

Building Code of Australia 2019

Report for BCA Compliance

PROJECT NAME: The new Sydney Fish Market (SSDA Review Stage)

DATE: 26.09.2019



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REVISION HISTORY



Revision	Date	Details	Authorised	
			Name/Position	Signature
Rev. 1	02.02.2018	Preliminary Review	--	--
Rev. 2	22.08.2018	Pre-SSDA Stage	--	--
Rev. 3	04.09.2018	Pre-SSDA Stage	--	--
Rev. 4	11.04.2019	Final SSDA Stage	--	--
Rev. 5	19.08.2019	DD Stage	--	--
Rev. 6	11.09.2019	SSDA Stage (Draft)	--	--
Rev. 7	24.09.2019	SSDA Stage		
Rev. 8	26.09.2019	SSDA Stage	Prepared: Mauricio Vera Building Regulations Consultant BPB 2854	
			Reviewed: Brett Clabburn Director / Accredited Certifier Grade A1 BPB 0064	

Table 1 – Revision History

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1.0 EXECUTIVE SUMMARY

The report is for the assessment of the new development known as *The new Sydney Fish Market* to assess compliance with the **Building Code of Australia 2019 (“BCA”)**. The information submitted at this stage of the design is considered to be detailed to the extent where the development of a full BCA report is possible and therefore this report is suitable for DD Stage.

The following items have been noted as items of interest at this stage of the review. The items have been considered non-compliant require further review against the detailed design, or may be able to be justified as a Performance Solution:

Item	Query or DTS Non- Compliance	Suggested Resolution	BCA Clause	BCA Performance Requirements
1.	Rationalisation of FRL's across the entire building	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	C1.1	CP1, CP2, CP4
2.	Insufficient FRL proposed in the feature roof	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	C1.1	CP1, CP2, CP4
3.	Glassing panels are proposed forming the travelator shaft in lieu of fire-resistant construction	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	C1.1	CP1, CP2, CP4
4.	Insufficient FRL on loadbearing elements of the building (steel frame façade supporting the glass)	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	Table 3 of Specification C1.1	CP1, CP2, CP4
5.	Deleted: Provision of sprinkler system (basement) in lieu of automatic smoke exhaust system or automatic smoke heat vents	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	Table E2.2	E2.2
6.	Omission of smoke hazard management: - Provision of a natural smoke hazard management system (Upper Ground, Mezzanine, and Mezzanine Roof) in lieu of an automatic smoke exhaust system	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E2.2, E2.3 Table E2.2a Table E2.2b	EP2.2
7.	Deletion of the stair pressurisation system in fire-isolated stairs above ground	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	Table E2.2	EP2.2
8.	Insufficient / discontinuous perimeter vehicular access	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	C2.4 Table E2.2	CP9, E2.2

9.	Lack of firewalls separation between building classes within the storey	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	C2.8	CP1, CP2, CP4
10.	Excessive travel distances to an exit.	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.4	DP2, DP4, DP5, EP2.2
11.	Excessive travel distances between exits.	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.5	DP2, DP4, DP5. EP2.2
12.	Insufficient unobstructed aggregate exit width	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.6	DP4
13.	Insufficient covered areas layout for discharge of fire-isolated stairs	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.7	DP4, DP5
14.	<ul style="list-style-type: none"> - Excessive travel distances through non-fire isolated stairs to open space. - Required non-fire isolated stairs (Mezzanine Level) discharge to L1 in lieu of a level of egress 	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.9	DP4
15.	Deleted Provision of threshold / step at back of house rooms in lieu of level doorways	Performance Solution is currently being undertaken by the Ergonomic Consultant (Mark Dohrmann)	D2.15	DP2
16.	Fire Hydrant Pump Room is not directly connected to open space or road	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E1.3	EP1.3, EP1.6
17.	Fire sprinkler valve room is not directly connected to open space	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E1.5 & Specification E1.5	EP1.4, EP1.6
18.	Shortage of sprinkler system in various areas of the building <ul style="list-style-type: none"> - Entire feature roof - Portions of L1 (retail) 	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E1.5 Table E2.2a Table E2.2b C2.4	EP1.4, EP1.6 EP2.2 CP9
19.	Provision of insufficient Atrium G3 construction in Auction Hall	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	G3 Table E2.2a	EP2.2

20.	Omission of smoke hazard management - Provision of fire compartmentation of 2,000m ² max. in LG (wholesale area) in lieu of an automatic smoke exhaust system.	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E2.2, E2.3 Table E2.2a Table E2.2b	EP2.2
21.	Provision of exit signs above 2.7m height in lieu 2-2.7m height	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E4.5	EP4.2
22.	Horizontal exits comprise more than half of the required exit from any part of a storey divided by a fire wall.	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D1.11	DP4
23.	Interconnected rising and descending FIS's in the south-western lobby on Level L0	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D2.4	DP5
24.	Non-compliant stair layout comprising more than 18 risers per flight in the Auction Hall	Performance Solution is currently being undertaken by the Ergonomic Consultant (Mark Dohrmann)	D2.13	DP2 DP6
25.	Non-compliant handrails type provided in the Auction Hall	Performance Solution is currently being undertaken by the Ergonomic Consultant (Mark Dohrmann)	D2.17	DP2 DP6
26.	Lack of handrails on both ends of eastern and western external stairs when over 2m wide (i.e. handrails every 2m)	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	D2.17	DP2 DP4
27.	Deletion of Fire Hose Reels in cool rooms (Lower Ground level) due to temperatures below 0 degrees	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E1.4	EP1.1
28.	Provision of a combined sprinkler and hydrant system is proposed	Performance Solution is currently being undertaken by the Fire Engineer (Aecom)	E1.3, E1.5	EP1.3; EP1.4

Table 2 – DtS Non-compliances

2.0 INTRODUCTION

This BCA review has been limited to the Architectural Drawings – SSDA Stage which detail sufficient information to allow a full BCA report to be produced. **However, as the design drawings develop the architectural plans will need to be reassessed as necessary to ensure a complete BCA assessment is concluded.**

The report is prepared based on a review of the documentation listed in Table 6 and the information provided by the client and is intended for their use only.

2.1 Reporting Team

The information contained within this report was prepared by Mauricio Vera, Building Regulations Consultant (BPB 2854) and reviewed by Brett Clabburn, Accredited Certifier Grade A1 (BPB0064) from Group DLA.

2.2 Current Legislation

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979.

Whilst we await final confirmation on the building approval mechanism, we believe it is likely to be a Crown project. The provisions of Section 6.28 (formerly known as 109R) (Crown Building Work), of this act require that the building work be carried out in accordance with the Building Code of Australia (BCA).

The commercial building energy efficiency requirements (i.e. Section J) have significantly changed, including new VMs for NABERS and Green Star. This change is subject to a 1 year transition period from 1st May 2019, during which time, either the BCA 2016 or BCA 2019 requirements may be used.

The BCA is now updated every three years, the last update has occurred on the 1st of May 2019.

2.3 Latest BCA 2019 Changes – Synopsis

- Clause C1.13 – Amendment to permit the concession for fire-protected timber to apply to all building classification when less than 25m effective height and sprinkler protected.
- Clause E1.3 – Removal of the requirement for fire hydrant booster protection on sprinkler protected buildings and inclusion of alternative protection systems.
- Clause E1.4 – Removal of fire hose reels requirement to office buildings.
- Clause E1.5 – Inclusion of sprinkler protection system in residential buildings (Class 2, 3 and 4) with a rise in storeys of 4 or more.
- Clause E1.6 – Inclusion of portable fire extinguisher instead fire hose reels in office buildings (Clause E1.4).
- Clause F2.1 – Removal of the requirement of employees' toilets to residential buildings with 10 or more SOU's.
- Clause F2.9 – Inclusion of a specific accessible adult change facility in certain Class 6 and 9b buildings.
- Clause F3.1 – Change in the ceiling height required to the Adult change facilities of 2.4m min.
- Part G6 – A new part has been inserted containing provisions for building "occupiable outdoor spaces".
- New definition of an enclosed atrium which required 50% min. of openings on roof.
- Section J – Broad and multiple changes to this section. Seek independent advice on this.

2.4 Fire Brigade

Fire & Rescue NSW (“FRNSW”): The EP&A Regulations 2000, Clause 144, requires buildings the subject of Construction Certificate approval to be referred to FRNSW. Clause 144 refers to EP&A Regs defined Category 2 Fire Safety Provisions¹. If any of these measures are required to be considered as a performance solution due to DtS non-compliances identified within a design, and the floor area of a fire compartment exceeds 2,000 m² or the floor area of the building exceeds 6,000 m², the Clause 144 referral to the FRNSW is required.

It is common practice to adopt this process on Crown projects under a voluntary submission.

This design currently contains the following DtS non-compliance Category 2 Fire Safety Provisions or BCA Performance Requirements:

- Travel distances to egress (EP2.2)
- Sprinkler system performance (EP1.4 & EP1.6)
- Fire brigade intervention (CP9)

The process involves initial input from FRNSW at the Fire Engineering Brief Questionnaire (“FEBQ”) stage and then official Lodgement of the Performance Solution Report by the PCA or Crown Certifier.

Under recent changes to the legislation the brigade are required to respond within 10 days advising whether or not they will be proceeding with a review and providing the Initial Fire Safety Report. If so they have not more than 28 days from the initial lodgement to provide their report or the PCA can choose to invoke the provisions of Clause 144(6A)(c) and issue the Construction Certificate after 28 days of officially lodging the Clause 144 application; further consultation is required on this issue. This may see a requirement for a peer review by an independent C10 accredited fire safety engineer.

At this stage in the design we have noted possible Performance Solutions (listed above) that require report and consent to the brigade.

Category 2 fire safety provision means the following provisions of the Building Code of Australia, namely, CP9, EP1.3, EP1.4, EP1.6, EP2.2 and EP3.2 in Volume One of that Code.

2.5 Limitations

- This assessment is limited to the developed documentation at the date of this report and as referenced within the “Documentation Assessed” section of the Report.
- The travel distances have been assessed on an open plan basis with an allowance made for travel around pending fixed structures. It cannot be taken as accurate when considering future fixed structures parameters.
- Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
- Demolition Standards not referred to by the BCA;
- Work Healthy and Safety Act 2011;
- The National Construction Code – Plumbing Code of Australia Volume 3;
- This assessment does not include the DDA / Disability Access related clauses from the BCA (Part D3, F2.4, F2.9 and E3.6). See this under a separate report cover prepared by Group DLA.

3.0 BUILDING DESCRIPTION

3.1 Building Site

The development site is located adjacent to the existing Fish Market building located in Bridge Road. The site is currently bounded by Blackwattle Bay to the north, Wentworth Park to the south, the existing Fish Market to the east and the Sydney Secondary College Blackwattle Bay to the west.

The main portion of the site consists of a large isolated building connected to public and private wharfs and surrounding by public spaces.

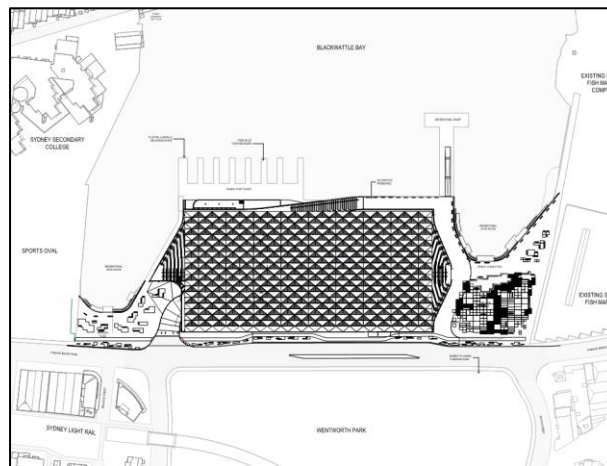


Figure 1: View of Site

3.2 Building Development

The building development subject of this report is located in Bridge Road in front of Blackwattle Bay. The building comprises four (4) storeys plus one (1) basement carpark.

The proposed development involves the construction of one (1) new building which, for the purposes of the BCA, is considered to be a “large isolated building”.

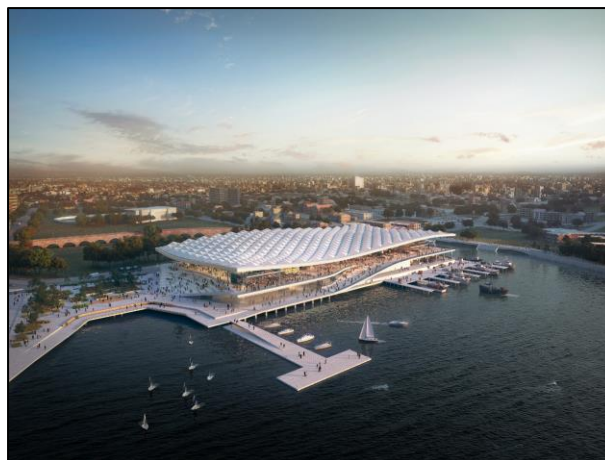


Figure 2 – Proposed Development

3.3 Building Description

Class	Level	Description
7a	Basement (B2)	Carpark
7b + 7a	Ground floor (L0)	Wholesale + Carpark/loading dock
6	Upper ground (L1)	Retail
5 + 9b + 6	Mezzanine (L2)	Office + Assembly + Retail
Ancillary	Mezzanine Roof (R1)	Plant rooms

Table 3 – Building Class (or part)

Characteristic	Description
Type of Construction:	A
Floor Area of Building:	<ul style="list-style-type: none"> Basement (B2) : 20,500m² approx. Ground level (L0) : 13,800m² approx. Upper level (L1) : 12,100m² approx. Mezzanine (L2) : 6,000m² approx. Mezzanine roof (R1) : 3,650m² approx. Total : 56,050m² approx.
Max Fire Compartment Size:	The building is classified as a large isolated building
Rise in Storeys:	<ul style="list-style-type: none"> Four (4) <p>Note: Basement level is underground and top storey is included due to large size.</p>
Levels Contained:	Four (4)
Effective Height:	<ul style="list-style-type: none"> More than 12m Less than 25m <p>Note: Currently scaled 15,8m (19,050m-3,250m).</p>
Fire Compartments:	<ul style="list-style-type: none"> Basement Lower ground floor (subdivided in fire compartments) Rest of building (upper ground + mezzanine + mezzanine roof)
Required Exits:	<ul style="list-style-type: none"> At least 2 are proposed from each storey
Climate Zone:	Zone 5

Table 4 – Building Characteristic

Note: The BCA definition of the “effective height” of a building is the following –

“Effective height means the vertical distance between the floor of the lowest storey included in a determination of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).”

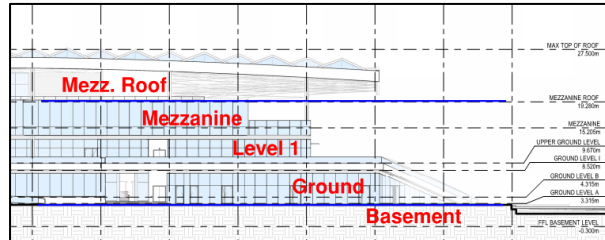


Figure 3 – Effective Height

3.4 Documentation Assessed

The architectural plans are advanced enough and have addressed the previous BCA non-compliances therefore this report is a final version. The plans are considered satisfactory for a planning submission.

This report is based on the following SSDA documentation prepared by 3XN and BVN architects.

Drawing Number	Title	Revision	Date
S1-A00 AAA-01	Cover Sheet	F	18/09/2019
S1-A20 AAA-01	Site Survey	F	18/09/2019
S1-A20 AAA-02	Locality / Context Plan	F	18/09/2019
S1-A20 AAA-03	Site Plan	F	18/09/2019
S1-A21 L00-01	Demolition Plan	F	18/09/2019
S1-B10 L00-01	Floor Plan Ground	F	18/09/2019
S1-B10 L01-01	Floor Plan Upper Ground	F	18/09/2019
S1-B10 L02-01	Floor Plan Mezzanine	F	18/09/2019
S1-B10 L10-01	Top of Building Envelope	F	18/09/2019
S1-C10 AAA-01	East & West Elevation	F	18/09/2019
S1-C10 AAA-02	North & South Elevation	F	18/09/2019
S2-A00 AAA-01	Cover Sheet	H	18/09/2019
S2-A20 AAA-01	Site Survey	H	18/09/2019
S2-A20 AAA-02	Locality / Context Plan	H	18/09/2019
S2-A20 AAA-03	Site Plan	H	18/09/2019
S2-A20 L01-01	Public Domain Ground	G	18/09/2019
S2-A20 L02-01	Public Domain Upper Ground	G	18/09/2019
S2-B10 L02-01	Floor Plan Mezzanine	H	18/09/2019
S2-B10 L03-01	Mezzanine Roof Plan	H	18/09/2019
S2-B10 L10-01	Roof Plan	H	18/09/2019
S2-B10 LB1-01	Floor Plan Basement	H	18/09/2019
S2-C10 AAA-01	East and West Elevation	H	18/09/2019
S2-C10 AAA-02	North and South Elevation	H	18/09/2019

S2-D10 AAA-01	Cross Sections	H	18/09/2019
S2-D10 AAA-02	Long Sections	H	18/09/2019
S2-E43 AAA-01	Auction & Office Section	H	18/09/2019
S2-E43 AAA-02	Food & Beverage Section	H	18/09/2019
S2-E43 AAA-04	Wholesale & Catering Section	H	18/09/2019
S2-L10 AAA-01	GFA Measurement SRWP 26	H	18/09/2019
S2-L10 AAA-02	GFA Standard Instrument	H	18/09/2019
S2-E43 AAA-03	Non-retail Areas	E	18/09/2019
S2-L10 AAA-04	Retail Areas	E	18/09/2019
AR-S2-C10 AAA-A01	East & West Elevation	H	18/09/2019
AR-S2-A20 L02-01	Master Plan	G	19/09/2019
AR-S2-A20 L01-01	Master Plan	G	19/09/2019

Table 5 – Documentation Assessed

4.0 BCA COMPLIANCE & FURTHER CONSIDERATIONS

The following assessment provides an overview of compliance with the BCA and identifies the main compliance parameters for the development and how they are being addressed.

Section A – Application

Nil

Section B – Structure

Nil

Section C – Fire Resistance

Clause C2.4: Requirements for open spaces and vehicular access

Requirements for open spaces and vehicular access capable of supporting emergency vehicles, 6m wide not more than 18m from the building is required around fire isolated buildings. However, the proposed building is not provided with a continuous vehicular access around the entire perimeter of the building.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter. This performance solution must also consider Table E2.2 requirement for a perimeter vehicular access.

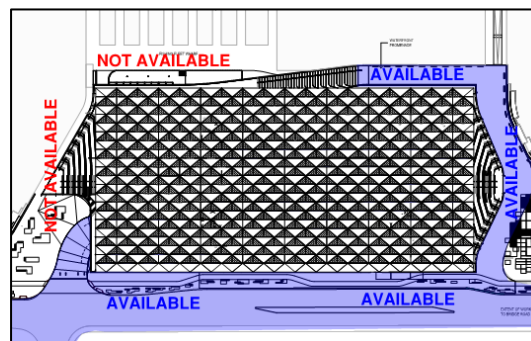


Figure 4 – Vehicular access for FRNSW

Clause C2.8: Separation of classifications in the same storey

Firewalls are needed to separate different building classifications, or the building must be built to the higher fire resistance level. The fire walls are to achieve the required FRL and constructed according to this clause. However, no evident walls are proposed to separate the different building classes (different uses).

Fire walls in accordance to Table 3 of Specification C1.1 are required. See mark up in Appendix C as guidance.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.



Figure 5 – Different building classification in Mezzanine and Lower Ground levels

Section D – Access & Egress

Clauses D1.4 and D1.5: Exits and egress travel distances

No point on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m. However, excessive travel distances to an exit and between exits occur. See mark up in Appendix C as guidance.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

Clause D1.6: Dimensions of exits and paths of travel

The required aggregate exit width must be calculated in accordance with the occupation density defined in Clause D1.13.

A Pedestrian Flow Study is being currently undertaken by Aecom to identify the total number of occupants and egress behaviour. It is expected that the unobstructed aggregate egress width would be subject to a Performance Solution in the current arrangement.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

Note: The egress dimensions are not to diminish in direction of travel to the road.

Clause D1.7 Travel via fire-isolated stairs

All proposed FIS's will discharge directly to open space (outside the building) or into covered areas.

Discharge points into covered areas are found in non-compliance with this clause as no sufficient perimeter or ceiling height is provided. Discharge to a covered area will require:

- Adjoin the road or open space, and
- To be open for at least 1/3 of its perimeter, and
- To have an unobstructed clear height of 3m min.
- To provide unimpeded path of travel to road or open space of 6m max.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

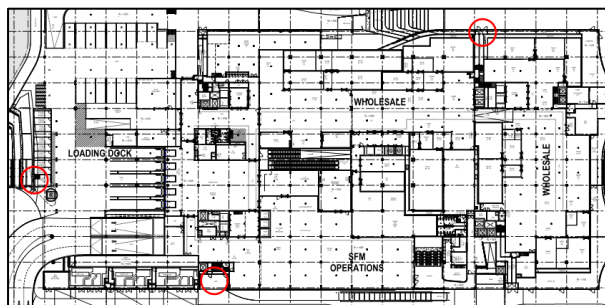


Figure 6 – Fire-isolated stairs discharge into covered areas

Clause D2.4: Separation of rising and descending stairs flights

Most of the rising FIS's (from basement carpark) and descending FIS's (from the upper levels) are proposed totally independent and in separate shafts. However, it is understood that the stair adjacent to the south-western lobby will not be in compliance with this clause.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

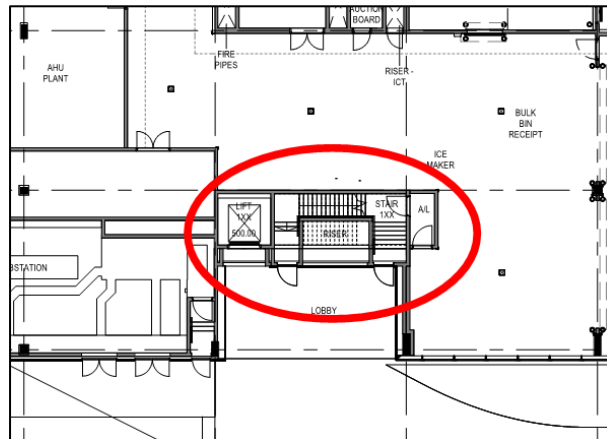


Figure 7 – Interconnected rising and descending stairs in south-western lobby

Clause D1.11: Horizontal exits

Horizontal exits cannot comprise more than half of the required exit from any part of a storey divided by a fire wall. Fire compartmentalised rooms that rely on a horizontal exit and are not provided with an additional exit (50%) will be non-compliant.

Multiple rooms (i.e. basement, wholesale, etc) are made fire rated (i.e. fire wall) for travel distances and fire compartmentation purposes, therefore required to comply with this clause.

- Horizontal exits must have a clear area on the side of the fire wall to which occupants are evacuating, to accommodate a total number of persons (D1.13) served by the horizontal exits of not less than 0.5m² per person.
- Door swing of the horizontal exits must be in the direction of egress (D2.21) as it is not the only required exit from that part.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

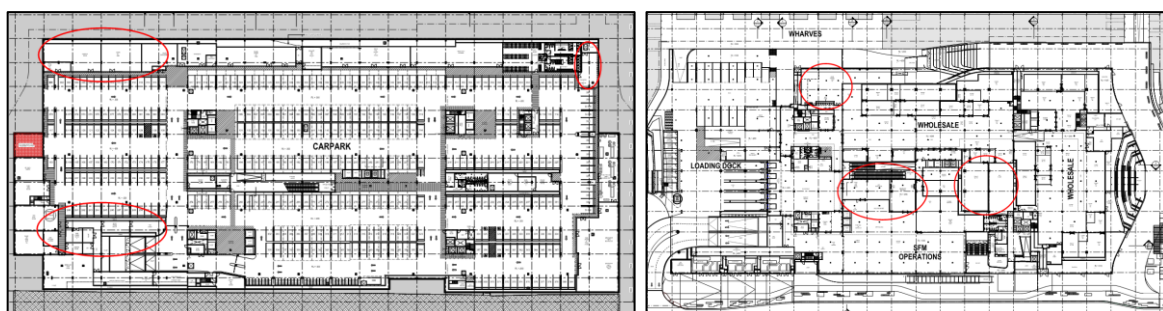


Figure 8 – Sample of single horizontal exits serving fire rated rooms/spaces

Section E – Fire Services & Equipment

Clause E1.3: Fire Hydrant System

Fire hydrant pump room must be directly connected to open space via a doorway or a fire-isolated passage/stair. The pump room is understood to be located in the F1 Fire Sprinkler & Hydrant Pump Room in basement (grid B 5-8 approx.) and served by a fire-isolated stair, however connected to an external building lobby in lieu of open space in non-compliance with this clause.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

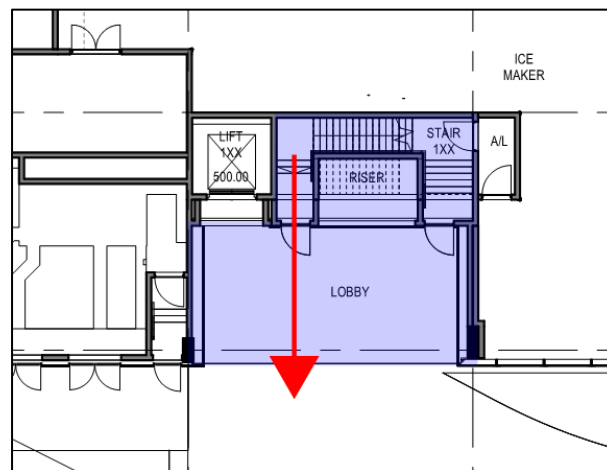


Figure 9 – Plant room connection to open space via lobby

Specification E1.5: Fire Sprinkler Systems

Sprinkler alarm valves must be located in a secure room which has direct egress to a road or open space. The sprinkler alarm valve is understood to be located in the F1 Fire Sprinkler & Hydrant Pump Room in basement (grid B 5-8 approx.) and served by a fire-isolated stair which discharges out to an external lobby. This is a non-compliance as the external lobby is not an “open space” as defined by the BCA.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

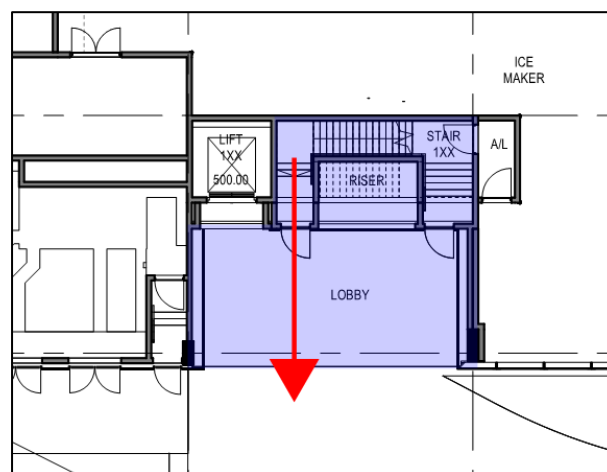


Figure 10 – Plant room connection to open space via lobby

Clause E4.5 Exit Signs

Required exit signs are required to be installed in accordance with AS2293.1.

The height of the exit signs are regulated in AS2293.1 Clause 6.8.1 which states that the exit signs should be mounted not less than 2m and not more than 2.7m above the floor level, or immediately above the doorway if the doorway is higher than 2.7m.

It is understood that the exit signs in various locations will be installed higher than 2.7m above floor level, thus constituting a non-compliance with this clause.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

Section G Ancillary Provisions

Part G3: Atrium Construction

Sprinkler protected areas connecting more than 3 storeys will constitute an Atrium G3 thus required to comply with this clause.

The proposed Auction Hall is currently connecting more than 3 storeys therefore the provisions from this clause are applicable. No fire-resistant bounding construction, smoke hazard management, fire-fighting equipment, etc. are identified at this stage thus in non-compliance with this clause.

Compliance is achievable through a Fire Engineering Performance Solution being prepared by Aecom that will address this matter.

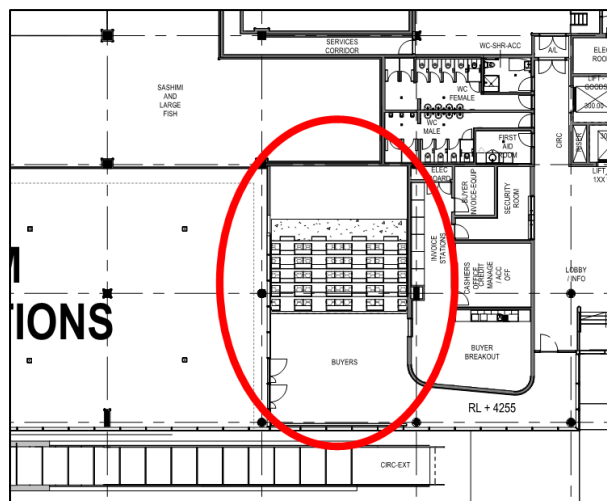


Figure 11 – Auction Hall location

5.0 ESSENTIAL FIRE SAFETY MEASURES (EFSM)

Below is a list of essential fire safety services that are required/expected to be installed / designed for the building, and the relevant standards of performance for each measure to be designed/constructed to. This table may be required to be updated as the design develops.

Fire Safety Measure (EFSM)	Standard of Performance	BCA Clause(s)	Required EFSM
Access panels, doors & hoppers to fire resisting shafts	AS 1530.4 – 2014	C3.13	<input checked="" type="checkbox"/>
Automatic fail-safe devices	--	C3.8, D2.21, Spec C3.4	<input checked="" type="checkbox"/>
Automatic fire detection & alarm systems (associated to shutdown system)	AS 1670.1 – 2015 AS 1668.1 – 2015	Spec E2.2b	<input checked="" type="checkbox"/>
Sprinkler system	AS 2118.1 – 1999	E1.5, Spec E1.5, NSW Table E2.2b	<input checked="" type="checkbox"/>
BOWS (Building Occupant Warning System)	AS 1670.1 – 2015 AS 2118.1 – 1999	E1.5, Spec E1.5, NSW Table E2.2b	<input checked="" type="checkbox"/>
Emergency lighting	AS 2293.1 – 2015	E4.2, E4.4	<input checked="" type="checkbox"/>
Exit signs	AS 2293.1 – 2015	E4.5, NSW E4.6 & E4.8, EP4.2	<input checked="" type="checkbox"/>
Fire alarm monitoring system	AS 1670.3 – 2004	Spec E2.2, Spec E1.5	<input checked="" type="checkbox"/>
Fire dampers	AS 1668.1 – 2015	Spec E2.2a	<input checked="" type="checkbox"/>
Fire doors	AS 1905.1 – 2015	Spec C3.4, C3.10	<input checked="" type="checkbox"/>
Fire hose reel systems	AS 2441 – 2005	E1.4, EP1.1	<input checked="" type="checkbox"/>
Fire hydrant systems	AS 2419.1 – 2005	E1.3, EP1.3	<input checked="" type="checkbox"/>
Fire seals (protecting openings in fire resisting components of the building)	AS 4072.1 – 2005 AS 1530.4 – 2014	C3.12, C3.13, C3.15	<input checked="" type="checkbox"/>
Lightweight construction	--	C1.8, Spec C1.8, CP1, CP2	<input checked="" type="checkbox"/>
Mechanical air handling systems <ul style="list-style-type: none"> Auto shutdown Smoke exhaust system 	AS 1668.1 – 2015 AS 1668.2 – 2012	E2.2, Spec E2.2a, Spec E2.2b	<input checked="" type="checkbox"/>
Atrium G3 <ul style="list-style-type: none"> Sprinkler protection throughout Separation of atrium by bounding walls Fire and smoke control provisions Enhanced SSISEP system Smoke detection (AS 1670.1) Automatic smoke exhaust Pressurisation of fire stairs 	--	--	<input checked="" type="checkbox"/>
Portable fire extinguishers & fire blankets	AS 2444 – 2001	E1.6	<input checked="" type="checkbox"/>

Warning and operational signs	--	C3.6, E3.3, D2.23 & Spec E1.8	<input checked="" type="checkbox"/>
Paths of Travel	--	D1.6, DP4, DP5, DP6, EP2.2	<input checked="" type="checkbox"/>
Alternative Performance Solution, Report No. TBC	Performance Solution, Report No. TBC	TBC	<input type="checkbox"/>

Table 7 – Essential Fire Safety Measures (EFSM)

Appendix:

Fire Resistance Levels (FRL's)

Specification C1.1, BCA Table No. 3 – Type A Construction: FRL of Building Elements

Item	Class 5, 7a or 9b	Class 6	Class 7b
Loadbearing External Walls <ul style="list-style-type: none"> Less than 1.5m to a fire source feature 1.5 – less than 3m from a fire source feature; 3m or more from a fire source feature 	120/120/120 120/90/90 120/60/30	180/180/180 180/180/120 180/120/90	240/240/240 240/240/180 240/180/90
Non-Loadbearing External Walls <ul style="list-style-type: none"> Less than 1.5m to a fire source feature 1.5 – less than 3m from a fire source feature; 3m or more from a fire source feature 	-/120/120 -/90/90 -/-/-	-/180/180 -/180/120 -/-/-	-/240/240 -/240/180 -/-/-
External Columns <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	120/-/- -/-/-	180/-/- -/-/-	240/-/- -/-/-
Common Walls & Fire Walls	120/120/120	180/180/180	240/240/240
Stair and Lift Shafts required to be fire-resisting <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	120/120/120 -/120/120	180/120/120 -/120/120	240/120/120 -/120/120
Internal walls bounding sole occupancy units <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	120/-/- -/-/-	180/-/- -/-/-	240/-/- -/-/-
Internal walls bounding public corridors, public lobbies and the like: <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	120/-/- -/-/-	180/-/- -/-/-	240/-/- -/-/-
Ventilating, pipe, garbage and like shafts: <ul style="list-style-type: none"> Loadbearing Non-loadbearing 	120/90/90 -/90/90	180/120/120 -/120/120	240/120/120 -/120/120
Other loadbearing internal walls, beams trusses and columns	120/-/-	180/-/-	240/-/-
Floors	120/120/120	180/180/180	240/240/240
Roofs	120/60/30	180/60/30	240/90/60

Note: See concessions in Spec C1.1 for concessions to these above tabulated requirements, as this may reduce or remove fire rating requirements subject to certain criteria and haven't been captured in this report.

Table 8 – Fire Resistance Levels (FRL's)

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30 September 2019

Commercial-in-Confidence

Jennifer Chang
Infrastructure NSW
Level 12, MLC Centre
19 Martin Place
Sydney, NSW 2000

Dear Jennifer

Sydney Fish Markets, 1B Bridge Road Glebe, NSW
Rev D: Fire Engineering Letter - DA Submission

1.0 Introduction

Please find below our fire engineering statement to accompany the Development Application under Clause 145 of the Environmental Planning & Assessment Regulation 2000 for the proposed new Sydney Fish Markets at 1B Bridge Road, Glebe, NSW.

2.0 Overview

The fire safety engineering design for the development will be in accordance with the Performance Requirements as set out in the Building Code of Australia (BCA) 2019. Compliance will be achieved via a combination of compliance to the BCA DtS (BCA Deemed-to-Satisfy) provisions and via Performance Solutions that comply with the BCA Performance Requirements, or are at least equivalent to BCA DtS provisions.

All Performance Solutions will be developed in accordance with the guidelines as set out in the Building Code of Australia and the International Fire Engineering Guidelines. The Performance Solutions will consider holistically the characteristics of the building, the fire safety provisions and the type of occupancy expected.

In addition, all key stakeholders on the project including Infrastructure NSW, the design team and Fire & Rescue NSW will be consulted as part of the development of the Performance Solutions. Consultation with the stakeholders, specifically Fire & Rescue NSW will be done via a Fire Engineering Brief Questionnaire (FEBQ) and meetings. As of September 2019, consultation has been ongoing with Fire and Rescue NSW via the FEBQ.

3.0 Preliminary Fire Engineering Review

A BCA report has been developed by Group DLA which identified the proposed variations from the Deemed-to-Satisfy (DtS) provisions of the Building Code of Australia 2019 (ref: BCA Rev 8, dated 26 September 2019).

The non-compliances identified are aligned with discussions and the proposed design to date and will be resolved via a combination of performance solutions and/or design modifications. The relevant fire engineering performance solutions will be developed through coordination with design team members.

4.0 Fire Engineering Process

The Fire Engineering process will follow the methodology outlined in the International Fire Engineering Guidelines 2005 (IFEG) which is endorsed by the Australian Building Codes Board (ABCB). This process will involve the following stages:

1. Initial Review
2. Fire Engineering Brief (FEB) Questionnaire
3. Meeting with Fire & Rescue New South Wales
4. Development of Fire Engineering Report (FER)
5. Issue of final FER
6. End of Construction Stage – Inspections and issue of Fire Engineering Inspection Report (FEIR).

5.0 Conclusion

Based on discussions with Group DLA, 3XN Architects and BVN Architecture, it is expected that non-compliances could be supported via a combination of performance solutions and/or modifications to the design. Performance Solutions will involve the preparation of a Fire Engineering Brief Questionnaire (FEBQ) and Fire Engineering Report (FER) by AECOM as part of the consultation process.

Please contact us if you have any questions.

Kind regards



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Accredited C10 Fire Safety Engineer (BPB2499)