



BCA Assessment Report

German International School Sydney



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Table of Contents

EXECUTIVE SUMMARY	5
1 BASIS OF ASSESSMENT	6
1.1. Location and Description.....	6
1.2. Purpose	6
1.3. Building Code of Australia	6
1.4. Limitations	6
1.5. Design Documentation	7
2 BUILDING DESCRIPTION	8
2.1. Rise in Storeys (Clause C1.2).....	8
2.2. Classification (Clause A6.0)	8
2.3. Effective Height (Clause A1.0)	8
2.4. Type of Construction Required (Table C1.1)	8
2.5. Floor Area and Volume Limitations (Table C2.2).....	8
3 BCA ASSESSMENT	9
3.1. Introduction.....	9
3.4.1. Openings in external walls	10
3.4.2. Openings in Floors for Services and Service Installations.....	10
3.5.1. Egress from the building	10
3.5.2. Access for people with disabilities	10
3.8. Facilities in Class 3 to 9 buildings – Part F2	11
3.9. Room Heights – Part F3.....	11
3.10. Light and Ventilation – Part F4.....	11
4 STATEMENT OF COMPLIANCE.....	12
ANNEXURE A DESIGN DOCUMENTATION.....	13
ANNEXURE B ESSENTIAL SERVICES	15
ANNEXURE C FIRE RESISTANCE LEVELS	19
ANNEXURE D.....	21
ANNEXURE E DEFINITIONS.....	21
ANNEXURE F BCA COMPLIANCE SPECIFICATION	25

Tables

Table 1.	Building Classification.....	8
Table 2.	Architectural Plans.....	14
Table 3.	Essential Fire Safety Measures – Science Building.....	16
Table 4.	Type B Construction	20
Table 5.	Type C Construction.....	20

EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed new Science Centre and extension to the existing Administration Building development at the existing German International School Sydney, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Part 3 'Matters for Further Consideration' 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.	The construction of the external walls is such that they will prevent the penetration of water that could cause unhealthy or dangerous conditions or loss of amenity to occupants and undue dampness or deterioration of building elements	No DtS Provisions – FP1.4 Performance Provisions Only
2.	The non-loadbearing CLT walls are strictly required to be non-combustible – being Type B Construction, however being CLT are deemed to be combustible	Clause 4.1 of Specification C1.1 of BCA2019 Amendment
3.	Internal loadbearing walls are required to possess a 120/120/120 FRL – it is noted that as per attached Structural advice that the lift shaft walls will be used for lateral stability thus should strictly possess a 120/120/120 FRL	Clause 4.1 of Specification C1.1 of BCA2019 Amendment 1
4.	If the first floor is proposed to be CLT – then such floor should strictly possess a 30/30/30 FRL, be lined to the underside with a 60 minute incipient spread ceiling or possess a fire protective covering to the underside	Clause 4.1 of Specification C1.1 of BCA2019 Amendment 1
5.	Any loadbearing CLT columns incorporated in the external walls are strictly required to possess a 120/-/- where located within 18.0m of any fire source features	Clause 4.1 of Specification C1.1 of BCA2019 Amendment 1
6.	The windows at ground level of the Science Centre where within 6.m of the adjacent fire source feature will not be protected as per C3.4 of BCA2019 Amendment 1	Clause C3.2 of BCA2019 Amendment 1
7.	Any services penetrating through the first floor – if CLT will need to be suitably sealed noting that there are no available test reports for services through CLT products	C3.15 of BCA2019 Amendment 1
Building Code of Australia Compliance Matters to be Addressed		
1.	Nil at DA Stage	NA

1 BASIS OF ASSESSMENT

1.1. Location and Description

The building development, the subject of this report, is located at within the existing grounds of the German International School Sydney. The proposed new works include a stand-alone new science centre building and a small addition to the existing single storey administration Building.

1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, Amendment 1, 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 BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019, Amendment 1 (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. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

1.4. Limitations

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

- (a) the structural adequacy or design of the existing or proposed buildings;
- (b) the inherent derived fire-resistance ratings of any existing or proposed structural elements of the building (unless specifically referred to); and
- (c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- (a) the National Construction Code – Plumbing Code of Australia Volume 3
- (b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 only);
- (c) Demolition Standards not referred to by the BCA;
- (d) Work Health and Safety Act 2011;
- (e) Requirements of Australian Standards unless specifically referred to;
- (f) 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;
- (g) Any buildings located on the school site other than the administration building; and
- (h) 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 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 C1.2)

The new Science Centre building has a rise in storeys of two (2)

The existing Administration building has a rise in storeys of two (2)

2.2. Classification (Clause A6.0)

The building has been classified as follows.

Table 1. Building Classification

Class	Level	Description
5	Ground and Level 1 of Administration Building	School offices
9b	Ground and Level 1 – Science Centre	Assembly Building / Classrooms (School Science Laboratories)

2.3. Effective Height (Clause A1.0)

The buildings have an *effective height* of less than 12 metres.

2.4. Type of Construction Required (Table C1.1)

The Administration building is required to be of Type C Construction.

The Science Centre building is required to be of Type B Construction.

2.5. Floor Area and Volume Limitations (Table C2.2)

The buildings are subject to maximum floor area and volume limits as follows for Type C and Type B:-

Class 5 (Type C)	Maximum Floor Area	3,000m ²
	Maximum Volume	18,000m ³
Class 9b (Type B)	Maximum Floor Area	5,500m ²
	Maximum Volume	33,000m ³

3 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 address 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).

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

3.2. Fire Resistance and Stability – Part C1 & Specification C1.1

The Science Centre building is proposed to be constructed of the following elements:

Element	Method of Construction
External Walls	CLT Timber
Floors	Concrete to Ground Floor and CLT Timber to first floor
Roof	Extensive Green Roof - PVC Membrane beneath 150mm soil and planting
Internal Walls	CLT Timber
Lift shafts	CLT Timber

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

The external walls and all components of the wall, in a building of Type B construction, are required to be non-combustible. The plans indicate the materials of the external wall being CLT Timber with Bushfire rated natural timber cladding which is a combustible material – as such the type of construction of the Science Centre building will need to be addressed under the relevant Performance Provisions of CP1 and CP2 of the BCA in a detailed Fire Engineering Assessment Report – to be addressed at CC stage.

Subject to the required FRL's being provided as will be documented in the future Fire Engineering Assessment Report, the proposed building is capable of complying with the Performance requirements of the BCA with respect to fire resistance

3.3. Compartmentation and Separation – Part C2

The class 5 and 9b portions of the building have been assessed and the floor area and volume of these compartments is less than that permitted by Clause C2.2 of the BCA,. As such compliance with the provisions of the BCA for compartmentation is readily achieved.

There is no main switch board serving emergency equipment required to operate in the emergency mode proposed as part of the new works. Thus the relevant provisions of C2.13 of BCA2019 are not applicable.

Compliance with Part C2 of the BCA can be readily achieved by the proposal.

3.4. Protection of Openings – Part C3

3.4.1. Openings in external walls

The proposed extension to the administration building contains openings greater than 6.0m to any adjoining fire source features thus requires no further protection under C3.2 of BCA2019.

Similarly all openings to the Science Centre are located greater than 6.0m to a nearby fire source feature other than to the north western elevation where there are glazed windows. The protection of these windows will be assessed under the separate Fire Engineering Performance Solution report to be prepared at CC stage.

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. As the upper floor to the Science centre building is of CLT timber – assessment of penetrations will be assessed under the separate Fire Engineering Performance Solution report to be prepared at CC stage .

3.5. Occupant Access and Egress – Section D

3.5.1. Egress from the building

Egress from the Science Centre and Administration building extension is required in sufficient numbers and location to ensure that no point on the floor is more than 20m from an exit, or a point of choice of two exits, in which case the distance to one of those exits is not more than 40m, as required by clause D1.4 of the BCA.

The distance between alternative exits is required by clause D1.6 of the BCA to be no closer than 9m and no further apart than 60m when measured through the point of choice. The travel distances and distances between exits comply with the above requirements.

The buildings are only of two (2) storeys connected by a stairway, and therefore under the provisions of clause D1.3 of the BCA, the buildings are permitted to have non-fire isolated stairway as documented.

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 indicate such a pathway and as such the provisions of Clause D1.10 of the BCA are readily satisfied.

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 CC stage.

Electrical distribution cupboards are to be provided with smoke separation to satisfy the requirements of BCA D2.7. 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 fire mastic.

3.5.2. Access for people with disabilities

Accessibility to the new buildings are being addressed under separate cover by Access Consultant.

3.6. Services and equipment- Parts E1, E2 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.

3.7. Lift Installations – Part E3

A new lift is proposed to the Science Centre building and is located in its own shaft. The lift does not require to be a stretcher facility as the building is under 12m in effective height. The new lift will need to be suitable for accessibility compliance– addressed under separate Access Consultants Report.

The existing administration building is already served by its own lift.

3.8. Facilities in Class 3 to 9 buildings – Part F2

The proposed works do not include the provision of sanitary facilities – it is assumed there are existing sanitary facilities to the school suitable in number and location to serve the school student and staff population.

3.9. Room Heights – Part F3

The ceiling heights have been assessed in accordance with Part F3 of the BCA to the areas of new works which has indicated that compliance is readily achievable within all habitable spaces, corridors and the like.

3.10. Light and Ventilation – Part F4

Natural light and ventilation are required to all Classrooms within a class 9b building. The plans have been assessed which reveals all habitable spaces are serviced by windows or glazed doors. The area of the doors and windows are sufficient in size to provide the required minimum natural light and ventilation to all habitable rooms. Where windows are fixed, a system of mechanical ventilation is required which can be readily provided.

For class 5 and 9b buildings artificial lighting and mechanical ventilation are required and these systems can be readily installed in the building.

4 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 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 ongoing design development through to Construction Certificate Stage.

ANNEXURE A DESIGN DOCUMENTATION

Annexure A – Design Documentation

This report has been based on the following design documentation.

Table 2. Architectural Plans

Architectural Plans Prepared by Betti & Knut Architects			
Drawing Number	Revision	Date	Title
01	04	29/10/2021	Survey Plan
02	04	29/10/2021	Site Analysis Plan
03	04	29/10/2021	Site Plan
04	04	29/10/2021	Landscape Plan
05	04	29/10/2021	Shadow Diagrams
10	04	29/10/2021	Ground Floor Science Plan
11	04	29/10/2021	Upper Levels Science Plan
12	04	29/10/2021	Roof Plan
13	04	29/10/2021	Floro Plans Administration Building
30	04	29/10/2021	Sections 1:100
31	04	29/10/2021	Elevations South & West
32	04	29/10/2021	Elevations North & East

ANNEXURE B ESSENTIAL SERVICES

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.

Table 3. Essential Fire Safety Measures – Science Building

Item	Essential Fire and Other Safety Measures	Standard of Performance
Fire Resistance (Floors – Walls – Doors – Shafts)		
1.	Fire seals protecting openings in fire resisting components of the building	BCA2019 C3.15 (Openings for service installations) BCA2019 Spec C3.15 AS1530.4:2014 & AS4072.1-2005 and Fire Engineering report to be Prepared at CC stage
2.	Lightweight construction <ul style="list-style-type: none"> > Fire Rating of Electrical Switchboards > Possible Fire Rating of Walls/floors/ceiling located <ul style="list-style-type: none"> ○ Floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of a fire to the space above itself of no less than 60 minutes. ○ FRL of 30/30/30 ○ Lined on the underside with a fire protective covering 	BCA2019 C1.1, Spec. C1.1 BCA2019 C1.8, Spec C1.8 AS1530.4:2014
General		
3.	Portable fire extinguishers	BCA2019 E1.6 AS 2444–2001
4.	Fire blankets	AS 2444–2001
General Egress		
5.	Swing of Exit Doors	D2.20 (Swinging Doors)
Lifts		
6.	Access to Lift Pits <ul style="list-style-type: none"> > Located at lowest level 	BCA2019 D1.17 (Access to Lift Pits) 'DANGER LIFT WELL – ENTRY OF UNAUTHORISED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES'

Item	Essential Fire and Other Safety Measures	Standard of Performance
Electrical Services		
7.	Emergency lighting	BCA2019 E4.2, E4.4 AS/NZS 2293.1:2018
8.	Exit signs	BCA2019 E4.5 (Exit Signs) BCA2019 E4.6 (Direction Signs) BCA2019 E4.7 (Residential Concession) BCA2019 E4.8 (Design and Operation - Exits) AS/NZS 2293.1:2018
9.	Smoke detectors & heat detectors 1. Auto-shutdown of Air-handling System. > (NSW Table E2.2b) - Any system in a <u>Class 9b</u> assembly building which does not form part of a smoke hazard management system, other than: ○ non-ducted individual room units with a capacity of not more than 1000 L/s; or ○ miscellaneous exhaust are systems installed as per Section 5 and 6 of AS/NZS 1668.1:2015.	BCA2019 E2.2, Spec E2.2a AS 1668.1:2015
Hydraulic Services		
10.	Fire hydrant systems > NSW Storz Couplings	BCA2019 E1.3 AS 2419.1:2005 FRNSW Technical Sheet D15/45534.V9 issued 10.01.19, 'Compatible Hose Connections'
Mechanical Services		
11.	Auto-shutdown of Air-handling System. > (NSW Table E2.2b) - Any system in a Class 9b assembly building which does not form part of a smoke hazard management system, other than: > non-ducted individual room units with a capacity of not more than 1000 L/s; or > miscellaneous exhaust are systems installed as per Section 5 and 6 of AS 1668.1:2015.	BCA2019 E2.2, Table E2.2a, Table E2.2b Spec E2.2a, Spec E2.2b AS 1668.1:2015 (Amdt 1)
12.	Alternative Solution Fire Engineering Report (FER) to be prepared at CC stage	

Item	Essential Fire and Other Safety Measures	Standard of Performance
	Allowing for: 2. Refer Table in Executive Summary FER Requirements 3. To be advised at CC Stage	

ANNEXURE C FIRE RESISTANCE LEVELS

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 B Construction – Science Building

Table 4. Type B Construction

Item	Class 9b
Loadbearing External Walls <ul style="list-style-type: none"> - 9 – less 18m from a <i>fire- source feature</i> - 18m or more from a <i>fire- source feature</i> 	120/30/- -/-/-
Non-Loadbearing External Walls <ul style="list-style-type: none"> - 3m or more from a <i>fire- source feature</i> 	-/-/-
Loadbearing External Columns <ul style="list-style-type: none"> - Less than 18m - 18m or more 	120/-/- -/-/-
Other loadbearing internal walls and columns	120/-/-
Roofs	-/-/-

In a Class 9b building, a floor separating storeys or above a space for the accommodation of motor vehicles or used for storage or any other ancillary purpose, must—

- be constructed so that it is at least of the standard achieved by a floor/ceiling system incorporating a ceiling which has a resistance to the incipient spread of fire to the space above itself of not less than 60 minutes; or
- have an *FRL* of at least 30/30/30; or
- have a fire-protective covering on the underside of the floor, including beams incorporated in it, if the floor is combustible or of metal; and

The above referenced fire ratings are being assessed under a separate Fire Engineering Assessment Report to be prepared at CC stage to justify the use of the CLT Timber product.

Type C Construction – Administration Building Extensions

Table 5. Type C Construction

Item	Class 5
External Walls <ul style="list-style-type: none"> - 3m or more from a <i>fire- source feature</i> 	-/-/-
External Column not incorporated in an external wall <ul style="list-style-type: none"> - 3m or more from a fire source feature 	-/-/-
Floors	Nil FRL

Note: An external wall that is required to have an *FRL* need only be tested from the outside to satisfy the *FRL* requirement.

ANNEXURE E DEFINITIONS

Annexure E - 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/m²) 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—

- (a) the exterior of the building; or
- (b) a non-conditioned space including—
 - (i) the floor of a rooftop plant room, lift-machine room or the like; and
 - (ii) the floor above a carpark or warehouse; and
 - (iii) the common wall with a carpark, warehouse or the like.

Exit

Exit means –

- (a) Any, or any combination of the following if they provide egress to a road or open space—
 - (i) An internal or external stairway.
 - (ii) A ramp.
 - (iii) A fire-isolated passageway.
 - (iv) A doorway opening to a road or open space.
 - (v) A horizontal exit or a fire-isolated passageway leading to a horizontal exit.

Fire compartment

Fire compartment means –

- (a) the total space of a building; or
- (b) when referred to in—
 - (i) 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

- (ii) 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—

- (a) structural adequacy; and
- (b) integrity; and
- (c) 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

- (a) the far boundary of a road, river, lake or the like adjoining the allotment; or
- (b) a side or rear boundary of the allotment; or
- (c) 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—

- (a) applied to a material — not deemed combustible as determined by AS 1530.1:1994 — Combustibility Tests for Materials; and
- (b) 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—

- (a) that is open to the sky; and
- (b) to which access is provided, other than access only for maintenance; and
- (c) 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—

- (a) a dwelling; or
- (b) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or
- (c) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or
- (d) 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 F BCA COMPLIANCE SPECIFICATION

Annexure F – 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

4. The FRL's of building elements for the proposed works have been designed in accordance with Table 4 of Specification C1.1 of BCA2019 for a building of Type B Construction and Table 5 of Specification C1.1 of BCA2019 for a building of Type C Construction and as per Fire Engineering Report requirements.
5. Any Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.
6. Building elements, including external walls and their components, must be non-combustible in accordance with C1.9 of BCA2019 and as per Fire Engineering Report requirements.
7. 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 C1.10 and Specification C1.10 of BCA2019.
8. 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 C1.14 of BCA2019 and as per Fire Engineering Report requirements.
9. Openings in the external walls that are required to have an FRL will be in located in accordance with Clause C3.2 and C3.3 of BCA2019 or protected in accordance with Clause C3.4 of BCA2019 and as per Fire Engineering Report requirements.
10. Services penetrating elements required to possess an FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2019 and as per Fire Engineering Report requirements.
11. Access to the lift pit will be in accordance with Clause D1.17 of BCA2019.
12. The construction of EDB's and telecommunications distribution boards will be in accordance with Clause D2.7 of BCA2019 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.
13. New pedestrian ramps will comply with AS 1428.1:2009, Clause D2.10 and Part D3 of BCA2019. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
14. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2019. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586:2013.
15. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2019. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 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 D2.14 when tested in accordance with AS 4586:2013 where the edge ledge to a flight below.
16. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, and D2.17 of BCA2019.

17. The doorways and doors will be in accordance with Clause D2.19 and D2.20 of BCA2019.
18. Door latching mechanisms will be in accordance with Clause D2.21 of BCA2019
19. The new works will be accessible in accordance with Clause D3.1 and table D3.1, D3.2, D3.3 of BCA2019, and with AS 1428.1:2009, with particular note to door circulation spaces, accessway widths, turning spaces and floor coverings, in accordance with Part D3 of BCA2019.
20. Braille and tactile signage will in accordance with Clause D3.6, and Specification D3.6 of BCA2019.
21. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of BCA2019 and AS/NZS 1428.4.1:2009.
22. 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 D3.12 of BCA2019.
23. External above ground waterproofing membranes will comply with Clause F1.4 of BCA2019 and AS 4654 Parts 1 & 2:2012.
24. The new roof covering will be in accordance with Clause F1.5 of BCA2019.
25. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2019.
26. Damp proofing of the proposed structure will be carried out in accordance with Clause F1.9 and F1.10 of BCA2019.
27. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2019 and AS 1288:2006 / AS 2047:2014.
28. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2019.
29. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2019.
30. Building Fabric and Thermal Construction will be in accordance with Part J1 of BCA2019.
31. Glazing will be in accordance with Part J1 of BCA2019.
32. Building sealing will be in accordance with Part J3 of BCA2019.
33. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA2019.

Electrical Services Design Certification:

34. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2019 for auto shutdown of any air handling equipment.
35. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2019 and AS/NZS 2293.1:2018.
36. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2019 and AS/NZS 2293.1:2018.
37. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2019 and AS/NZS 1680.0:2009.
38. Lighting power and controls will be installed in accordance with Part J6 of BCA2019.
39. Electrical conductors located within the building that supply a main switchboard that sustains emergency equipment will comply with Clause C2.13 of BCA2019.

Hydraulic Services Design Certification:

40. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2019 and AS/NZS 3500.3:2018

41. Fire hydrant system will be installed in accordance with Clause E1.3 of BCA2019 and AS 2419.1:2005 as required.
42. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2019 and AS 2444:2001.

Mechanical Services Design Certification:

43. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2019, and AS 1668.1:2015.
44. Where not naturally ventilated the building will be mechanically ventilated in accordance with Clause F4.5 of BCA2019 and AS 1668.2:2012.
45. Any air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA2019
46. Any rigid and flexible ductwork will comply with the fire hazard properties set out in AS 4254 Parts 1 and 2.

Structural Engineers Design Certification:

47. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2019 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.
48. The FRL's of the structural elements for the proposed works have been designed in accordance with Specification C1.1 of BCA2019, including Table 4, for a building of Type B Construction, and Table 5, for a building of Type C Construction and as per Fire Engineering Report requirements.
49. Any lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2019.

Lift Services Design Certification:

50. Warning signage in accordance with Clause E3.3 of BCA2019 will be provided to the lifts to advise not to use the lifts in a fire.
51. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2019 and will be suitable to accommodate disabled persons.
52. The type of lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with Table E3.6b of BCA2019.
53. 51. The lifts will comply with AS 1735.12:1999 in accordance with Clause E3.6 of BCA2019.
54. All electric passenger lifts and electrohydraulic passenger lifts shall comply with Specification E3.1 of BCA2019.