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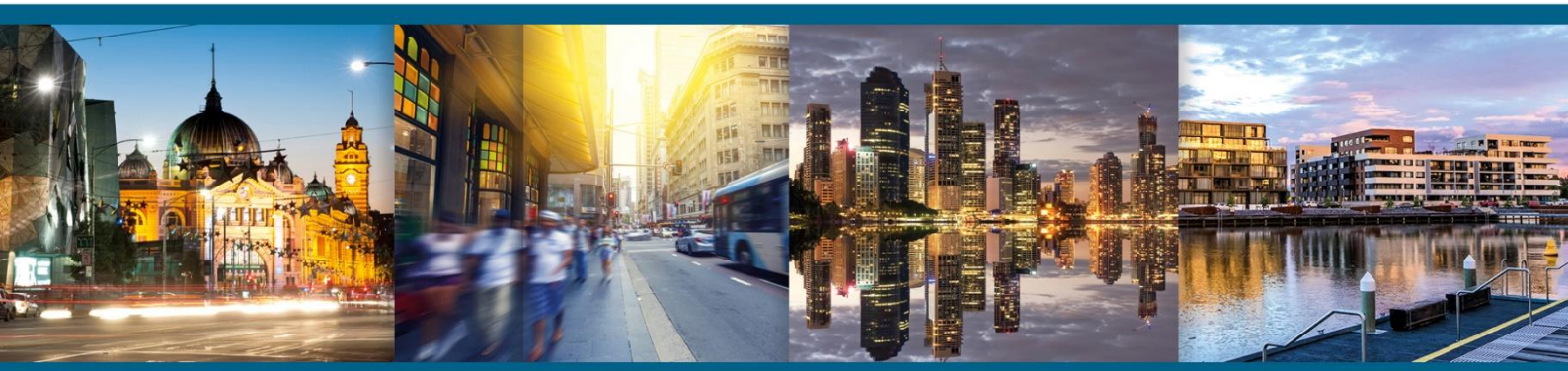
DA Stage BCA and Access Report

45 Orth Street, Kingswood



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Report Revision History

Revision History	
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1. Introduction

This report presents the findings of a DA Stage BCA and Access assessment of the proposed office building with ground floor retail/café and undercover carparking at 45 Orth Street, Kingswood. The development has been assessed against the relevant Deemed-to-Satisfy (DtS) provisions of Building Code of Australia (BCA) 2022.

This report has been prepared by Steve Watson and Partners for Bell Architecture.

Image sourced from the architectural plans prepared by Bell Architecture

1.1. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2022, 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 2022.

1.2. Scope

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

1.3. 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

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)
3. The Energy Efficiency parts of BCA2022 (Section J).

4. Demolition Standards not referred to by the BCA;
5. Work Health and Safety Act 2011;
6. Requirements of Australian Standards unless specifically referred to;
7. 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
8. Conditions of Development Consent issued by the Local Consent Authority.

Note: The BCA report and associated compliance advice is not intended or permitted to be relied on by any other party with respect to their obligations to ensure compliance including but not limited to the making of a compliance declaration under the NSW Design and Building Professionals Act.

2. Description of Proposed Development

The proposed development comprises a three-storey office building with ground floor retail/café and associated undercover parking.

Summary of Construction Determination	
BCA Classification	Ground floor – Class 7a Ground – Roof – Class 5 Ground – Class 6 Note: The Class 5 medical consulting areas must not undertake any practices or medical treatments that would normally be undertaken in a Class 9a Health-care building.
Number of storeys contained	3
Rise in storeys	3
Type of construction required	Type B
Effective height	7.5 metres (RL 55.5 – 48.0)

3. Assessment

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 and G 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).

3.1. Section C: Fire Resistance

In line with the requirements of Clause C2D2, the proposed building would be subject to Type B Construction requirements. Compliance with fire rating requirements of Type B Construction is readily achievable at CC stage.

The building will require all external walls and internal fire rated walls (non-load bearing) to be constructed of non-combustible construction in accordance with Clause C2D10. Compliance is readily achievable at CC stage.

The ground floor storey contains a Class 6 part which requires 180-minute FRL's compared to the Class 5 and 7a parts which require 120-minute FRL's. At Construction Certificate stage, the following options are available to ensure compliance with Clauses C3D8 and C3D9.

Option A – Seek a Fire Engineered Performance Solution to reduce the Class 6 FRL's down to 120 minutes, similar to the Class 5 and 7a parts (Fire Engineer to provide early-stage feasibility if this option is pursued).

Option B – Provide an FRL 180-minute Fire wall to separate the Class 6 part from the adjacent Class 5, ensuring the Fire wall extends to the underside of a 180-minute slab on the first-floor level.

The building will have window openings as well as openings between the carpark columns that will all be within 3 metres of the eastern boundary, therefore protection in accordance with Clause C4D5 will be required. The following options are available.

Option A – Provide fixed windows with external drenchers.

Option B – Provide FRL -/60/- fire rated glass blocks.

Option C – Construction a blade wall so the windows are not within 3m of the boundary.

Option D – Provide an infill wall between the columns that achieve an FRL of -/60/-.

Figure 1 – subject openings within 3 m of the eastern boundary

3.2. Section D: Access and Egress (D2 and D3)

Each storey of the building has access to at least one exit as per Clause D2D3. Furthermore, the exit travel distances are no further than 20 m to the non-fire-isolated stairway and the distances on the ground floor are no further than 30 m from an exit, therefore compliance with D2D5 is achievable.

Clause D2D4 requires non-fire-isolated stairs to connect no more than two storeys in a Class 5 and 6 building, therefore because the current design has a stairway which connects three storeys, a Fire Engineered Performance Solution will be required. Early-stage feasibility is recommended to be obtained from a Fire Engineer.

Clause D2D14 requires non-fire-isolated stairways to provide a continuous means of travel by its own flights and landings from every storey served. Currently there is discontinuous separation between the stairway which provides access to the roof and the ground floor stairway, therefore this arrangement will require a Fire Engineered solution because the stairway flights and landings are not continuous.

The non-fire-isolated stairway will be required to maintain a minimum clear width of 1 metre (measured clear of the double handrails) to ensure compliance with Clause D2D8.

At CC stage, details of the stairway and all subsequent barriers (including the roof top terrace) will be required to confirm compliance with Clause D3D14 – D3D22. Throughout the roof top area, a minimum 1-metre-high barrier must be maintained above the floor level with no climbable elements located within 150-760mm of the barrier, therefore the attached seating must be removed from the barrier as this constitutes a climbable element.

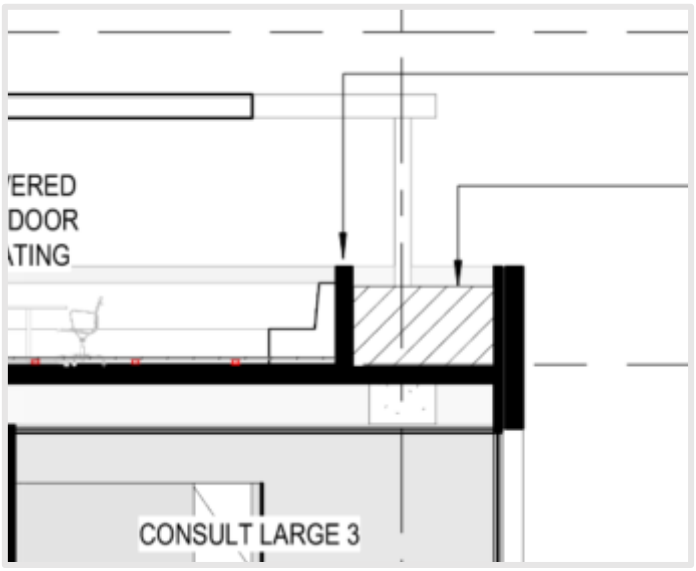

Figure 2 – Barrier design development (removal of climbable elements)

3.3. Part D4 – Access for People with a Disability

The buildings principal pedestrian entrance is through the automatic sliding doors on the ground floor level which faces Somerset Street. Access is then provided throughout the various levels via the internal passenger lift.

Access behind the reception area on Level 1 is required because it's not unreasonable for a person in a wheelchair to work as a receptionist, therefore a clear space of 1540mm must be provided between the desk and cabinets to allow space for a wheelchair to make a 180-degree turn. Furthermore, the doorway which provides access into the reception area must have a clear latch side circulation space of 510mm.

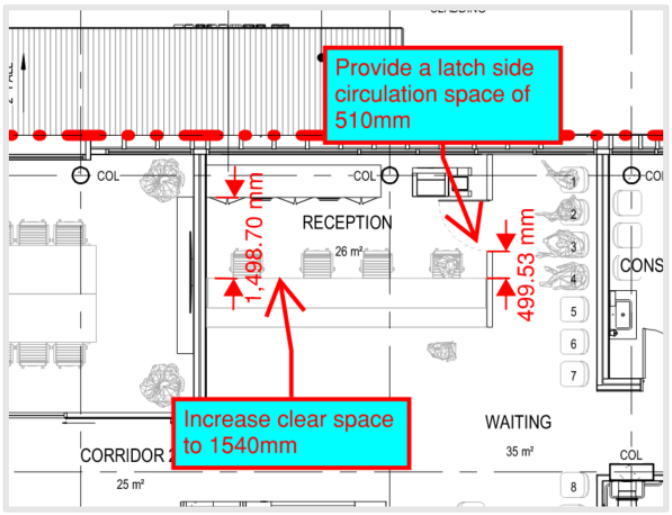

Figure 3 – Reception turning spaces

The carpark has an accessible space and adjacent shared zone provided. As the design develops, the car space and adjacent shared zone must achieve a height of 2500mm (measured clear of any obstructions and services).

This assessment has assumed that the following areas within the development will achieve a Clause D4D5 exemption due to the areas being inappropriate or they pose a health and safety risk to a person who has a disability.

- Café / Retail store
- Waste room
- Bike store
- Storerooms (level 1)

As the design develops throughout the CC stage, tactiles will be required at the top and bottom landings of the internal non-fire-isolated stairways to ensure compliance with AS 1428.1-2009.

3.4. Section E: Services and Equipment

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

Note: The building will require a fire hydrant system. Where the street hydrant is being relied upon, a pressure, flow and coverage assessment must be undertaken to ensure compliance will be achieved with AS 2419.1-2021. Where on onsite hydrant is pursued, protection with an FRL 90/90/90 will be required because the hydrant will likely be located within 10 m of a non-sprinkler protected building.

3.5. Section F: Health and Amenity

The proposed roof top terrace will be required to have external waterproofing membranes provided as well as grated drains across the doorway thresholds (including the lift) in accordance with Clause F1D5.

The café / retail is deemed to have less than 20 patrons (based off the table/chair layout), therefore no sanitary facilities are required for the patrons. The accessible sanitary compartment is considered to provide sufficient sanitary facilities for staff in accordance with Clause F4D4.

The Level 1 medical consulting area has an accessible sanitary compartment as well as two single sex ambulant compartments. Based off these proposed sanitary facilities, this will accommodate up to 20 male and 20 female employees (40 in total). Where a greater number of employees is planned for the business, then additional sanitary facilities will be required to meet the provisions of F4D4.

Based off scaled measurements, the ground floor accessible sanitary compartment will achieve minimum floor dimensions of 2300mm x 2630mm and the level 1 accessible sanitary compartment will achieve minimum 2300mm x 1900mm, therefore compliance with AS 1428.1-2009 will be readily achievable. Furthermore, the two ambulant compartments have been designed with two handrails and a space of 900mm in front of the pan as per AS 1428.1-2009.

The ceiling heights throughout the Class 5,6 and 7a parts can readily achieve compliance with Clause F5D2, however a further assessment will be required at CC stage to determine the ceiling heights measured clear of the services.

3.6. Performance Solutions which may be required at CC Stage

Item	Non-Compliance	DTS Clause	Description
1	Reduction of Fire Rating (if no fire wall separation is proposed).	C2D2	To rationalise the Class 6 FRL's down to 120 minutes, similar to the Class 5 and 7a parts.
2	Non-fire-isolated stairway connecting more than two storeys.	D2D4	To allow the internal non-fire-isolated stairway to connect three storeys.
3	To allow a discontinuous non-fire-isolated stairway.	D2D14	To allow the internal non-fire-isolated stairway to have a discontinuous landing on Level 1.

Note: This table may need to be updated as the design develops.

3.7. Conclusion

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 have been assessed against the applicable provisions of the Building Code of Australia, (BCA) and it is considered that such documentation is capable of complying with that Code subject to the areas contained within this report being addressed during design development.

Appendix A – Referenced Documentation

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

Drawing No.	Title	Issue	Date	Drawn By
SK 0001	Cover Page and Drawing Registry	P1	13.10.23	Bell Architecture
SK 0101	3D Impression Sheet 1	P1	13.10.23	Bell Architecture
SK 1101	Existing Site and Demolition Plan	P1	13.10.23	Bell Architecture
SK 1102	Site Plan	P1	31.10.23	Bell Architecture
SK 1103	Landscaping Plans	P1	13.10.23	Bell Architecture
SK 1104	Landscape Schedule	P1	13.10.23	Bell Architecture
SK 2201	Ground Level Floor Plan	P1	23.10.23	Bell Architecture
SK 2202	Level 1 Floor Plan and Roof	P1	23.10.23	Bell Architecture
SK 3101	Elevations – Sheet 1	P1	13.10.23	Bell Architecture
SK 3102	Elevations – Sheet 2	P1	13.10.23	Bell Architecture
SK 4101	Overall Sections	P1	23.10.23	Bell Architecture

Appendix B – Schedule of proposed statutory Fire Safety Measures

Measure	Standard of Performance
Automatic doorways	Automatic opening sliding door – BCA D3D24
Automatic Fire Detection And Alarm System *(Smoke Detection System)*	BCA 2022 S20C4 and AS 1670.1 - 2018
Building Occupant Warning System	BCA 2022 S20C7 and AS 1670.1 - 2018
Emergency Lighting	BCA 2022 Clause E4D2, E4D4 and AS/NZS 2293.1 - 2018
Exit Signs	BCA 2022 Clause E4D5, NSW E4D6, E4D7, E4D8 and AS/NZS 2293.1 - 2018
Fire Doors (only required if doorways are provided in a fire wall)	BCA 2022 Specification 12 and AS/NZS 1905.1 - 2015
Fire Hydrants Systems	BCA 2022 Clause E1D2 and AS2419.1-2021
Fire Seals Protecting Opening In Fire Resisting Components Of The Building	BCA 2022 Clause C4D15, Specification 13, AS 1530.4 - 2014, AS 4072.1 - 2005 and installed in accordance with the tested prototype.
Fire Windows	BCA 2022 Specification 12 and AS 1530.4 - 2014
Hose Reel System	BCA 2022 Clause E1D3 and AS 2441 - 2005
Portable Fire Extinguishers	BCA 2022 Clause E1D14 and AS 2444 - 2001
Wall Wetting Sprinkler And Drencher Systems	BCA 2022 Clause C4D5
Warning And Operational Signs	BCA 2022 Clauses E3D4

Appendix C – Type B Construction Fire Resistance levels

Table 1 S5C21a: Type B construction: FRL of loadbearing parts of external walls

Distance from a *fire-source feature*	FRL:(in minutes) *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/30	120/90/60	180/120/90	240/180/120
3 m to less than 9 m	90/30/30	120/30/30	180/90/60	240/90/60
9 m to less than 18 m	90/30/–	120/30/–	180/60/–	240/60/–
18 m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table 2 S5C21b: Type B construction: FRL of non-loadbearing parts of external walls

Distance from a *fire- source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	–/90/90	–/120/120	–/180/180	–/240/240
1.5 m to less than 3 m	–/60/30	–/90/60	–/120/90	–/180/120
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table 3 S5C21c: Type B construction: FRL of external columns not incorporated in an external wall

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing column — less than 18 m	90/–/–	120/–/–	180/–/–	240/–/–
Loadbearing column — 18 m or more	–/–/–	–/–/–	–/–/–	–/–/–
Non-loadbearing column	–/–/–	–/–/–	–/–/–	–/–/–

Table 4 S5C21d: Type B construction: FRL of common walls and fire walls

Wall type	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-loadbearing	90/90/90	120/120/120	180/180/180	240/240/240

Table 5 S5C21e: Type B construction: FRL of loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	90/90/90	120/120/120	180/120/120	240/120/120
Bounding public corridors, public lobbies and the like	60/60/60	120/–/–	180/–/–	240/–/–
Between or bounding sole-occupancy units	60/60/60	120/–/–	180/–/–	240/–/–

Table 6 S5C21f: Type B construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair shafts	–/90/90	–/120/120	–/120/120	–/120/120
Bounding public corridor, public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding sole-occupancy units	–/60/60	–/–/–	–/–/–	–/–/–

Table 7 S5C21g: Type B construction: FRL of other building elements not covered by Tables S5C21a to S5C21f

Building element	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other loadbearing internal walls and columns	60/–/–	120/–/–	180/–/–	240/–/–
Roofs	–/–/–	–/–/–	–/–/–	–/–/–