CATALINA TWELVE PTY LTD

BCA ASSESSMENT REPORT

2 Sydenham Road, Brookvale

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Jensen Hughes Australia

Providing building regulations, fire engineering, accessibility, and energy consulting services to NSW for over 25 years

Our story begins in 1997 with the founding of BCA Logic to fulfill the demand of a consultancy company whose expertise expanded across the entire life cycle of a building, from consulting on the initial planning through to construction and occupation.

BCA Logic, SGA Fire and BCA Energy joined Jensen Hughes in 2021, a leading global, multi-disciplinary engineering, consulting and technology firm focused on safety, security, and resiliency. We continue to be at the forefront of our industry and work thoroughly to preserve our position by ensuring the successful delivery of projects.

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Executive summary

This document provides an assessment of the architectural design drawings for the proposed light industrial development at 2 Sydenham, Brookvale, against the Deemed-to-Satisfy Provisions of the Building Code of Australia (BCA) 2022 Volume One.

Part 4 of this report outlines the identified BCA compliance issues that require further information or consideration and/or assessment as Performance Solutions. Any Performance Solution will need to be detailed in a separate report and must clearly indicate methodologies for achieving compliance with the relevant BCA Performance Requirements.

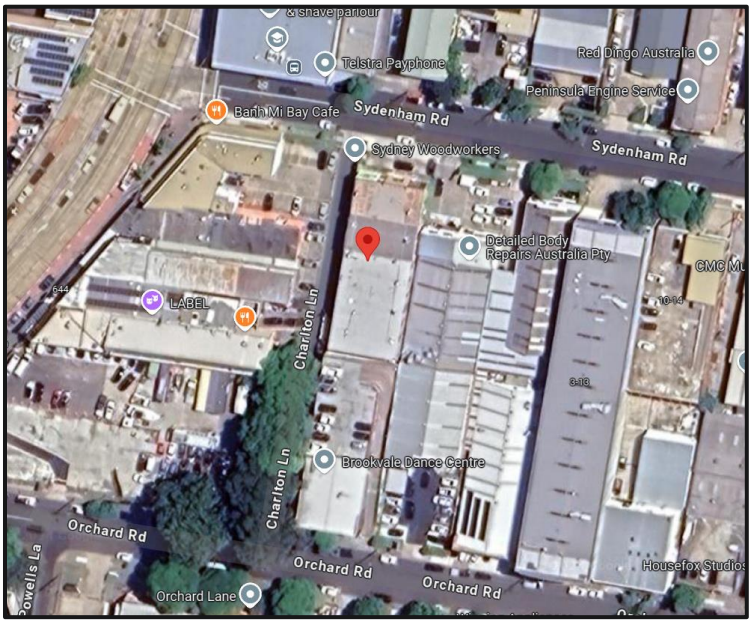
Item	Description	BCA Provision
Performance Solutions required		
1.	Fire-isolated exits discharging internally within the building.	BCA D2D12
2.	The service room opens direct into the central fire passage in lieu of via an air lock.	BCA D2D12
3.	Travel distances to an exit exceed 20m to a point of choice in the following locations: + Unit U101 + Unit U201 – depending on the fit-out layout, the travel distance around the backside of the Goods Lift may cause extended travel distances.	BCA D2D5
4.	Rationalise FRLs in the building if feasible by the Fire Engineer as 240/240/240 FRL is required for Class 8 buildings.	BCA C2D2 BCA S5C11
5.	It is unclear how the exits / travel distance will be considered on the mezzanine storey. There are two options, they are as follows: **Option 1:** If each internal mezzanine stair is considered as an exit, then the mezzanine floor for each unit requires its own flight of stairs that provides egress direct to open space. The design would not comply with BCA D2D14 in its current iteration. **Option 2:** The second option is to consider the sole occupancy unit stairs on the mezzanine floor within each unit as a ‘stair in a path of travel’. Hence there are no exits on the mezzanine floor to comply with BCA D2D3. Either way, a Performance Solution or design change would be required and determined if feasible or not.	BCA D2D3, D2D14
6.	With regard to waterproofing, concrete walls will not comply with the deemed to satisfy provisions and therefore will require a Performance Solution.	BCA F3D5

Building Code of Australia compliance matters to be addressed		
1.	Vertical window spandrels are required.	BCA C3D7
2.	Openings within external walls within 3m of the allotment boundary.	BCA C4D3
3.	Further discussion is required regarding the operation of a latch for the roller shutters, as access does not currently appear to be provided.	BCA D4D2
4.	Lift lobby clear space of 1540x2070mm required.	BCA D4D4
5.	Turning space of 90 degrees require clear 1500x1500mm turning space.	BCA D4D4
6.	Handrails require 300mm extensions.	BCA D4D4
7.	3% of the total car parking spaces are required to be accessible car parking spaces.	BCA D4D6 Clause B6.3 of Northern Beaches Council DCP (Pittwater 21)
8.	Mezzanine floor requires a compliant fire exit stairway.	BCA D2D14
Further Information		
9.	Number of sanitary facilities depending on the total population.	BCA F4D3 BCA F4D4

1.0 Basis of Assessment

1.1 LOCATION AND DESCRIPTION

The light industrial building development, the subject of this report, is located at 2 Sydenham, Brookvale, which consists of basement car parking space, light industrial units and a Takeaway.



1.2 PURPOSE

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of the BCA, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of the BCA. Such assessment against relevant performance criteria will need to be addressed by means of a separate Fire Engineering Report (FER) for fire safety matters, and Performance Solution Report for non-fire-safety matters; such reports are to be prepared under separate cover.

1.3 BUILDING CODE OF AUSTRALIA

The National Construction Code (**NCC**) is Australia's primary set of technical design and construction provisions for buildings.

As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility, and sustainability of certain buildings. The Australian Building Codes Board, on behalf of the Australian Government and each State and Territory government, produces and maintains the National Construction Code.

The NCC has three (3) volumes being:

+ Volume One - containing technical design and construction requirements for all Class 2 to 9 buildings.
+ Volume Two - containing technical design and construction requirements for certain residential (Class 1) and non-habitable buildings and structures (Class 10).

+ Volume Three - Containing technical requirements for the design and construction for plumbing and drainage systems in new and existing buildings.

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code (**NCC**) Series Volume One – Building Code of Australia, 2022 Edition (**BCA**), incorporating the State variations where applicable.

Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority, or for Crown projects the date of the invitation for tenders to carry out the Crown building work, or in the absence of tenders the date on which the Crown building work commences.

A reference to the BCA in this report is a reference to **BCA2022**, being volume 1 of the NCC.

1.4 LIMITATIONS

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

1. the structural adequacy or design of the building;
2. the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
3. the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic services.

This report does not include, or imply compliance with:

1. the National Construction Code – Plumbing Code of Australia Volume 3
2. the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to) (Note: The provision of access for people with a disability for the subject development has not been assessed against the Deemed-to-Satisfy Provisions of Part D4 and Clauses E3D7, E3D8, F4D5, F4D6, F4D7 and F4D12 of BCA2022 unless otherwise discussed in this report);
3. Demolition Standards not referred to by the BCA;
4. Work Health and Safety Act 2011;
5. Requirements of Australian Standards unless specifically referred to;
6. 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
7. Conditions of Development Consent issued by the Local Consent Authority.

1.5 DESIGN DOCUMENTATION

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

2.0 Building Description

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

2.1 RISE IN STOREYS (CLAUSE C2D3)

The building has a rise in storeys of five (5).

Note: Due to the mezzanine floor area being more than 200m^2 and 1/3 of the floor area and therefore is considered as a storey as per BCA C2D3.

2.2 CLASSIFICATION (CLAUSE A6G1)

The building has been classified as follows.

Table 1: Building Classification

Class	Level	Description
Class 6	Ground Floor	Takeaway
Class 7a	Basement 1-2	Car parking space
Class 8	Ground – Third Floor*	Light Industrial Unit

* Note that the mezzanine level has been considered a storey taking into consideration that the mezzanine floor area is more than 200m^2 and 1/3 of the floor area under BCA Clause C2D3(4).

2.3 EFFECTIVE HEIGHT (CLAUSE A1G4)

The building has an *effective height* of less than twenty-five (25) metres and more than twelve (12) metres. (30.900-16.400=14.5m)

2.4 TYPE OF CONSTRUCTION REQUIRED (TABLE C2D2)

The building is required to be of Type A Construction.

2.5 FLOOR AREA AND VOLUME LIMITATIONS (TABLE C3D3)

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

Class 6 & 8	Maximum Floor Area	5,000m^2
	Maximum Volume	30,000m^3
Class 7a	As there are more than 40 car spaces, the carpark is to be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17) and as such there are no maximum floor area or volume limitations for this area.	

2.6 FIRE COMPARTMENTS

The following *fire compartments* have been assumed:

1. The Takeaway is one fire compartment.
2. The light industrial units and Takeaway are one fire compartment (Level 1 – Level 3).
3. The basement car parking space is one fire compartment.

Note: The Takeaway has been fire separated to avoid requiring sprinklers as per BCA E1D8 whereby a building with a floor area of more than 3,500m^2 will require sprinklers.

2.7 EXITS

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

Basement Floors

1. Central fire exit stair.
2. South-western fire exit stair.

Ground Floor

1. South-western Lobby double doors.
2. Roller doors from the individual light industrial units (the concession to permit roller shutters as an exit has been applied under BCA Clause D3D24(2)).
3. Takeaway double doors.

First – Third Floors

1. South-eastern fire stair.
2. Northern fire stair.

2.8 CLIMATE ZONE

The building is located within Climate Zone 5.

2.9 LOCATION OF FIRE-SOURCE FEATURES

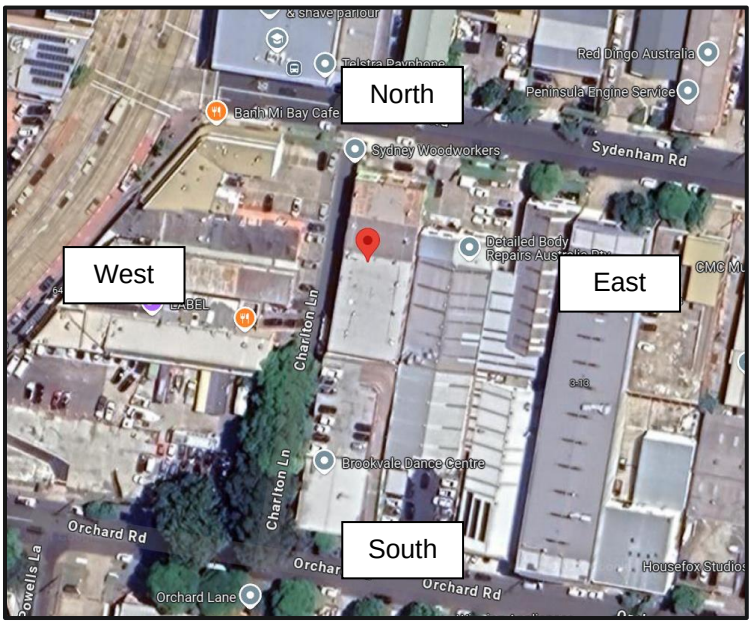
The fire source features for the subject development are:

North: The far boundary of Sydenham Road (more than 6m).

South: The common boundary of 7 Orchard Road (less than 3m).

East: The common boundary of 4 Sydenham Road (less than 3m).

West: The far boundary of Charlton Lane (more than 6m).



In accordance with Clause S5C2 of Specification 5, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

a. has an FRL of not less than 30/–/–; and

b. is neither transparent nor translucent.

3.0 BCA Assessment

3.1 INTRODUCTION

The assessment undertaken is in relation to the plans prepared for the development consent application. The technical details required for a development consent are far less than that required for a construction certificate and as such, this assessment is designed to address a higher-level assessment of the building against the provisions of the BCA.

The main purpose of this report is to identify any major design changes required to the building, services required to be installed, and the fundamentals of design required by sections C, D, E, F, G and H (where applicable) of the BCA. This report does not address the design requirements for the structure of the building (Section B), or for the detailed design of services (Section E) and is subject to the limitations outlined under Section 1.4 of this report.

The summary below is to be read in conjunction with the BCA specification contained in Annexure E of the report.

3.2 FIRE RESISTANCE AND STABILITY – PART C2 & SPECIFICATION 5

The required fire resistance levels for the building elements are outlined in Annexure C of this report.

The FRLs are required to be 240/240/240 FRL for Class 8 buildings and due to being a relatively extreme requirement, potentially it may be possible for a Fire Engineer to rationalise FRLs in the building under a Fire Engineering Performance Solution.

The external walls and all components of the wall, in a building of Type A construction, are required to be non-combustible. Full details have not been provided with respect to the materials of the external wall and further details will be required to be submitted at Construction Certificate Stage for assessment.

Subject to the required FRL's being provided, the proposed building is capable of complying with the requirements of the BCA with respect to fire resistance.

Combustibility of External Walls

The plans indicate that the external walls are to be constructed of concrete which can readily meet the requirements of BCA Clause C2D10 (non-combustible). However, it is important to note that the material of the signage has not been detailed and must also be non-combustible. Where compliance cannot be met a Performance Solution would need to be provided.

Fire Hazard Properties

Internal linings and materials are required to meet the specified fire hazard properties of BCA Clause C2D11 and Specification 7.

3.3 COMPARTMENTATION AND SEPARATION – PART C3

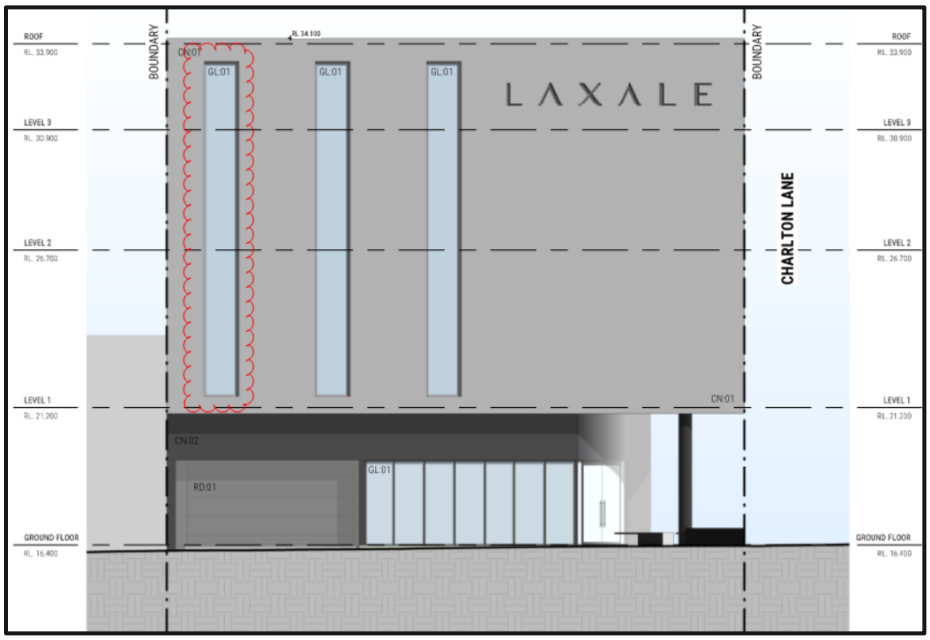
The Class 6 and 7b portion of the building have been assessed and the floor area and volume of these compartments is less than that permitted by BCA Clause C3D3. As such compliance with the provisions of the BCA for compartmentation is readily achieved, however this assessment is to be reaffirmed at Construction Certificate stage once holistic fire compartment drawings are available for assessment.

Carpark

The carpark is required to have an AS2118.1 sprinkler system, as it accommodates more than forty (40) vehicles and/or is part of a building *required* to have sprinklers. Therefore, the carpark is not subject to the floor area and volume limitations under BCA Clause C3D3. However, due to Council's DCP, 3% of the total car parking space are required to be accessible car parking space and therefore this will reduce the total number of car parking spaces to under 40 spaces. Therefore, the carpark is not required to have sprinklers if the car parking spaces a reduced to less than 40 spaces, and as a result, is subject to the floor area and volume limitations of the BCA Clause C3D3. The proposed floor area and volume of the carpark is less than that permitted and therefore complies.

Spandrel Separation

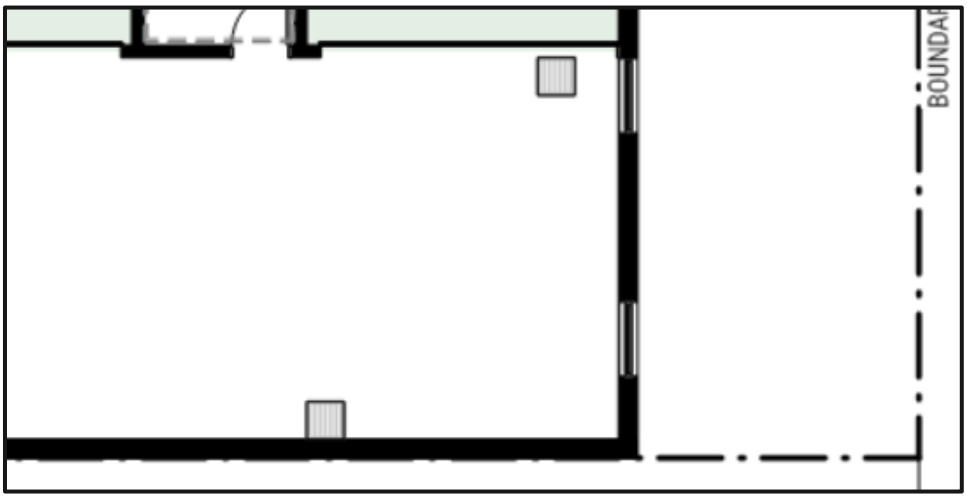
The development is Type A Construction and BCA Clause C3D7 requires suitable vertical and/or horizontal spandrel separation between the openings in the external walls on different storeys. The plans indicate spandrels are not provided on the northern elevation due to the proposed glazing which does not achieve a minimum of 900mm high spandrel.



3.4 PROTECTION OF OPENINGS – PART C4

3.4.1 Openings in external walls

The window opening on the northern elevation are within three (3) metres of the boundary and will require protection. Protection can be provided by self-closing fire windows, fire shutters or fixed glazing with sprinklers. Details are to be provided at Construction Certificate Stage to outline how compliance will be achieved. Where compliance cannot be met, the Fire Safety Engineer will need to review and confirm if a performance solution is feasible.



3.4.2 Openings in Floors for Services and Service Installations

Where electrical, plumbing, mechanical or other services pass through an element of construction that is required to achieve a fire resistance level (FRL), the service installation shall not compromise the fire resistance level of the element. A such, the service installation must be fire sealed with a compliant system such as fire collar on PVC pipes or fire rated mastic on electrical cables tested in accordance with AS1530.4-2014.

Fire sealing of services is a design element that will require detailed assessment and specification at Construction Certificate stage.

3.5 OCCUPANT ACCESS AND EGRESS – SECTION D

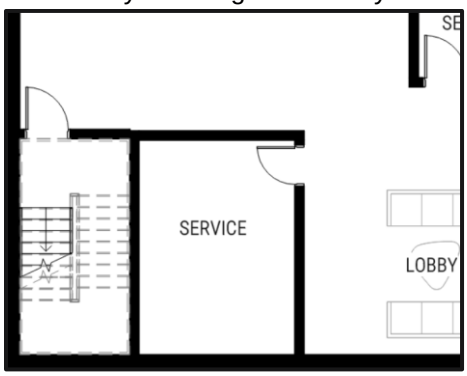
3.5.1 Egress from the building

General Requirements

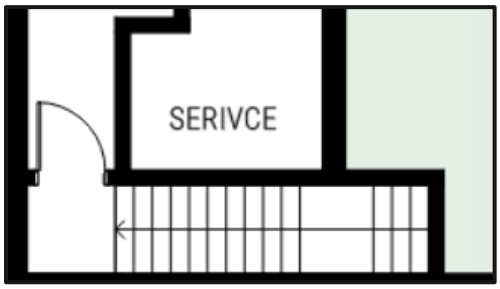
As the development is under twenty-five (25) metres effective height, each *storey* is permitted to have a single exit. It is noted that the proposed industrial units have roller shutter doors instead of swinging doors for egress, roller shutter doors are permitted in lieu of swinging doors due to the concession that operation of a latch does not apply to SOUs with a floor area of not more than 200m^2 in a Class 8 building or in a space which is inaccessible to persons at all times when the door is locked as per BCA D3D26(3).

Where the egress discharges to open space on the property, a continuous pathway from the point of discharge to the street is required. The plans do indicate such a pathway and as such the provisions of BCA Clause D2D15 are readily satisfied.

However, there is a fire-isolated exit which discharges internally into the building rather than open to sky which will need to be addressed under a Performance Solution as per BCA D2D12, the following area includes the South-eastern fire-isolated stairway discharges internally within the building.



In addition, the central fire-isolated stairway Service Room opens directly into a fire-isolated passage in lieu of an air lock contrary to the requirements of D2D12.



Further discussion is required with the Fire Safety Engineer regarding the stairs from the mezzanine storey. There are two options in which to consider the exits from the mezzanine floors which the feasibility will need to be determined with a fire engineer, they are as follows:

Option 1:

If each internal mezzanine stair is considered as an exit, then the mezzanine floor for each unit requires its own flight of stairs that provides egress direct to open space as per BCA D2D14 in which the current design does not comply with.

Option 2:

The second option is to consider the SOU stairs on the mezzanine floor within each unit as a stair in a path of travel. Hence there are no exits on the mezzanine floor to comply with BCA D2D3.

Details of treads and risers, landings, thresholds, balustrades, and handrails have not been provided however, compliance is readily achievable. The design of these elements can be assessed at the Construction Certificate Stage.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA Clause D3D8. The doors are to be lined internally with fire grade plasterboard or metal backing sheets and smoke seals provided to all four sides, including drop down seals on the bottom. All penetrations from the enclosure are to be suitably sealed against smoke spread by sealing with non-combustible mastic.

Basement Car Park/Class (7a)

BCA Clause D2D5 – Exit travel distance

Egress from the carpark / retail shall ensures that no point on the floor is more than twenty (20) metres from an exit, or where a point of choice of two (2) exits is available, the distance to the nearest of those exits can increase up to forty (40) metres, as permitted by BCA Clause D2D5. On the Ground Floor, a Class 5 or 6 building is permitted to be thirty (30) metres to an exit.

It will be necessary to undertake a Fire Engineered Performance Solution to permit the extended travel distances to the following locations:

- Unit U101
- Unit U201 – depending on the fit-out layout, the travel distance around the backside of the Goods Lift may cause extended travel distances.

The distance between alternative exits is required by BCA Clauses D2D7-D2D11 to be no closer than nine (9) metres and no further apart than sixty (60) metres when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

3.5.2 Access for people with a disability

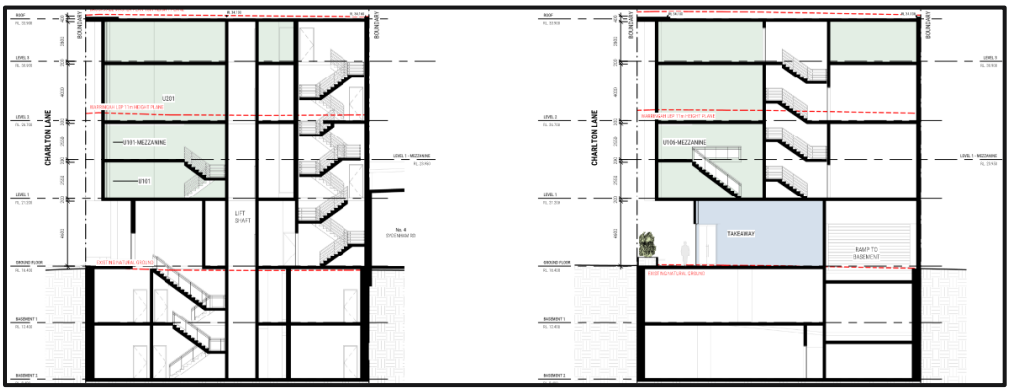
Northern Beaches Council's Pittwater 21 DCP states that 3% of the car parking spaces are required to be accessible parking spaces, there is only one proposed accessible car parking space which is non-compliant. Therefore, an additional accessible car parking space with a shared zone must be provided to comply with Council's DCP and BCA D4D6.

Further discussion is required regarding the operation of a latch for the roller shutters, as access does not currently appear to be provided. Either these doors will need auto controls in accordance with AS 1428.1, or a separate compliant swinging door will be required to each unit, as AS 1428.1 only considers swinging or sliding doors in an accessible path of travel. Pending the design outcome, a performance solution may be required should it be feasible.

A clear space of 1540x2070mm are required in front of lift lobbies to provide a clear turning space for wheelchairs. The lift lobby on Basement 1 does not have a clear 1540x2070mm space and therefore is non-compliant, the drawing plan must be modified to provide a 1540x2070mm clear space as per BCA D4D4.

When there a 90 degree turns within an accessible path of travel, a clear 1500x1500mm turning space with a splayed corner must be provided. The accessible pathway leading to the lift on Basement 1 does not have a clear 1500x1500mm and therefore is non-compliant. The drawing plans must be modified to provide a clear 1500x1500mm turning space to be compliant in accordance with BCA D4D4.

Handrails to all stairways must have a 300mm extension with a termination at the end, the proposed stairways do not seem to have a 300mm extension and therefore is non-compliant, 300mm extension must be provided to comply with BCA D4D4. Details of stairways and handrails have not been provided, details are to be provided at CC stage.



An accessible pathway leading to the mezzanine floor is not provided and is therefore non-compliant, this can be addressed under a Performance Solution as per BCA D4D4.

3.6 SERVICES AND EQUIPMENT- PARTS E1, E2, E3 AND E4

The building is required to be provided with the services and equipment set out in Annexure B of this report. The annexure also outlines the standard of performance to be achieved by the services and equipment.

3.6.1 Part E1 – Fire Fighting Equipment

Specific comments pertaining to fire fighting services and equipment required for the building as set out in Annexure B of this report are provided as follows:

Fire hydrant
As the building has a floor area greater than 500m^2, fire hydrant protection is required. The following option are available:

Install onsite fire hydrants with hydrants located within four (4) metres of exits, or within fire isolated stairs as relevant to the requirements contained within AS2419.1-2021. The hydrant booster is required to be no more than twenty (20) metres from the building and within sight of the principal pedestrian entrance as well as located not less than ten (10) metres from any substation.

The plans do not show the location of fire hydrants and further information will be required at the Construction Certificate Stage from the Hydraulic Consultant to demonstrate compliance.

Fire Hose Reel

The Class 8 portion of the building greater than 500m^2 and is required to have fire hose reels (FHR's). The plans do not show the location of fire hose reels and further information will be required at the Construction Certificate Stage from the Hydraulic Consultant to demonstrate compliance.

Sprinklers

The building is required to have a sprinkler system installed as per BCA Clause E1D9 & Specification 17 due to the basement car parking spaces. Details are to be provided at the Construction Certificate Stage by the Hydraulic Consultant to demonstrate compliance.

The building is proposed to be used for light industrial in which has been defined by Northern Beaches Council as:

- High technology
- Home industry
- Artsian food and drink industry
- Creative industry

Due to the intended use this can be considered as an excessive hazard which is included within the BCA clause under: foam plastic and foam plastic goods manufacture, processing and warehousing, for example. furniture factory. As it is unclear of what the proposed uses of the building is, we must consider this an excessive hazard and it is also noted that the building has a floor area of over 2,000m^2 hence would require sprinklers under BCA E1D13. This will be need to be confirmed at the Construction Certificate stage.

Portable Fire Extinguishers

The development is required to have portable fire extinguishers installed throughout in accordance with AS2444-2001. Compliance is readily achievable.

3.6.2 Part E2 – Smoke Hazard Management

A smoke detection system will be required throughout the building in accordance with Part E2 & AS1670.1. Specific comments pertaining to smoke hazard management system services and equipment required for the building as set out in Annexure B of this report.

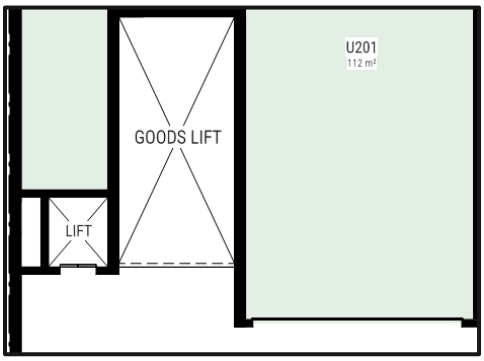
3.6.3 Part E3 – Lift Installations

Lifts Serving More than 12 Metres Effective Height

Lifts are provided to the building and are located within their own shaft, serviced by a common lobby. The lifts require stretcher facilities as they serve a height above twelve (12) metres in *effective height* and the dimensions of the shaft are sufficient to allow compliance for a 1400 mm width x 2000 mm length lift car.

No details have been provided to undertake an assessment. Therefore, further information is required during the Construction Certificate Stage.

The proposed Passenger Lift and Goods Lift must also be fire-rated and have a suitable lift landing door.



3.6.4 Part E4 – Visibility in emergency, exit signs and warning systems.

Specific comments pertaining to emergency lighting, exit signs and warning systems required for the building as set out in Annexure B of this report are provided as follows:

- Emergency lighting is required as per BCA Clause E4D2 for all non-fire-isolated stairs, corridors, passageways, hallways, or the like that is part of a path of travel to an exit.
- Exit signs are required to be installed throughout the building, including directional exit signs to guide occupants to the designated exits in the building. Due to the proposed building being used for industrial purposes, it is important to ensure that exit signs are mounted between 2m to 2.7m or directly above a door if the doorway is above 2.7m in accordance with Clause 6.8.1 of AS2293.1. If it is required that the exit signs are to be mounted above 2.7m where it is not a doorway.
- Emergency warning and intercommunication system is required to be installed within buildings with an effective height greater than twenty five (25) metres.

The DA plans do not provide any details for the emergency lighting and exit signs. As such further information will be required at the Construction Certificate Stage, however compliance is readily achievable.

3.7 WALL CLADDING

Due to the proposed concrete wall it does not comply with the deemed to satisfy provisions of BCA F3D5, therefore, a Performance Solution will be required.

3.8 FACILITIES IN CLASS 3 TO 9 BUILDINGS – PART F4

For the Class 8 industrial sole occupancy units, the number of facilities *required* have been calculated in accordance with Clause F4D3, F4D4 and D2D4:

Table F4D4b

Staff	Closet Pans	Urinals	Washbasins
Male	2 WC = 40 staff	3 Urinal = 100 staff	1 Basin = 20 staff
Female	4 WC = 60 staff	N/A	1 Basin = 20 staff

Based on the BCA Table F4D4b sanitary facility count, the male sanitary facility can cover up to 20 staff and female sanitary facility can cover up to 20 staff (40 staff total in the Class 8 portions of the building). If this is not sufficient enough for the total number of staff, then the sanitary facilities must be expanded. A simple way to double the population would be to add one male and one female washbasin.

It is assumed that the Takeaway shop would have less than 20 patrons and therefore sanitary facilities are not required to be allocated for the patrons. However, if more than 20 patrons are proposed within the Takeaway shop, additional sanitary facilities must be provided for them. For the purposes of this sanitary facilities count, the employees of the Takeaway shop will be allocated with the accessible sanitary facility which can cover for up to 10 employees.

3.9 ROOM HEIGHTS – PART F5

The section drawings indicate that the ceiling heights for all habitable spaces, corridors, and the like can achieve the minimum height of 2400 mm. In non-habitable rooms such as toilets, garages and storage rooms, the ceiling height is no less than 2100 mm.

The ceiling heights have been assessed in accordance with BCA Part F5 which has indicated that compliance is readily achievable within all habitable spaces, corridors, and the like.

3.10 LIGHT AND VENTILATION – PART F6

3.10.1 Commercial Buildings

For a Class 6 and 8 building, artificial lighting and mechanical ventilation are required, and these systems can be readily installed in the building. Further design development and input will be required from the Electrical and Mechanical Consultants at the Construction Certificate Stage.

The carpark (other than an *open-deck* carpark) is required to have a mechanical ventilation system complying with AS1668.2. No information has been provided; However, the mechanical system can be readily designed. Further design input will be required from the Mechanical Consultant to demonstrate compliance.

3.11 CLEANING WINDOWS – NSW G1D5

A building must provide for a safe manner of cleaning any *windows* located three (3) or more storeys above ground level as per NSW Clause G1D5. Two (2) options are available for cleaning the windows:

1. The windows can be cleaned wholly from within the building; or
2. Provisions are made for cleaning windows by a method complying with the *Work Health and Safety Act 2011* and regulations made under the Act.

No information has been provided to determine if the development can comply with this requirement, and further information will be required during the design development stage.

3.12 ENERGY EFFICIENCY - SECTION J

To be separately assessed by Energy Consultant.

4.0 Statement of Compliance

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary information to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation complies or is capable of complying with that Code, subject to all matters for further consideration identified in this report being addressed in the design, and subject to compliance with all Annexures and Specifications included with this report.

Annexures

Annexure A - Design Documentation

This report has been based on the following design documentation.

Table 2: Architectural Plans

Architectural Plans Prepared by Walsh Architects			
Drawing Number	**Revision**	**Date**	**Title**
DA000	A	05.09.2024	Cover Page
DA015	A	05.09.2024	LOCATION PLAN
DA100	A	05.09.2024	BASEMENT 2 PLAN
DA101	A	05.09.2024	BASEMENT 1 PLAN
DA102	A	05.09.2024	GROUND FLOOR PLAN
DA103	A	05.09.2024	LEVEL 1 PLAN
DA104	A	05.09.2024	LEVEL 1 MEZZANINE PLAN
DA105	A	05.09.2024	LEVEL 2 PLAN
DA106	A	05.09.2024	LEVEL 3 PLAN
DA200	A	05.09.2024	LONG SECTIONS - SHEET 1
DA201	A	05.09.2024	LONG SECTIONS - SHEET 2
DA202	A	05.09.2024	CROSS SECTIONS
DA300	A	05.09.2024	ELEVATIONS - SHEET 1
DA301	A	05.09.2024	ELEVATIONS - SHEET 2
DA302	A	05.09.2024	ELEVATIONS - SHEET 3

Annexure B - Essential Services

The following fire safety measures are required to be installed in the building. The following table may be required to be updated as the design develops and options for compliance are confirmed, including any omissions or additions as a result of the fire engineering processes.

This section provides information for the design team, including service designers, and may need to be updated upon receipt of final designs and performance solutions at the construction approval stage.

Table 3: Essential Fire Safety Measures

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
3.	Access Panels & doors/hoppers (fire rated)	**BCA2022 C4D14** (Openings in Shafts) **BCA2022 Specification 12** AS 1905.1:2015 (Fire Resistant Door sets)
4.	Construction Joints	**BCA2022 C2D2, Specification 5** **BCA2022 C4D16** AS 1530.4:2014 & AS 4072.1:2005
5.	Fire doors	**BCA2022 C4D5** (Acceptable methods of Protection) **BCA2022 C4D9 (**Openings in Fire Isolated Exits) **BCA2022 C4D11** (Opening in Fire Isolated Lift Shafts) AS1735.11- 1986 **BCA2022 C4D14** (Opening in Shafts) Specification 12 AS1905.1: 2015
6.	Fire seals protecting openings in fire resisting components of the building	**BCA2022 C4D15** (Openings for service installations) **BCA2022 Specification 13** AS1530.4:2014 & AS4072.1-2005
7.	Fire windows (TBC)	**BCA2022 C4D3** (Protection of Openings) **BCA2022 C4D5** (Acceptable Methods of Protection) **BCA2022 Specification 12** identical to tested porotype. AS1905.2-2005 (Fire Resistant Roller Shutters)
8.	Lightweight construction	**BCA2022 C2D2, Specification 5** **BCA2022 C2D9, Specification 6** AS1530.4:2014

Item	Essential Fire and Other Safety Measures	Standard of Performance
General		
9.	Portable fire extinguishers	**BCA2022 E1D14** AS 2444–2001
10.	Fire blankets	AS 2444–2001
General Egress		
11.	Swing of Exit Doors	**D3D24** (Swinging Doors)
12.	Warning & operational signs	**BCA2022 D3D28** (Signs on Fire Doors) **BCA2022 D4D7** (Braille Exit Signs) (Note: E4D5 (Exit Signs)) **BCA2022 E3D4** (Lift Signs)
Lifts		
13.	Access to Lift Pits Located at lowest level or if >3m provided through an access door	**BCA2022 D2D22** (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'
14.	Stretcher Lifts including Fire Service Controls Recall Operation Drive control switch	**BCA2022 E3D3** **BCA2022 E3D9** (Fire Service Controls) **BCA2022 E3D11** (Fire Service Recall Operation Switch) **BCA2022 E3D12** (Lift Car Fire Service drive control switch) **BCA2022 Specification 24** AS 1735.11:1986 (Fire rated landing doors)
Electrical Services		
15.	Automatic fail-safe devices	**BCA2022 D3D26** (Operation of Latches) AS1670.1:2018 (Fire)
16.	Automatic fire detection & alarm:	**BCA2022 E2D9, E2D12** **Spec 20** **BCA2022 D3D26** (Operation of Latch) **Specification 12** AS 1670.1
17.	Emergency lighting	**BCA2022 E4D2, E4D4** AS/NZS 2293.1:2018
18.	Exit signs	**BCA2022 E4D55** (Exit Signs) **BCA2022 E4D6** (Direction Signs)

Item	Essential Fire and Other Safety Measures	Standard of Performance
		BCA2022 E4D8 (Design and Operation - Exits) AS/NZS 2293.1:2018
Hydraulic Services		
19.	Automatic fire suppression systems General Sprinklers (TBC)	**BCA2022 E1D9, E1D13 (TBC)** **BCA2022 Specification 17** AS 2118.1:2017 (Sprinklers) AS 2118.6:2012 (Combined Sprinklers/Hydrant)
20.	Fire hydrant systems NSW Storz Couplings	**BCA2022 E1D2** AS 2419.1:2021 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
21.	Hose reel systems	**BCA2022 E1D3** AS 2441:2005
22.	Wall-wetting sprinkler / drenchers (TBC)	**BCA2022 C4D5,** AS 2118.2: Wall-wetting sprinkler / drenchers
Mechanical Services		
23.	1. Mechanical air handling systems 2. Mechanical ventilation to carpark. 3. Auto-shutdown of Air-handling System. Any system that recycles air from one fire compartment to another, or operates in a manner that may spread smoke and does not operate as a smoke control system as per AS 1668.1:2015	**BCA2022 E2,** **Specification 20, Specification 21** AS 1668.1:2015 (Amdt 1) **Note: 5.5.3 Override control** To enable manual control by attending emergency services personnel, fans that are not required to shut down on initiation of fire mode in the car park shall be provided with a control switch at the designated building entry point. **Note:** Signage should be located at the car park entry indicating the location of the control switches.
Fire Engineering		
	TBC	**TBC**

Annexure C - Fire Resistance Levels

The following fire resistance levels (FRL's) are required for the various building elements, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

Type A Construction

Table 4: Type A Construction

Table S5C11a: Type A construction: FRL of loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	-	Class7a	Class 6	Class 8
Less than 1.5 m	-	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	-	120/90/90	180/180/180	240/240/180
3m, or more	-	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A construction: FRL of non-loadbearing parts of external walls

Distance from a fire-source feature	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	-	Class 7	Class 6	Class 8
Less than 1.5 m	-	-/120/120	-/180/180	-/240/240
1.5 to less than 3 m	-	-/90/90	-/180/120	-/240/180
3m, or more	-	-/-/-	-/-/-	-/-/-

Table S5C11c: Type A construction: FRL of external columns not incorporated in an external wall.

Column Type	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	-	Class 7a	Class 6	Class 8
Loadbearing	-	120/-/-	180/-/-	240/-/-
Non-loadbearing	-	-/-/-	-/-/-	-/-/-

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall Type	FRL (in minutes): Structural adequacy / Integrity / Insulation

	-	Class 7a	Class 6	Class 8
Loadbearing or non-bearing	-	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	-	Class 7	Class 6	Class 8
Fire-resisting lift and stair shafts	-	120/120/120	180/120/120	240/120/120
Bounding public corridors, public lobbies and the like	-	120/-/-	180/-/-	240/-/-
Between or bounding sole-occupancy unit	-	120/-/-	180/-/-	240/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion		120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): Structural adequacy / Integrity / Insulation			
	-	Class 7a	Class 6	Class 8
Fire-resisting lift and stair shafts	-	-/120/120	-/120/120	-/120/120
Bounding public corridors, public lobbies and the like	-	-/-/-	-/-/-	-/-/-
Between or bounding sole-occupancy unit	-	-/-/-	-/-/-	-/-/-
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion		-/90/90	-/120/120	-/120/120

Table S5C11g: Table A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building Element	FRL (in minutes): Structural adequacy / Integrity / Insulation

	-	Class 7a	Class 6	Class 8
Other loadbearing internal walls, internal 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

N.B. There are FRL concessions applicable for fully sprinkler protected car park portions under Clause S5C19 of BCA Specification 5, reducing the carpark FRL's down from 120/120/120 to 60/60/60.

Annexure D Definitions

Average specific extinction area

Average specific extinction area means the average specific extinction area for smoke as determined by AS 5637.1:2015.

Critical radiant flux

Critical radiant flux (CRF) means the critical heat flux at extinguishment (CHF in kW/m^2) as determined by AS ISO 9239.1:2003.

Designated bushfire prone area

Designated bushfire prone area means land which has been designated under a power of legislation as being subject, or likely to be subject, to bushfires.

Effective height

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).

Envelope

Envelope, for the purposes of Section J in Volume One, means the parts of a building's fabric that separate a conditioned space or habitable room from—

1. the exterior of the building; or
2. a non-conditioned space including—
    a. the floor of a rooftop plant room, lift-machine room or the like; and
    b. the floor above a carpark or warehouse; and
    c. the common wall with a carpark, warehouse or the like.

Exit

Exit means –

1. Any, or any combination of the following if they provide egress to a road or open space—
    a. An internal or external stairway.
    b. A ramp.
    c. A fire-isolated passageway.
    d. A doorway opening to a road or open space.
    e. A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

1. the total space of a building; or

2. when referred to in—

    a. the Performance Requirements — any part of a building separated from the remainder by barriers to fire such as walls and/or floors having an appropriate resistance to the spread of fire with any openings adequately protected; or

    b. the Deemed-to-Satisfy Provisions — any part of a building separated from the remainder by walls and/or floors each having an FRL not less than that required for a fire wall for that type of construction and where all openings in the separating construction are protected in accordance with the Deemed-to-Satisfy Provisions of the relevant Part.

Fire-resistance level (FRL)

Fire-resistance level (FRL) means the grading periods in minutes determined in accordance with Specification A2.3, for the following criteria—

1. structural adequacy; and
2. integrity; and
3. insulation,

and expressed in that order.

Note: A dash means that there is no requirement for that criterion. For example, 90/–/– means there is no requirement for an FRL for integrity and insulation, and –/–/– means there is no requirement for an FRL.

Fire-source feature

1. the far boundary of a road, river, lake or the like adjoining the allotment; or
2. a side or rear boundary of the allotment; or
3. an external wall of another building on the allotment which is not a Class 10 building.

Fire wall

Fire wall means a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.

Flammability index

Flammability Index means the index number as determined by AS 1530.2:1993.

Group number

Group number means the number of one of 4 groups of materials used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining, or attachment to a wall or ceiling.

Horizontal exit

Horizontal exit means a required doorway between 2 parts of a building separated from each other by a fire wall.

Loadbearing

Intended to resist vertical forces additional to those due to its own weight.

Non-combustible

Non-combustible means—

1. applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
2. applied to construction or part of a building — constructed wholly of materials that are not deemed combustible.

Occupiable outdoor area

Occupiable outdoor area means a space on a roof, balcony or similar part of a building–

1. that is open to the sky; and
2. to which access is provided, other than access only for maintenance; and
3. that is not open space or directly connected with open space.

Open space

Open space means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road.

Performance Requirement

Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.

Performance Solution

Performance Solution means a method of complying with the Performance Requirements other than by a Deemed-to-Satisfy Solution.

Sarking-type material

Sarking-type material means a material such as a reflective insulation or other flexible membrane of a type normally used for a purpose such as waterproofing, vapour management or thermal reflectance.

Smoke developed index.

Smoke developed index means the index number for smoke as determined by AS/NZS 1530.3.

Smoke development rate

Smoke development rate means the development rate for smoke as determined by testing flooring materials in accordance with AS ISO 9239.1.

Smoke growth rate index

Smoke growth rate index (SMOGRA RC) means the index number for smoke used in the regulation of fire hazard properties and applied to materials used as a finish, surface, lining or attachment to a wall or ceiling.

Sole-occupancy unit

Sole-occupancy unit means a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes—

1. a dwelling; or
2. a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
3. a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
4. a room or suite of associated rooms in a Class 9c building, which includes sleeping facilities and any area for the exclusive use of a resident.

Annexure E - BCA Compliance Specification

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

Architectural Design Certification

1. The FRL's of building elements for the proposed works have been designed in accordance with S5C11 of Specification 5 of BCA2022 for a building of Type A Construction.
2. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.
3. Building elements, including external walls and their components in buildings of Type A Construction, must be non-combustible in accordance with C2D10 of BCA2022.
4. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties of Clause C2D11 and Specification 7 of BCA2022.
5. Any concrete external walls that could collapse as complete panels (e.g. tilt-up and pre-cast concrete), in a building having a rise in storeys of not more than 2, will comply with Specification 8.
6. Any fire-protected timber proposed will comply with Clause C2D13 of BCA2022.
7. Any ancillary elements fixed, installed, or attached to the internal parts or external face of an external wall that is required to be non-combustible will comply with Clause C2D14 of BCA2022.
8. Vertical separation will be provided to the new openings in the external walls in accordance with Clause C3D7 of BCA2022. It is noted that no spandrel separation is required in the stairway or to a void.
9. The external walls and openings of separate fire compartments will be protected in accordance with Clause C4D4.
10. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C3D9 and Specification 5 of BCA2022.
11. Floors separating storeys of different classifications will comply with BCA Clause C3D10 of BCA2022.
12. Equipment will be separated in accordance with Clause C3D13 of BCA2022.
13. Any electricity substation, any main switch room sustaining emergency equipment required to operate in emergency mode, will be separated from the remaining building with construction having an FRL 120/120/120 and provided with self-closing -/120/130 fire doors in accordance with Clause C3D14 of BCA2022.
14. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C4D3 and C4D4 of BCA2022 or protected in accordance with Clause C4D5 of BCA2022.
15. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C4D6 of BCA2022.
16. Doors in a fire-isolated exit will be self-closing or automatic closing fire doors with an FRL of not less than -/60/30 in accordance with Clause C4D9 of BCA2022.
17. Fire-isolated stairways will not be penetrated by services other than those permitted by Clause C4D10 of BCA2022.

18. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C4D13, C4D14 and C4D15 and Specification 13 of BCA2022.
19. Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in accordance with BCA Clause C4D16.
20. The lift doors will be -/60/- fire doors complying with AS 1735.11:1986 in accordance Clause C4D11 of BCA2022.
21. Doorways and other opening in internal walls required to have an FRL will be protected in accordance with Clause C4D12 of BCA2022.
22. Columns protected by light weight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause C4D17 of BCA2022.
23. A lintel will have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non- loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Specification 5 Clause S5C4 BCA2022.
24. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause S5C8 of Specification 5 of BCA2022.
25. Fire doors will comply with AS 1905.1:2015 and Specification C4D5 of BCA2022.
26. Fire shutters and fire windows will be in accordance with Specification 12 of BCA2022.
27. The number of exits provided to the building will be in accordance with Clause D2D3 of BCA2022.
28. The required exits will be fire-isolated in accordance with Clause D2D4 of BCA2022.
29. Travel distances to exits will be in accordance with Clause D2D5 of BCA2022.
30. The alternative exits will be distributed uniformly around the storey and will be not be less than 9m apart, and not more that 45m apart in any residential portions or patient care areas in the health-care building, or otherwise not more than 60m apart, in accordance with Clause D2D6 of BCA2022.
31. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D2D7 to D2D11 of BCA2022.
32. The fire-isolated exits will be in accordance with Clause D2D12 of BCA2022.
33. The external stairway or ramp serving as a required exit will be in accordance with Clause D2D13 of BCA2022.
34. Discharge from exits will be in accordance with Clause D2D15 of BCA2022.
35. The non-required stairways, ramps and escalators will be in accordance with Clause D2D17 of BCA2022.
36. The ladder from the plant, lift machine rooms, and electricity network substation in lieu of a stairway will be in accordance with Clause D2D21 of BCA2022.
37. Access to the lift pit will be in accordance with Clause D2D22 of BCA2022.
38. The stairway or ramp within the fire-isolated shaft is to be non-combustible, and if there is a local failure not cause structural damage or impair the fire resistance of the shaft, in accordance with Clause D3D3 of BCA2022.

39. The non-fire isolated stairs will be constructed in accordance with Clause D3D4 of BCA2022.
40. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D3D8 of BCA2022 with the enclosure bounded by non-combustible construction or fire protective covering and smoke seals provided around the perimeter of the non-combustible doors and any openings sealed with non-combustible mastic to prevent smoke spreading from the enclosure.
41. New pedestrian ramps will comply with AS 1428.1:2009, Clause D3D11 and Part D4 of BCA2022. The floor surface of a ramp must have a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
42. The fire-isolated passageway will be in accordance with Clause D3D12 of BCA2022.
43. Stair geometry to the new stairways will be in accordance with Clause D3D14 of BCA2022. Stair treads are to have a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013.
44. Landings and door thresholds throughout the development will be provided in accordance with Clause D3D15 and D3D16 of BCA2022. Landings to have either a surface with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 or a strip at the edge of the landing with a slip-resistance classification complying with Table D3D15 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
45. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D3D17 to D3D21, and D3D22 of BCA2022.
46. The fixed platform, walkway, stairway and ladder and any associated going and riser, landing handrail, balustrade, located within the machinery room, boiler house, lift-machine room, plantroom, or non-habitable attic/storeroom within the sole occupancy unit will comply with AS 1657:2018 or Part D3 of BCA2022.
47. The doorways and doors will be in accordance with Clause D3D24 and D3D25 of BCA2022.
48. Door latching mechanisms will be in accordance with Clause D3D26 of BCA2022.
49. Signage will be provided on fire and smoke doors in accordance with Clause D3D28 of BCA2022.
50. The new works will be accessible in accordance with Clause D4D2, D4D3, D4D4 of BCA2022, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D4 of BCA2022.
51. Accessible carparking will be in accordance with Clause D4D6 of BCA2022.
52. Braille and tactile signage will in accordance with Clause D4D7, and Specification 15 of BCA2022.
53. Tactile ground surface indicators will be provided in accordance with Clause D4D9 of BCA2022 and AS/NZS 1428.4.1:2009.
54. The ramps associated with the accessway will not have a combined vertical rise of more than 3.6m and a landing for a step ramp will not overlap a landing for another step ramp of ramp in accordance with Clause D4D12 of BCA2022.
55. On an accessway, where there is no chair rail, handrail, or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, will be clearly marked in accordance with AS 1428.1:2009 and Clause D4D13 of BCA2022.
56. Fire precautions whilst the building is under construction will be in accordance with Clause E1D16 of BCA2022.

57. Additional provisions will be made in accordance with Clause E1D17 and E2D21 of BCA2022, due to the special hazards associated with the building works or the location of the building works.
58. Non-illuminated exit signage will be installed in accordance with Clause E4D7, and of BCA2022.
59. External above ground waterproofing membranes will comply with Clause F1D5 of BCA2022 and AS 4654 Parts 1 & 2:2012.
60. The new roof covering will be in accordance with Clause F3D2 of BCA2022.
61. Any sarking proposed will be installed in accordance with Clause F3D3 of BCA2022.
62. Waterproofing of all wet areas to the building will be carried out in accordance with Clause F2D2 and F2D3 of BCA2022 and AS 3740:2010.
63. Damp proofing of the proposed structure will be carried out in accordance with Clause F1D6 and F1D7 of BCA2022.
64. Floor wastes, including falls to floor wastes (including any voluntarily proposed floor wastes), will be installed in accordance with Clause F2D4 of BCA2022.
65. Sub-floor ventilation will be provided in accordance with Clause F1D8 of BCA2022.
66. All new glazing to be installed throughout the development will be in accordance with Clause F3D4 of BCA2022 and AS 1288:2006 / AS 2047:2014.
67. Sanitary facilities will be provided in the building in accordance with Clause F4D2, Table F4D2, Clause F4D4 and Table F4D4 of BCA2022.
68. Accessible sanitary facilities will be provided in the building in accordance with Clause F4D5, F4D6, Table F4D6 of BCA2022 and AS1428.1:2009.
69. The construction of the sanitary facilities will be in accordance with Clause F4D8 of BCA2022.
70. Ceiling heights will be in accordance with Clause F5D2 of BCA2022.
71. Natural light will be provided in accordance with Clause F6D2, F6D3, and F6D4 of BCA2022.
72. Natural or mechanical ventilation will be provided in accordance with Clause F6D6, F6D7 and F6D8 of BCA2022.
73. Water closets and urinals will be located in accordance with Clause F6D9 of BCA2022.
74. The sanitary compartments will be either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F6D10 of BCA2022.
75. Pliable building membranes installed in external walls will comply with Clause F8D3 of BCA2022 and where a pliable building membrane is not installed in an external wall, the primary water control layer will be separated from water sensitive materials by a drained cavity.
76. Every storey of the carpark will be provided with an adequate system of permanent natural or mechanical ventilation in accordance with Clause F6D11 of BCA2022.
77. A safe manner for cleaning of windows located 3 or more storeys above ground level will be provided in accordance with the Work Health & Safety Act 2011 and regulations made under that Act in accordance with NSW G1D5 of BCA2022.
78. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2021.
79. Building Fabric and Thermal Construction will be in accordance with Part J4 of BCA2022.

80. Glazing will be in accordance with Part J4 of BCA2022.
81. Building sealing will be in accordance with Part J5 of BCA2022.
82. Facilities for Energy Monitoring will be provided in accordance with Clause J9D3 of BCA2022.

Electrical Services Design Certification:

83. A smoke detection and alarm system will be installed throughout the building in accordance with E2D4 to E2D13, and Specification 20 of BCA2022.
84. Emergency lighting will be installed throughout the development in accordance with Clause E4D2, E4D4 of BCA2022 and AS/NZS 2293.1:2018.
85. Exit signage will be installed in accordance with Clause E4D5, E4D7, and E4D8 of BCA2022 and AS/NZS 2293.1:2018.
86. An emergency warning and intercom system (EWIS) will be provided to the building in accordance with Clause E4D9 of BCA2022.
87. Artificial lighting will be installed throughout the development in accordance Clause F6D5 of BCA2022 and AS/NZS 1680.0:2009.
88. Lighting power and controls will be installed in accordance with Part J7 of BCA2022.
89. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C3D14 of BCA2022.

Hydraulic Services Design Certification:

90. Storm water drainage will be provided in accordance with Clause F1D3 of BCA2022 and AS/NZS 3500.3:2018
91. Fire hydrant system will be installed in accordance with Clause E1D2 of BCA2022 and AS 2419.1:2005 as required.
92. Fire hose reels will be installed in accordance with Clause E1D3 of BCA2022 and AS 2441:2005.
93. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17 and appropriate part(s) of AS 2118.
94. A sprinkler system will be installed in accordance with Clause E1D4 of BCA2022 Specification 17, Specification 18 and appropriate part(s) of FPAA101D or FPA101H.
95. Portable fire extinguishers will be installed in accordance with Clause E1D14 of BCA2022 and AS 2444:2001.
96. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J8D2 of BCA2022.

Mechanical Services Design Certification:

97. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2D3 of BCA2022, and AS 1668.1:2015.
98. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F6D6 of BCA2022 and AS 1668.2:2012.
99. Every storey of the car park will be ventilated in accordance with Clause F6D11 of BCA2022 and where not naturally ventilated it will be mechanically ventilated in accordance with AS 1668.2:2012 as applicable.

100. Exhaust systems installed in a kitchen, bathroom, sanitary compartment, or laundry of a Class 2 or 4 sole-occupancy unit will have a minimum flow rate and discharge location in accordance with Clause F8D4 of BCA2022.

101. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J6 of BCA2022

102. Rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

103. The material and forms of construction for the proposed works will be in accordance with Clause B1D3, B1D4 and B1D6 of BCA2022 as follows:

    a. Dead and Live Loads – AS/NZS 1170.1:2002
    b. Wind Loads – AS/NZS 1170.2:2011
    c. Earthquake actions – AS 1170.4:2007
    d. Masonry – AS 3700:2018
    e. Concrete Construction – AS 3600:2018
    f. Steel Construction AS 4100:1998
    g. Aluminium Construction – AS/NZS 1664.1 or 2:1997
    h. Timber Construction – AS 1720.1:2010
    i. ABCB Standard for Construction of Buildings in Flood Hazard Areas.

104. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification 5 of BCA2022, including S5C11 for a building of Type A Construction.

105. The lift shaft will have an FRL in accordance with Clause C3D11 and Specification 5 of BCA2022.

106. Lightweight construction used to achieve required fire resistance levels will comply with Specification 6 of BCA2022.

107. The construction joints to the structure will be in accordance with Clause C4D16 of BCA2022 to reinstate the FRL of the element concerned.

108. The concrete panel external walls will be in accordance with Specification 5 of BCA2022.

109. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D3D3 of BCA2022 for the fire isolated stairs.

Lift Services Design Certification:

110. The lifts throughout the development will be provided with stretcher facilities in accordance with Clause E3D3 of BCA2022 and will be capable of accommodating a stretcher with a patient lying horizontally by providing a clear space not less than 600mm wide x 2000mm long x 1400mm high above the floor level.

111. Warning signage in accordance with Clause E3D4 of BCA2022 will be provided to the lifts to advise not to use the lifts in a fire.

112. A fire service recall control switch is to be installed on a landing at a location nominated by the appropriate authority in accordance with Clause E3D11.

113. A lift car fire service drive control switch is to be installed within the lift car in accordance with Clause E3D12.
114. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D4 of the BCA2022 and will be suitable to accommodate disabled persons.
115. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3D7 and E3D8 and will also have accessible features in accordance with E3D7 and E3D8 of BCA2022.
116. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3D7 and E3D8 of BCA2022.
117. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification 24 of BCA2022.