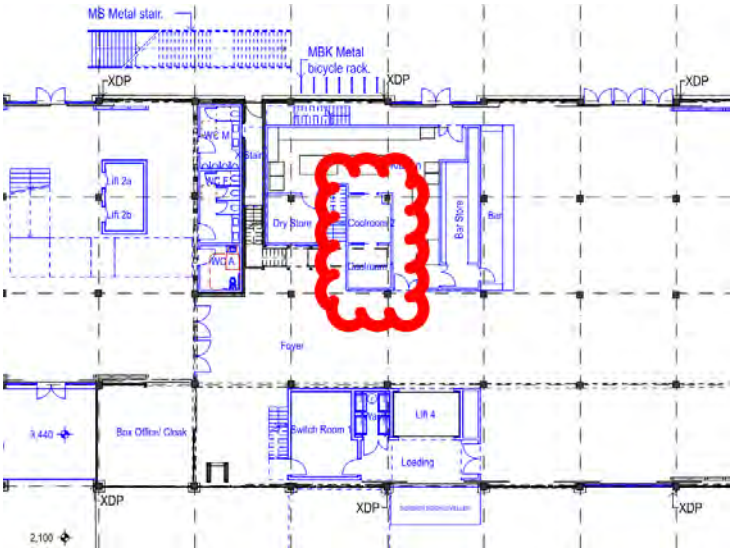
SECTION F - HEALTH AND AMENITY		
PART F1	***Damp & Weatherproofing***	
F1.1	Stormwater drainage	**Noted**
F1.2	Repealed	-
F1.3	Repealed	-
F1.4	External above ground membranes	**Noted**
F1.5	Roof coverings	**Further Information Required** All new roof coverings are to comply with the requirements of this clause.
F1.6	Sarking	**Further Information Required** New sarking-type materials used for weatherproofing of roofs and walls to comply with AS/NZS 4200 Parts 1 and 2.
F1.7	Waterproofing of wet areas in buildings	**Noted** Water proofing of new wet areas to comply with the relevant parts of AS 3740.
F1.8	Repealed	-
F1.9	Damp-proofing	**Noted** Damp-proofing to be provided in accordance with clause F1.9.
F1.10	Damp-proofing of floors on the ground.	**Noted** Not applicable to new building works
F1.11	Provision of floor wastes	**Not applicable**
F1.12	Sub-floor ventilation	**Noted** Sub floor ventilation must be provided in accordance with BCA clause F1.12 where a new suspended floor is proposed at ground floor level.
F1.13	Glazed assemblies	**Noted** Glazed assemblies in an external wall to comply with AS 2047 requirements for resistance to water penetration.
PART F2	***Sanitary & Other facilities***	
F2.1	Facilities in residential buildings	**Not Applicable**
F2.2	Calculation of number of occupants and fixtures	**Noted** An accessible toilet facility can be counted once for each sex on each level.

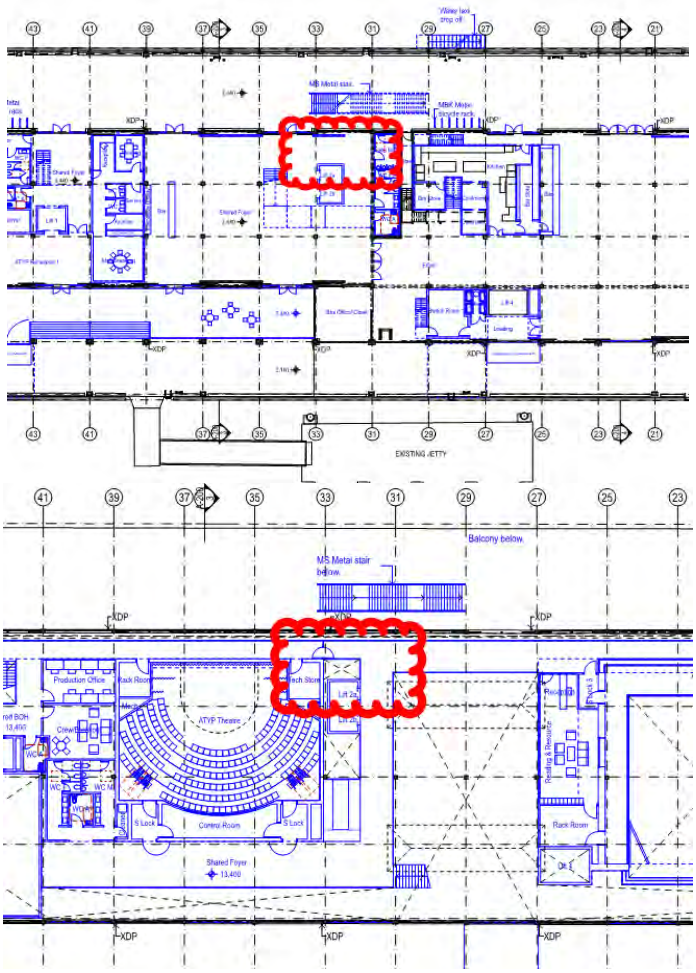
F2.3	Facilities in Class 3 to 9 Buildings, Table F2.3	**Complies** Having regards to the proposed design and the nominated maximum population for each use as determined by utilising the methods under D1.13 of the BCA also with reference to the population numbers developed by TZG architects in consultation with the client, the referenced plans show an adequate number of toilet facilities in accordance with BCA Table F2.3. ***Note 1:*** *We note that the sanitary facilities within the ground floor bar/foyer area are only capable of catering for a maximum of 400 persons.* ***Note 2:*** *The final use of the proposed commercial spaces will need to be confirmed noting that additional sanitary facilities will be required where they are to utilised as restaurants, cafes or the like.* ***Note 3:*** *It should be noted that the proposed central function/event space has not been considered in the above and therefore this will need to be re-assessed as part of any future event and or function and suitable provision made for sanitary facilities accordingly.*
F2.4	Facilities for people with disabilities	**Further Information Required/Alternative Solution** + The construction and layout of all facilities provided in accordance with Table F2.4 must comply with AS 1428.1. The proposed design and sanitary compartment layouts will need to be reviewed by the projects access consultant accordingly. + A unisex facility must be located so that it can be entered without crossing an area reserved for one sex only. + Where two or more facilities for people with disabilities are required, the number of mirror image configurations of each facility shall be provided as evenly as possible. + Showers need to be provided at a rate of not less than 1 for every 10 provided under F2.3 of the BCA. + At each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 must be provided for use by males and females. Compliance is readily achievable, projects access consultant will need to review the current design and accessible sanitary facilities as the design progresses accordingly. In addition to the above we note that the provision for ambulant facilities within the performers dressing rooms as shown below will need to be addressed by the projects access consultant given that these male and female facilities are located at a back of toilets containing an accessible compartment and not provided with accessible features suitable for persons with an ambulant facility in accordance with AS1428.1-2009.
F2.5	Construction of sanitary compartments	**Further Information Required** The door to a fully enclosed sanitary compartment must- (i) open outwards; or (ii) slide; or (iii) be readily removable from the outside of the sanitary compartment, Unless there is a clear space of at least 1.2m between the closet pan within the sanitary compartment and the nearest part of the doorway.

F2.6	Interpretation: urinals and wash basins	**Noted** (a) A urinal may be— (i) an individual stall or wall-hung urinal; or (ii) each 600 mm length of a continuous urinal trough; or (iii) a closet pan used in place of a urinal. (b) A washbasin may be— (i) an individual basin; or (ii) a part of a hand washing trough served by a single water tap.
F2.7	Microbial control	**Not Applicable** Clause F2.7 does not apply in NSW.
F2.8	Waste management	**Not Applicable**

PART F3	***Room Sizes***	
F3.1	Height of rooms	**Does Not Comply/Alternative Solution** The ceiling height must be not less than: (i) Generally: 2.4m. (ii) Class 9b parts accommodating more than 100 people: 2.7m (iii) Commercial Kitchen: 2.4m (iv) A corridor, passageway, or the like: 2.1m (v) A sanitary compartment, airlock, tea preparation room, pantry, store room, or the like: 2.1m. The referenced plans indicate that compliance with the above requirements will not be achieved in various locations within Pier 2/3 as follows; **Ground Floor –** Particular attention will need to be paid to the space below the non-fire isolated stairways which create a head height obstruction by virtue of their position within the building It is understood the remainder of the floor will comply with the requirements of this clause,  *Figure 7: Typical example of space below non-fire isolated stairways requiring review* **Level 1 –** Shared corridor ACO Auditorium – 2350mm from the FFL to the underside of the ceiling level above in lieu of 2.7m within a corridor serving more than 100 persons, **Level 2 –** Balcony areas ACO auditorium with projections below 2.1m in lieu of 2.7m Public corridors/Public Lobby – It is understood that this corridor will accommodate less than 100 persons. In this regard, the overhead projections being the bottom cord of the existing trusses at a height of 2.1m in lieu of 2.4m - Bio Box/Control rooms – A reduced ceiling height of 2.1m in lieu of 2.4m It is understood that the remainder of the building will comply with the requirements of this clause including throughout Wharf 4 + 5. Architect to confirm accordingly. The reduced heights and projections will need to be addressed through the development of an Alternative Solution prepared by a suitably qualified BCA consultant by satisfying ***Performance Requirement FP3.1***
PART F4	***Light & Ventilation***	
F4.1	Provision of Natural light	**Not Applicable**
F4.2	Methods and extent of natural lighting	**Not applicable**
F4.3	Natural light borrowed from adjoining room	**Not applicable**

F4.4	Artificial lighting	**Further Information Required** Artificial lighting to comply with AS/NZS 1680.0 and provided to stairways and passageways, and all rooms that are frequently occupied, other circulation spaces and paths of egress.
F4.5	Ventilation of rooms	**Further Information Required** Habitable rooms, sanitary compartments, and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6; or mechanical ventilation or air-conditioning system complying with AS 1668.2.
F4.6	Natural ventilation	**Noted**
F4.7	Ventilation borrowed from adjoining rooms	**Noted**
F4.8	Restriction on position of water closets and urinals	**Complies** We note that the position of the various sanitary facilities within the building will comply with the requirements of this clause. Of particular attention are the sanitary facilities provided to the foyer space within Pier 2/3. It is under stood that these facilities will be screened from view by virtue of the lift core and internal stairway therefore compliance is achieved.
F4.9	Airlocks	**Note** Within a class 5,6,7,8,9 building where prohibited to open directly to another room under F4.8 above, access needs to be via an airlock, hallway or other room with a floor are of not less than 1.1m2 and fitted with self-closing doors, alternatively the sanitary compartment must be provided with mechanical exhaust ventilation and the doorways to the room adequately screened from view.
F4.10	Repealed	-
F4.11	Carparks	**Not Applicable**
F4.12	Kitchen local exhaust ventilation	**Further Information Required** Where a commercial kitchen proposed to any of the retail tenancies, or the assembly uses it must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2 where- (a) any cooking apparatus has- (i) a total maximum electrical power input exceeding 8 kW; or (ii) a total gas power input exceeding 29 MJ/h; or (b) the total maximum power input to more than one apparatus exceeds- (i) 0.5 kW electrical power; or (ii) 1.8 MJ gas, per m^2 of floor area of the room or enclosure. Details demonstrating compliance will need to be submitted for review accordingly.
PART F5	***Sound Transmission & Installation***	
F5.1	Application of Part	**Not Applicable**

SECTION G - ANCILLARY PROVISIONS		
G1.1	Swimming pools	**Not Applicable**
G1.2	Coolrooms, strongrooms etc.	**Further Information Required** (a) A refrigerated or cooling chamber, strongroom or vault which is of sufficient size for a person to enter must have— (i) a door which is capable of being opened by hand from inside without a key; and (ii) internal lighting controlled only by a switch which is located adjacent to the entrance doorway inside the chamber, strongroom or vault; and (iii) an indicator lamp positioned outside the chamber, strongroom or vault which is illuminated when the interior lights required by (a)(ii) are switched on; and (iv) an alarm that is— (A) located outside but controllable only from within the chamber, strongroom or vault; and (B) able to achieve a sound pressure level outside the chamber, strongroom or vault of 90 dB(A) when measured 3m from the sounding device. (b) A door required by (a)(i) in a refrigerated or cooling chamber must have a doorway with a clear width of not less than 600 mm and a clear height not less than 1.5m. Particular attention will need to be paid to the various cool rooms proposed within the kitchen areas within the building which will need to comply with the requirements outlined above (see below).  *Figure 8: Typical example of cool rooms requiring review*
G1.101	Provision for cleaning of windows	**Further Information Required** The building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level. In this instance, compliance will be achieved where the windows can be cleaned wholly from within the building; or provision is made for the cleaning of the windows by a method complying with the Construction Safety Act 1912 and regulations made under that Act.

G2	***Boilers, Pressure vessels, heating appliances, fireplaces chimneys and flues***	**Not Applicable**
G3	***Atriums***	
G3.1	Application of Part	**Note.** We note that the proposed building particularly the openings formed within Pier 2/3 between Ground and the Second floor is deemed an atrium and therefore the requirements of this part will apply.
G3.2	Dimensions of Atrium Well	**Does Not Comply/Alternative Solution** An atrium well must have a width throughout the well that is able to contain a cylinder having a horizontal diameter of not less than 6 m. We note that the atrium well does not comprise of an atrium well that achieves compliance with the above.  *Figure 9: Particular area of concern with respect of the atrium connection.*

G3.3	Separation of atrium by bounding walls	**Does Not Comply/Alternative Solution** An atrium must be separated from the remainder of the building at each storey by bounding walls set back not more than 3.5 m from the perimeter of the atrium well except in the case of the walls at no more than 3 consecutive storeys if— (a) one of those storeys is at a level at which direct egress to a road or open space is provided; and (b) the sum of the floor areas of those storeys that are contained within the atrium is not more than the maximum area that is permitted in Table C2.2. We note that no separation is proposed at any of the four (4) storeys connected by the atrium.
G3.4	Construction of Bounding walls	**Does Not Comply/Alternative Solution** Bounding walls must— (a) have an FRL of not less than 60/60/60, and— (i) extend from the floor of the storey to the underside of the floor next above or to the underside of the roof; and (ii) have any door openings protected with self-closing or automatic –/60/30 fire doors; or (b) be constructed of fixed toughened safety glass, or wired safety glass in non-combustible frames, with— (i) any door openings fitted with a self-closing smoke door complying with Specification C3.4; and (ii) the walls and doors protected with wall-wetting systems in accordance with Specification G3.8; and (iii) a fire barrier with an FRL of not less than –/60/30 installed in any ceiling spaces above the wall.
G3.5	Construction at balconies	**Does Not Comply/Alternative Solution** If a bounding wall separating an atrium from the remainder of the building is set back from the perimeter of the atrium well, a barrier that is imperforate and non-combustible, and not less than 1 m high must be provided.
G3.6	Separation at roof	**Further Information Required** In an atrium— (a) the roof must have the FRL prescribed in Table 3 of Specification C1.1; or (b) the roof structure and membrane must be protected by a sprinkler system complying with Specification E1.5. ***Note:*** *The fire ratings to the roof construction is to be rationalised under the proposed Fire Safety Strategy*
G3.7	Means of egress	**Complies** All areas within an atrium must have access to at least 2 exits.

G3.8	Fire and smoke control systems	**Further Information Required** Sprinkler systems, smoke control, fire detection and alarm systems, and sound systems and intercom system for emergency purposes must be installed in compliance with Specification G3.8. Where proposed, details to be submitted to BM+G for review.

SECTION H - SPECIAL USE BUILDINGS		
H101.1	Application of Part	**Noted** The auditorium and associated stage and backstage areas are considered an Entertainment Venue (EV).
H101.2	Fire separation	**Further Information Required** If an entertainment venue forms part only of a building, then: (a) the whole of the entertainment venue; or (b) the part containing the stage, backstage area and auditorium, must be separated from the other parts of the building by construction having an FRL of not less than 60/60/60. In this instance, we understand that the entertainment venue parts will be fire separated from the remainder of the building. In this regard, the location of the fire separating walls will need to be confirmed as the design develops, with the locations clearly noted on the architectural documentation. **Note:** We note that the proposed fire compartment walls have been denoted on the compartmentation plans provided by TZG architects date 7/10/16
H101.3	Foyer space	**Further Information Required** Where an entertainment venue is used principally for the purpose of— (a) exhibiting films; or (b) conducting live stage productions, foyer space (excluding stairways and concession areas) must be provided on the basis of at least 0.25 m2 for each person that the auditorium accommodates. In light of the above, we note that the plans currently indicate that compliance is readily achievable, architect to note as the design progresses.
H101.4	Sprinkler system for common foyers	**Complies** In an entertainment venue, where multiple auditoriums have a foyer in common, the following applies— (a) If the foyer serves not more than 2 auditoriums; that foyer must be separated from any adjoining foyer by construction having an FRL of not less than 60/60/60. (b) If the foyer serves more than 2 auditoriums, a sprinkler system complying with Specification E1.5 must be installed— (i) throughout the storey containing the foyer; and (ii) throughout each storey in the building below that storey. We note that a sprinkler system will be installed throughout in this regard compliance is achieved.
H101.5	Conventional stages	**Further Information Required** Based on initial discussions with the project team we note that the subject stages are not considered conventional stages for the purpose of this clause. Notwithstanding, this will need to be confirmed as the design develops.

H101.6	Non-conventional stages	**Further Information Required** A stage with an area of more than 50m2 must have at least a means of egress from the backstage area. In this regard, the size of the proposed stages will need to be confirmed as the design develops

H101.7	Flying Scenery	**Not Applicable** We note that there are no flying scenery proposed as part of the proposed development.
H101.8	Load notice	**Further Information 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 Where applicable architect to note and specify accordingly.
H101.10	Safety curtains	**Not Applicable** A safety curtain required by NSW H101.5 must— (a) be made of non-combustible material; and (b) be so fitted that, when it is closed, it forms an efficient smoke seal between the stage and the auditorium; and (c) be capable of withstanding a pressure differential of 0.5 kPa over its entire surface area; and (d) be run on steel guides located on each side of the proscenium opening; and (e) remain engaged in its guides if the guides, together with their fittings and attachments and that part of the curtain engaged in the guides, are subjected to a pressure differential of 1 kPa; and (f) be of sufficiently robust construction to withstand damage by scenery, stage properties and falling debris; and (g) be capable of closing the proscenium opening within 30 seconds, either by gravity slide or by motor assisted mechanisms; and (h) have manual controls, located on each side of the stage, for the closing of the curtains; and (i) have a notice displayed adjacent to the operating controls, in clear and legible letters and symbols of adequate size, indicating its use and operation; and (j) when operated, actuate a distinctive warning alarm audible to persons on the stage and must not be reliant for its operation solely on the primary electricity supply; and (k) have the words “Safety Curtain” exhibited on the curtain in clear and legible letters of adequate size to enable them to be read from all parts of the auditorium.
H101.10.1	Safety curtains – Additional requirements	**Not Applicable** A rigid safety curtain required by NSW H101.7 must comply with the requirements of NSW H101.10 and it must: (a) be vertically hung from steel cables; (b) be framed with structural steel that complies with AS 4100; (c) be sheeted and finished on both faces with sheet steel or other non-combustible material of such gauge, and so fastened to its frame, as to ensure that its frame is capable of withstanding distortion arising from heat; and (d) when closed, overlap the proscenium opening by not less than 300mm at each side and by not less than 600mm at the top.

H101.11	Seating in rows Applies to non-continental seating.	**Further Information Required/Alternative Solution** Seating in rows must not exceed 8 where there is an aisle at one end only in the row; or 16 where there are aisle on both ends of the row. Some configurations of the Theatre options will result in departures from the prescriptive requirements of Clause 101.11 Note: Notwithstanding the above, note also H101.11.5 whereby the number of seats in each row between two aisles must not exceed 24 where the seat clearances comply with the requirements of this clause.

H101.12	Continental seating	**Further Information Required** ▪ Seating must be securely fastened to the floor. ▪ The number of seats in a row must not exceed 120. ▪ The depth of each row of seating (that is, the distance between the back of the row in front or, if there is a guardrail in front, between the back of the row and the guardrail) must, in respect of a row containing a number of seats specified in Column 1 of Table H101.12 (see below) be not less than the distance specified in Column 2 of that Table in respect of that number of seats. ▪ The minimum lateral clearance between each row of seating must, in respect of a row containing a number of seats specified in Column 1 of Table H101.12 (see below) be not less than the clearance specified in Column 3 of that Table in respect of that number of seats. ▪ Chairs must: (a) where they have arms, be at least 500mm from centre to centre; and (b) where they do not have arms, be at least 450mm from centre to centre. ▪ Egress doorways through the walls of the auditorium— (a) must have an aggregate width of at least twice the sum of the clearances specified in Column 3 of Table H101.12 for each row of the auditorium to be served by those doorways; and (b) must be provided at each end of every fifth row, excluding the first 2 rows and the last 2 rows in the auditorium if those rows each contain no more than 16 seats; and (c) must lead— (i) directly to a road or open space; or (ii) into a foyer or other area giving access to a road or open space; and (d) must be provided with exit signs if the egress doorways are not sufficiently conspicuous. ▪ A clear area— (a) must be provided from each end of each row to an egress doorway in the wall of the auditorium; and (b) must have a width of at least— (i) the sum of the clearances specified in Column 3 of Table H101.12 for each such row; or (ii) 500mm, whichever is the greater; and (c) each platform must be at least 700mm deep; and (d) each seating space must be at least 450mm wide, measured along the front of the platform or bench seat; and (e) each seating space must be numbered consecutively; and (f) at the entrance from the aisle to each row there must be a clear level floor space, extending the full width of the aisle, of at least 300mm, measured from the back of the row in front; and (g) in the case of stepped platforms with bench seats, there must be at least 300mm between the back of each seat and the front of the platform behind, or the front of the bench seat behind, whichever is the closer. ▪ At the entrance from a row to a clear area, there must be a clear level floor space having a width of at least the clearance specified for the row in Column 3 of Table H101.12.

		▪ A door fitted to the egress doorway in the wall of an auditorium must comply with NSW D2.15 and NSW D2.19.

Table H101.12 SPACING OF AUDITORIUM SEATING

Column 1 Number of seats in *Rows*	Column 2 Depth of *Rows* (mm)	Column 3 Clearance between *Rows* (mm)
Not exceeding 16	950	300
17 - 30	975	325
31 - 45	1000	350
46 - 60	1025	375
61 - 75	1050	400
76 - 90	1075	425
91 - 105	1100	450
106 - 120	1125	475

CLAUSE	REFERENCE	COMMENT
H101.13	Provision of guardrails	**Further Information Required** ▪ Guardrails must be provided— (a) along the fascia of each balcony or box; (b) if there is a stepped floor, along the front edge of each cross-over; and (c) where NSW H101.13.2 and NSW H101.13.3 apply. ▪ If seats with fixed backs are provided, guardrails that extend for the full width of the seating, must be provided at least 500 mm above the platform unless— (a) fixed seat backs of the next lower level project at least 500mm above the level of the stepped platform; and (b) there is only one riser between the platform and the next lower cross-over. ▪ If— (a) there is more than one intervening step in an aisle between levels of platforms, a guardrail must be provided (at a vertical height of at least 660mm measured above the nosing of each tread and of the upper platform) to the sides of the aisle adjacent to those steps; and (b) there is more than one intervening step in an aisle between levels of platforms, and that aisle is along a wall, a continuous guardrail must be affixed to that wall at a height of at least 865mm above the nosing of each tread; and (c) the end of a platform or the back of the highest platform does not abut a wall that extends at least 660mm above the floor level of the platform, a guard rail not less than 660mm high must be provided— (i) at the ends of the platform, extending from the front of the first riser to the back of the highest platform; and (ii) at the back of the highest platform, extending the full width of the platform; and (d) there is an inclined floor, the raised section of which is not bounded by walls at least 660mm high, a guard rail must be provided that extends around the perimeter of the raised section at a height of at least 660mm above the inclined floor level; and (e) seating at tables is provided on a stepped platform, a guardrail at least 500mm high must be provided along the front edge of the platform.

CLAUSE	REFERENCE	COMMENT
H101.14	Guardrails	**Further Information Required** **Continental seating** Where a guardrail is provided in front of a row of chairs— (a) the distance between the back of each chair in that row, and the guardrail must be not less than the distance specified in Column 2 of Table H101.12 for the number of chairs in that row; (b) the minimum lateral clearance between the front of each chair in that row and the guardrail must be not less than the clearance specified in Column 3 of Table H101.12 for the number of chairs in that row. **Balconies and boxes** A guardrail provided along the fascia of a balcony or box— (a) if it is located at the foot of a stepped aisle, must have its top surface at least 900mm above the floor of the balcony or box; and (b) if it is not located at the foot of a stepped aisle, must have its top surface at least 750mm above the floor; and (c) if it has a ledge more than 70 mm wide, must have the top surface of the ledge sloping downwards towards the floor of the balcony or box at an angle of at least 30 degrees from the horizontal; and (d) must have an unperforated kerb or toe guard extending for at least 300 mm above the floor. **Cross-overs** A guardrail provided along the front edge of a cross-over on a stepped floor— (a) must be at least 750 mm high; and (b) must extend for the full distance between aisles, or between a wall and an aisle, or for such other distance as considered necessary.
H101.15	Dressing rooms	**Further Information Required** On the basis that the dressing rooms will be located within the Entertainment Venue part of the building they will need to be separated from the remainder of the building where they exceed 50m2. Moreover in addition to the above, where part of the entertainment venue they will need to be provided with at least two (2) means of egress as remote from each other as possible with one discharging directly to road or open space, or through a fire isolated exit to road or open space. It is understood that the dressing rooms will be located outside the entertainment venue portion of the building, therefore the requirements of this clause will not apply. Updated complartmentation plan will be required accordingly.
H101.16	Storerooms	**Further Information Required** The various storerooms within the Entertainment Venue parts must be separated from other parts of the building by construction having an FRL of not less than 60/60/60. Where applicable to be documented on final architectural plans accordingly

CLAUSE	REFERENCE	COMMENT
H101.17	Projection suites	**Further Information Required** This clause applies to projection suites. Projection Suites is defined under the BCA as part of the entertainment venue as is designated to accommodate apparatus used for projecting films (being cinematograph film of a size 35mm or greater). Where applicable, suitable construction in accordance with this clause to be implemented accordingly.
H101.18	Basement storeys	**Not Applicable**
H101.19	Electric mains installation	
H101.19.1	Main switchboard	**Further Information Required** The switchboard containing the main isolation switch must: (a) be located in a position that is readily accessible to authorised persons, and to the Fire Brigade in the case of an emergency; and (b) be enclosed by construction having an FRL not less than 60/60/60. ***Note:*** *Refer also comments under C2.13 relating to the main switch board and additional fire separating requirements*
H101.19.2	Circuit protection	**Further Information Required** Protection of a final sub-circuit originating at a switchboard or distribution board must be by means of circuit breakers.
H101.19.3	Separate sub-mains	**Further Information Required** Where the EV areas will have its mains supply in common with that of another building or where it is a part of a building: (a) the EV part must be served by a separate and independent sub-main from the main switchboard; and (b) 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:- (i) mineral-insulated metal-sheathed cables or other cables that provide at least 2 hours' fire protection; or (ii) heavy-duty PVC conduit or metallic pipe, concrete encased in walls or slabs with a minimum of 50mm cover; or (iii) heavy-duty PVC conduit or metallic pipe, buried at least 500 mm below ground level, for underground cabling.
H101.20	Lighting	
H101.20.1	Lighting switches	**Further Information Required** Any switch controlling the lighting system must not be accessible by the public. 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.

CLAUSE	REFERENCE	COMMENT
H101.20.2	Lighting levels	**Further Information Required** Where the lamps utilized in the general lighting are of a type that will not relight immediately after the restoration of the primary electricity supply to those lamps— (a) a time delay or other suitable means must be provided to maintain the emergency lighting for a period not less than that necessary to allow the general lighting lamps to restrike; or (b) lamps of a type that will provide immediate lighting must be installed and:- (i) arranged in such a manner as to ensure visual conditions not inferior to those required to be provided by the emergency lighting; and (ii) capable of being switched in common with the general lighting and of being controlled also by the override switch required by NSW H101.20.1(b).
H101.20.3	Provision of aisle lighting	**Further Information Required** 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.
H101.20.4	Aisle lighting power supply	**Further Information Required** 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
H101.20.5	Aisle lighting alternative power supply	**Further Information Required** Aisle lighting must be provided with an alternative electricity supply that— (a) is capable of being automatically energised in the event of failure of the primary lighting electricity supply; and (b) complies with the provisions applying to emergency lighting.
H101.22	Automatic smoke-and-heat vents for stages	**Not Applicable**
H101.23	Solid fuel burning stoves and open fire places	**Not Applicable**
H101.24	Fuel gas cylinders	
H101.24.1	General	**Further Information Required** Where fuel gas cylinders will be housed in an enclosure outside the building in accordance with BCA clause H101.24.1. Fuel gas cylinders must comply with Clause B3.2 of the Australian LP Gas Installation Code.

CLAUSE	REFERENCE	COMMENT
H101.24.2	Fuel gas cylinder enclosures	**Further Information Required** The fuel gas cylinder enclosure: (a) must be located not less than 3 m from any window, door, vent or other opening; and (b) if located 3 m or more from a building must— i. have a concrete base; and ii. be constructed from heavy-gauge chain-wire mesh or other suitable material; and iii. be at least 1.8 m high; and iv. be so designed as to securely contain the fuel gas cylinders in a single line; and v. must be so designed as to allow cross ventilation; and (c) if located less than 3 m from a building must— i. have a concrete base; and ii. have 3 sides constructed from concrete or masonry; and iii. have a concrete roof; and iv. be so designed as to securely contain the fuel gas cylinders in a single line; and v. have a hinged, heavy-gauge chain-wire door capable of being secured against unauthorised entry; and vi. have its roof at least 600 mm above the uppermost fitting on any fuel gas cylinder housed therein.
H102	Temporary Structures	**Not Applicable**
H103	Drive-in theatres	**Not Applicable**
SECTION I - MAINTENANCE		
I1.1 (NSW)	Safety Measures	**Noted** The provisions of BCA Section I apply following completion of the development. Essential Fire Safety Measures must be maintained in accordance with the provisions of the Environmental Planning & Assessment Regulations 2000.

SECTION J - ENERGY EFFICIENCY
The new building works will be subject to compliance with the Energy Efficiency Provisions of BCA Section J relating to: - J1: Building Fabric - J2: External Glazing - J3: Building Sealing - J5: Air-conditioning and ventilation systems - J6: Artificial lighting and power - J7: Hot water supply - J8: Access for maintenance The final Construction Certificate documentation from the architect, mechanical, electrical, and hydraulic engineers are to incorporate details demonstrating compliance with the above provisions (as applicable to their respective disciplines). In this instance, we recommend that a 'Section J Energy Efficiency' Report be obtained from an appropriately qualified ESD consultant prior to issue of the Construction Certificate.

APPENDIX 2: TABLE 3 SPECIFICATION C1.1 (TYPE A CONSTRUCTION)

Building element	Class of building—FRL: (in minutes)			
	Structural adequacy/Integrity/Insulation			
	2, 3 or 4 part	5, 7a or 9	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

APPENDIX 3: PRELIMINARY FIRE SAFETY SCHEDULE

STATUTORY FIRE SAFETY MEASURE	DESIGN/INSTALLATION STANDARD
Automatic Fire Detection & Alarm System	BCA Spec. E2.2a & AS 1670.1 – 2015
Automatic Fail Safe Devices	BCA Clause D2.21
Alarm Signalling Equipment (TBC)	AS1670.3 – 2015
Automatic Fire Suppression System (Sprinklers)	BCA Spec. E1.5 & AS 2118.1-1999
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005
Emergency Evacuation Plan	AS 3745
Sound Systems and Intercom Systems for Emergency Purposes (SSISEP)	BCA Clause E4.9 & AS 1670.4 – 2015
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 - 2005
Fire Control Centre (TBC)	BCA Spec E1.8
Fire Dampers	BCA Clause C3.15, AS 1668.1 - 2015 & AS 1682.1 & 2 - 1990
Fire Doors	BCA Clause C2.12, C2.13, C3.5, C3.6 & C3.8 and AS 1905.1 – 2015
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005
Fire Seals	BCA Clause C3.15, AS 1530.4 & AS4072.1 - 2005
Lightweight Construction	BCA Clause C1.8 & AS 1530.3 – 1999
Mechanical Air Handling Systems including automatic shutdown	BCA Clause E2.2, AS/NZS 1668.1 – 2015 & AS 1668.2 – 2012
Paths of Travel	EP&A Regulation Clause 186
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Required Exit Doors (power operated)	BCA Clause D2.19(b)
Safety Curtains in Proscenium Openings (TBC)	BCA NSW Clause H101.10 or H101.10.1
Smoke Exhaust System (TBC);	BCA Table E2.2b (NSW) and BCA Specification E2.2b and Alternative Solution Report
Warning & operational signs	Section 183 of the EP&A Regulations 2000, AS 1905.1 - 2005, BCA Clauses D2.23, E3.3 & H101.8
Fire Engineered Alternative Solutions	TBC

Note: *Additional fire safety measures may be required arising from the required fire engineered Alternative Solutions. In this regard, the above schedule will be subject to further changes as the design progresses.*