

BUILDING CODE OF AUSTRALIA 2022 REPORT

PROPOSED RESIDENTIAL DEVELOPMENT PROJECT – SENIOR HOUSING

17 - 27 HARDWICKE STREET, RIVERWOOD NSW 2210

Report prepared for: NSW Land and Housing Corporation
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DOCUMENT ACCEPTANCE

	Name	Signed	Date
Verified by	Matt Shahidi		08/07/2024

REVISION HISTORY

Revision No.	Prepared by	Description	Date
R01	Matt Shahidi	Draft BCA report for review and comments	08/03/2024
R02	Adrian Briganti	Final BCA Report	09/05/2024
R03	Matt Shahidi	Final BCA Report – Updated DA Drawings	08/07/2024
R04	Matt Shahidi	Final BCA Report – Updated Fire Hydrant Assessment	22/08/2024

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1.0 Introduction and Documentation

At the request of Land and Housing Corporation, we offer comments and recommendations with respect to Building Code of Australia 2022 compliance for the construction of Class 2 Senior Housing located at 17-27 Hardwicke Street, Riverwood.



The following plans prepared by Custance Architects have been assessed for the purpose of this report:

Drawing No/Rev.	Titled	Date
DA-006/5	GA PLAN - GROUND FLOOR & LEVEL 1	03/07/2024
DA-007/5	GA PLAN - LEVEL 2 & ROOF PLAN	03/07/2024
DA-0011/4	EXTERNAL ELEVATIONS	30/05/2024
DA-0012/4	BUILDING SECTIONS	03/07/2024

We have reviewed the submitted architectural plans as tabulated above for compliance with the deemed-to-satisfy provisions of the Building Code of Australia 2022. Where compliance with the deemed to satisfy provisions is not possible a schedule of performance solutions will be required. We have made every attempt to cover the main issues under Sections B, C, D, E, F, G & J of the Building Code of Australia. Areas of the design are still being refined so that resolution will be possible prior to the issue of a Crown Certificate for the works.

It is the responsibility of all designers and engineers to ensure that the design complies with the requirements of the Building Code of Australia, the Australian Standards and the applicable legislation. This report does not infer compliance of the design at this stage of documentation. Further assessment will be required to validate the full compliance of the building design.

This report is not to be construed as specialist advice as referenced in Clause 9(d) of the Design and Building Practitioners Regulation 2021 and as such is not to be referenced in any Compliance Declarations made under the Design and Building Practitioners Legislation.

This report must be read in conjunction with plan mark ups issued by Philip Chun.

2.0 Building Assessment

BCA Parameters	
BCA Classifications	Class 2 1) Class 2 building is a building containing two or more sole-occupancy units. 2) Each sole-occupancy unit in a Class 2 building must be a separate dwelling <i>Note: Client to confirm in writing the exact nature of use and any disabilities occupants may have which may require carer's assistance.</i>
Rise in Storeys (RIS)	3
Number of Storeys	3
Effective Height	Approximately 6m
Type of Construction	A
Floor Area	Ground Level – Architect to Confirm Level One – Architect to Confirm Level Two – Architect to Confirm
Fire Compartment	N/A
Structural Importance Level	Level 3 (Structural Engineer to confirm)
Climate Zone	5

Performance solutions and performance-based assessment

Where compliance with the deemed to satisfy provisions is not readily achievable, performance-based assessment and performance solutions will need to be used to demonstrate compliance with the BCA. This may not be the final list of performance solutions as the building will undergo design development and other issues may arise that also affect ability to comply with the deemed to satisfy provisions of the Building Code of Australia.

This comes about due to the generic and prescriptive nature of the BCA with respect to the deemed to satisfy provisions and the inability for the document to be ultimately flexible for all building types and applications. This is the main reason the document allows performance-based solutions, where meeting the performance requirements of the code, are deemed to also be in compliance with the BCA.

The following potential performance solutions identified, although needing justification at the next stage of design is anticipated based on our assessment and reviews completed to date.

Fire Related Performance Solutions

DtS Clause	Performance Requirement	Variance from Deemed-to-Satisfy provisions
C3D7	C1P2	The FRL of spandrels to be achieved from outside only to satisfy the vertical separation of openings.

The proposed building currently stands over multiple title boundaries which may present a technical non-compliance if lots are not amalgamated into a single lot. It is assumed that lot amalgamation will be a condition of DA consent, otherwise a technical non-compliance will need to be addressed by the fire engineer.

Non-Fire Related Performance Solutions

DtS Clause	Performance Requirement	Variance from Deemed-to-Satisfy provisions
F3D5	F3P1	Performance solution to be provided for the wall construction and waterproofing to ensure compliance. Assessment by the architects and designers is required to validate that the walls will meet the performance requirements of the BCA.



Section B – Structure

The structural components of the building must comply with the applicable Australian Standards. A structural engineer will need to ensure the structural requirements of BCA Clauses B1D2, B1D3, and B1D4 are considered in the building design (including the importance level of the building). This will mean assessment according to all relevant parts of Section B of the Building Code of Australia and where any provisions cannot be met, a performance solution to be formulated for consideration of the relevant project stakeholders.

Under Part B1D1 of the Building Code of Australia (BCA), a building or structure must be designed to withstand earthquake loads in accordance with AS1170.4-2007, as appropriate. Whilst earthquake loads have obvious implications to the structural design of a building or structure and any alterations to structural elements within an existing building or structure, it is important to note that within AS1170.4-2007, there is also an obligation for certain non-structural parts, components and their connections to be designed & constructed to withstand earthquake loads. All designers need to be aware of this requirement.

Compliance achievable. Structural Drawings and Design Certificate required prior to issue of S6.28 Crown Certificate.

Section C – Fire Resistance / Compartmentation / Separation

Clause	Requirement	Comments
Part C2		
C2D2	Type of construction required The minimum Type of fire-resisting construction of a building must be determined in accordance with Table C2D2.	Compliance Achievable Type A construction is required. Structural Engineer will need to confirm the Fire Resistance Levels (FRL's) of the external walls, columns, floors, etc meet the requirements of Specifications 5. Refer to Appendix A of this report for specific FRLs applicable to this building. Details and certification demonstrating compliance must be provided with the application for Crown Certificate
C2D3	Calculation of rise in storeys	Note only Rise in storeys (RIS) is 3.
C2D9	Lightweight construction If lightweight construction is utilised to achieve the required FRL, it must comply with Specification 6 of the BCA.	Compliance Achievable Details demonstrating compliance including test reports, manufacturer's specifications, etc to be provided with the application for Crown Certificate.
C2D10	Non-combustible building elements External walls and common walls, non-loadbearing internal walls where they are required to be fire-resisting must not be constructed of combustible materials. This includes all components incorporated within them such as insulation, sarking, window frames, etc	Compliance Achievable External wall design system certificate as well as test reports to be provided demonstrating compliance with the application for Crown Certificate.

Section C – Fire Resistance / Compartmentation / Separation		
Clause	Requirement	Comments
C2D11	Fire hazard properties All new surface finishes, assemblies and linings are to comply with BCA Clause C2D11 and Specification 7 including NSW variations with regard to Fire Hazard Properties of various finishes and materials within the building.	Compliance Achievable General notations to be provided on the plans. Compliance to be specified in the architectural specifications with respect to floor, wall, ceiling covering as well as air-handling ductwork and lift cars. Test data sheets to be provided prior to issue of the Crown Occupation Certificate.
C2D14	Ancillary Elements Ancillary elements must not be fixed, installed, or attached to the external face of an external wall or within the concealed parts of external walls that is required to be non-combustible unless it is non-combustible or exempted under this Clause in the BCA.	Compliance Achievable External wall design system certificate is to be provided with the application for Crown Certificate.
C2D15	Fixing of bonded laminated cladding panels In a building required to be of Type A construction, externally located bonded laminated cladding panels must have all layers of cladding mechanically supported or restrained to the supporting frame unless where exempted by this clause.	Designers to note
Part C3		
C3D7	Vertical separation of openings in external walls Any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450 mm outside the lower opening (measured horizontally), the openings must be separated by— (a) a spandrel which— (i) is not less than 900 mm in height; and (ii) extends not less than 600 mm above the upper surface of the intervening floor; and (iii) is of non-combustible material having an FRL of not less than 60/60/60. Construction behind a curtain wall or panel wall and has any gaps packed with a non-combustible material that will withstand thermal expansion and structural movement of the walling without the loss of seal against fire and smoke. For the purposes of C3D7, window or other opening means that part of the external wall of a building that does not have an FRL of 60/60/60 or greater.	Capable of compliance – design considerations at the next stage of design development The vertical separation of openings appears to not fully meet the requirements of tested systems. Detailed drawings to be developed during the design development stage. Spandrel dimensions as outlined in this clause are not met, and in some scenarios, it is proposed to use a wall system that combines cladding and masonry – which may not be a tested system. Note: FRL of 60/60/60 must be achieved from both sides. It is recommended a Fire Engineered Performance Solution be sought during the design development stage.

Section C – Fire Resistance / Compartmentation / Separation

Clause	Requirement	Comments
C3D8	Separation by Fire Walls A fire wall must be constructed in accordance with the following: <ul style="list-style-type: none"> a) The fire wall has the relevant FRL prescribed by Specification 5 for each of the adjoining parts, and if these are different, the greater FRL, except where S5C19(3)(c)(i), S5C22(3)(c)(i) and S5C25(3)(c)(i) permit a lower FRL on the carpark side. b) Any openings in a fire wall must not reduce the FRL required by Specification 5 for the fire wall, except where permitted by the Deemed-to-Satisfy Provisions of Part C4. c) Building elements, other than roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not pass through or cross the fire wall unless the required fire-resisting performance of the fire wall is maintained. 	Compliance Achievable FRL of fire walls and bounding walls to be in accordance with Specification 5 of the BCA for a Type A construction. Fire compartmentation drawings to clearly identify the location of fire walls. Test report and manufacturer's specifications to be provided with the application for Crown Certificate.
C3D11	Separation of lift shafts Any lift connecting more than 2 storeys must be separated from the remainder of the building by enclosure in a shaft having and FRL in accordance with Specifications 5 of the BCA.	Designers to note Refer to appendix A with respect to FRL of walls. Enclosure of shaft at the top and bottom must meet Specification 5, Clause S5C8 of the BCA.
C3D13	Separation of equipment Equipment comprising of lift motors, lift control panels, emergency generators, central smoke control plant, boilers or a battery or batteries installed in the building that have a voltage of 12 or more and a storage capacity of 200kWh or more must be constructed with an FRL in accordance specification 5, Table S5C11a-g of BCA. Separation of on-site fire pumps must comply with the requirements of AS 2419.1.	Designers to note Fire compartmentation plans to clearly identify rooms requiring an FRL enclosure. Details demonstrating compliance to be provided with the application for Crown Certificate.
C3D14	Electricity supply system An electricity substation or main switchboard that sustains emergency equipment operating in the emergency mode located within a building must be separated from other parts of the building by construction having an FRL of not less than 120/120/120, and doorways in that construction to be self-closing fire doors with an FRL of not less than - /120/30.	Designers to note Electrical engineer to confirm if MSB will be supplying power to emergency equipment, in which case, MSB must be enclosed with fire rated construction separating it from the remainder of building.
C3D15	Public corridors in Class 2 and 3 buildings In a Class 2 building, a public corridor, if more than 40 m in length	Design Complies Corridors are less than 40m in length.

Section C – Fire Resistance / Compartmentation / Separation		
Clause	Requirement	Comments
	must be divided at intervals of not more than 40 m with smoke-proof walls.	
Part C4		
C4D3	Protection of openings in external walls Openings within 3m of a side and rear boundary or 6m of the far boundary or from another building on the same allotment must be protected in accordance with C4D5 and if used, wall-wetting sprinklers are to be externally fitted.	NA Openings more than 3m from the property boundaries. No protection required to openings.
C4D11	Openings in fire-isolated lift shafts Doorways – If a lift shaft is required to be fire-isolated, an entrance doorway to that shaft must be protected by – /60/– fire doors that – (a) comply with AS 1735.11; and (b) are set to remain closed except when discharging or receiving passengers, goods or vehicles. Lift indicator panels – A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35000 mm ² in area.	Compliance Achievable Test report to be provided from the manufacturers demonstrating compliance.
C4D12	Bounding construction: Class 2 and 3 buildings and Class 4 part Doorways of sole-occupancy units opening into public corridors, public lobby or the like must be self-closing -/60/30 fire doors.	Compliance Achievable Door schedule and test report required to verify compliance. To be provided with the application for Crown Certificate.
C4D13	Openings in floors and ceilings for services Where a service passes through a floor that is required to have an FRL with respect to integrity and insulation, the service must be protected— a) in a building of Type A construction, by a shaft complying with Specification 5; or b) in accordance with C4D15.	Compliance Achievable Fire rated shaft to be clearly identified on compartmentation drawings. All penetrations in fire rated floor, walls and ceiling must be identified by building service designers and method of protection documented in a penetrations schedule. Test report must accompany the penetration schedule. Sufficient details to be provided with the application for Crown Certificate.
C4D14	Openings in shafts In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage or other service shaft must be protected by – (a) if it is in a sanitary compartment — a door or panel which, together with its frame, is non-combustible or has an FRL of not less than –	Compliance Achievable Designers to note. Method of protection to be detailed on construction drawings.

Section C – Fire Resistance / Compartmentation / Separation		
Clause	Requirement	Comments
	/30/30; or (b) a self-closing –/60/30 fire door or hopper; or (c) an access panel having an FRL of not less than –/60/30; or (d) if the shaft is a garbage shaft — a door or hopper of non-combustible construction.	
C4D15	Openings for service installations an electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrates a building element (other than an external wall or roof) that is required to have an FRL with respect to integrity or insulation, the installation must comply with the requirements under C4D15(2) of BCA.	Compliance Achievable All penetrations in fire rated floor, walls and ceiling must be identified by building services designers and method of protection documented in a penetrations schedule. AS1530.4-2014 test reports must accompany the penetration schedule. Sufficient details to be provided with the application for Crown Certificate.
C4D16	Construction joints Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 4072.1 and AS 1530.4 to achieve the required FRL; or that differs from a prototype in accordance with Section 4 of AS 4072.1 and achieves the required FRL.	Compliance Achievable Details including test report to be provided with the application for Crown Certificate.
C4D17	Columns protected with lightweight construction to achieve an FRL A column protected by lightweight construction to achieve an FRL which passes through a building element that is required to have an FRL or a resistance to the incipient spread of fire, must be installed using a method and materials identical with a prototype assembly of the construction which has achieved the required FRL.	Compliance Achievable Applicable to steel columns which require an FRL proposed to be protected by lightweight construction.

Section D – Access and Egress		
Clause	Requirement	Comments
Part D2		
D2D3	Number of exits required. Every building must have at least one exit from each story.	Design Complies
D2D4	When fire-isolated stairways and ramps are required	NA

Section D – Access and Egress		
Clause	Requirement	Comments
	Every stairway or ramp serving as a required exit must be fire-isolated unless it connects, passes through or passes by not more than 3 consecutive storeys in a Class 2 building.	Stairways are not required to be fire isolated.
D2D5	Exit travel distances. The entrance doorway of any sole-occupancy unit in a class 2 building must be not more than— <ul style="list-style-type: none"> (i) 6 m from an exit or from a point from which travel in different directions to 2 exits is available; or (ii) 20 m from a single exit serving the storey at the level of egress to a road or open space; and (b) no point on the floor of a room which is not in a sole-occupancy unit must be more than 20 m from an exit or from a point at which travel in different directions to 2 exits is available.	Design Complies With respect to exit travel distances, design complies with the provided exits.
D2D6	Distance between alternative exits. Exits used as alternative means of egress must be no closer than 9m apart and no more than 45m apart, and located so that alternative paths of travel do not converge such that they become less than 6m apart.	Design Complies
D2D7	Height of exits, paths of travel to exits and doorways. In a required exit or path of travel to an exit the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm.	Compliance Achievable Further detailed drawings are required at the next stage of design development to verify compliance.
D2D8	Width of exits and paths of travel to exits. The minimum unobstructed width of required exit must not be less than 1m within the common areas of the building except doorways where it can be reduced by no more than 250mm.	Compliance Achievable Ensure minimum 1m clear width is maintained between handrails at stairways.
D2D9	Width of doorways in exits or paths of travel to exits. In a required exit or path of travel to an exit, the unobstructed width of a doorway must be not less than the unobstructed width of each exit provided to comply with D2D8(1), (2), (3) or (4), minus 250 mm.	Compliance Achievable Doorways to have a clear 750mm openings. Please note, in common areas, this needs to be increased to 850mm to comply with accessibility provisions.
D2D10	Exit width not to diminish in direction of travel. The unobstructed width of a required exit must not diminish in the direction of travel to a road or open space.	Compliance Achievable Maintain minimum 1m width throughout.

Section D – Access and Egress		
Clause	Requirement	Comments
D2D11	<p>Determination and measurement of exits and paths of travel to exits</p> <p>The required width of a stairway or ramp in a required exit or path of travel to an exit must be measured clear of all obstructions such as handrails, projecting parts of barriers and the like; and extend without interruption, except for ceiling cornices, to a height not less than 2 m vertically above a line along the nosings of the treads or the floor surface of the ramp or landing.</p>	Note
D2D13	<p>External Stairways or ramps in lieu of fire-isolated exits</p> <p>(1) An external stairway or ramp may serve as a required exit in lieu of a fire-isolated exit serving a storey below an effective height of 25 m, if the stairway or ramp is—</p> <ul style="list-style-type: none"> a) non-combustible throughout; and b) protected in accordance with (3) if it is within 6 m of, and exposed to, any part of the external wall of the building it serves. 	<p>NA</p> <p>Fire isolated stairway is not required</p>
D2D14	<p>Travel by non-fire-isolated stairways</p> <p>A non-fire-isolated stairway serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided.</p> <p>The distance from any point on a floor to a point of egress to a road or open space by way of a required non-fire-isolated stairway or non-fire-isolated ramp must not exceed 60 m.</p> <p>A required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than 15 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or 30 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions</p>	Design Complies

Section D – Access and Egress

Clause	Requirement	Comments
D2D15	Discharge from exits. An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it. Where required exit leads to open space, path of travel to the road must be minimum 1m or the minimum width of the required exit. Also, the path of travel to the road must have a gradient not steeper than 1:8 or 1:14 where required by Part D4 of the BCA2022.	Compliance Achievable
D2D22	Access to Lift Pits Access to lift pits must— a) where the pit depth is not more than 3 m, be through the lowest landing doors; or b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following: <ol style="list-style-type: none"> In lieu of D2D7 to D2D11, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii). No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. Access to the doorway must be by a stairway complying with AS1657. In lieu of D3D26, doors fitted to the doorway must be – <ol style="list-style-type: none"> Of the horizontal sliding or outwards opening hinged type; and Self-closing and self-locking from the outside; and Marked on the landing side with the letters not less than 35mm high: DANGER LIFTWELL – ENTRY OF UNAUTHORIZED PERSONS PROHIBITED – KEEP CLEAR AT ALL TIMES 	Compliance Achievable
Part D3		
D3D4	Non-fire-isolated stairways and ramps In a building having a rise in storeys of more than 2, required stairs	Compliance Achievable Additional information is required with the application for Crown Certificate to

Section D – Access and Egress

Clause	Requirement	Comments
	and ramps (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to D3D3, or only of— <ul style="list-style-type: none"> a) reinforced or prestressed concrete; or b) steel in no part less than 6 mm thick; or c) timber that— <ul style="list-style-type: none"> i. has a finished thickness of not less than 44 mm; and ii. has an average density of not less than 800 kg/m³ at a moisture content of 12%; and iii. has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue. 	verify compliance.
D3D8	Installations in exits and paths of travel services or equipment must be enclosed with non-combustible construction and suitably sealed against smoke spreading from the enclosure where they are installed in a required exit, or in any corridor, hallway, lobby or the like leading to a required exit and the service or equipment comprises of: <ul style="list-style-type: none"> a) electricity meters, distribution boards or ducts; or b) central telecommunications distribution boards or equipment; or c) electrical motors or other motors serving equipment in the building. 	Compliance Achievable
D3D9	Enclosure of space under stairs and ramps The space below a required non-fire-isolated stairway (including an external stairway) or non-fire-isolated ramp must not be enclosed to form a cupboard or other enclosed space unless— <ul style="list-style-type: none"> (i) the enclosing walls and ceilings have an FRL of not less than 60/60/60; and (ii) any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door. 	Design Complies
D3D14 to D3D22	Construction of stairways, balustrade and handrails The construction and discharge of stairs, landings, thresholds, balustrades, and handrails will need to meet the requirements of the BCA and AS1428.1.	Compliance Achievable Detailed stairway design including balustrade and handrails, consistent going and risers, etc to be provided with the application for Crown Certificate.

Section D – Access and Egress		
Clause	Requirement	Comments
D3D24	Doorways and doors A doorway serving as a required exit or forming part of a required exit must not be a revolving door, roller shutter or tile up door, sliding door unless opening directly to a road or open space and if a power operated door, must be able to manually open under a force of not greater than 110 N and open automatically if there is power failure to the door or on activation of smoke alarms.	Design Complies
D3D25	Swinging doors A swinging door in a required exit or forming part of a required exit must swing in the direction of egress unless it serves a building or part with a floor area not more than 200m ² , it is the only required exit from the building or part and it is fitted with a device for holding it in the open position (note: does not apply to internal areas of SOUs).	Design Complies
D3D26	Operation of latch All doors in an exit, forming part of the exit or in the path of travel to the exit must be openable without a key from the egress side by a single hand downward action or single hand push action installed in accordance with this part of the BCA (note: does not apply to internal areas of SOUs).	Compliance Achievable Additional information required with the application for Crown Certificate to verify compliance.
D3D29	Protection of openable windows bedroom windows from first floor where the lowest level of the window opening is less than 1.7 m above the floor the window opening must comply with the following: <ul style="list-style-type: none"> (a) The openable portion of the window must be protected with— <ul style="list-style-type: none"> (i) a device capable of restricting the window opening; or (ii) a screen with secure fittings. (b) A device or screen required by (a) must— <ul style="list-style-type: none"> (i) not permit a 125 mm sphere to pass through the window opening or screen; and (ii) resist an outward horizontal action of 250 N against the— <ul style="list-style-type: none"> (A) window restrained by a device; or (B) screen protecting the opening; and (iii) have a child resistant release mechanism if the screen or 	Compliance achievable Additional information required with the application for Crown Certificate to verify compliance.

Section D – Access and Egress		
Clause	Requirement	Comments
	device is able to be removed, unlocked or overridden.	
Part D4	Access for people with a disability To be provided by Access Consultant. Any departures to Part D4 of the BCA shall be addressed by an Access Consultant.	

Section E – Services and Equipment		
Clause	Requirement	Comments
Part E1		
E1D2	Fire Hydrants (1) A fire hydrant system must be provided to serve a building— a) having a total floor area greater than 500 m ² ; and b) where a fire brigade station is— i. no more than 50 km from the building as measured along roads; and ii. equipped with equipment capable of utilising a fire hydrant. (2) The fire hydrant system must be installed in accordance with AS 2419.1. (3) Notwithstanding (2), a Class 8 electricity network substation need not comply with clause 4.2 of AS 2419.1 if— a) it cannot be connected to a town main supply; and b) one hour water storage is provided for firefighting. (4) Where internal fire hydrants are provided, they must serve only the storey on which they are located except that a sole-occupancy unit— a) in a Class 2 or 3 building or Class 4 part of a building may be served by a single fire hydrant located at the level of egress from that sole-	Compliance achievable Fire Hydrant system is required to serve the building and must be installed in accordance with AS2419.1. The ground floor will be served by the external Fire Hydrants. Per AS2419.1-2021 the external fire hydrants are to be located more than 10m from the building they are protecting or be protected by a shield wall with an FRL of 90/90/90. Shield wall has been provided on drawings, further details of FRL and measurements to be provided with Crown Certificate application. Levels 1 and 2 will be served by internal fire hydrants. Per AS2419-2021, the internal hydrants are to be located within 4m of a required exit.

Section E – Services and Equipment

Clause	Requirement	Comments
	<p>occupancy unit; or</p> <p>b) of not more than 2 storeys in a Class 5, 6, 7, 8 or 9 building may be served by a single fire hydrant located at the level of egress from that sole-occupancy unit provided the fire hydrant can provide coverage to the whole of the sole-occupancy unit.</p>	
E1D3	<p>Fire hose reels</p> <p>E1D3 does not apply to a Class 2, 3 or 5 building or Class 4 part of a building.</p>	NA
E1D4	<p>Sprinklers</p> <p>Sprinklers are required in buildings having an effective height of more than 25m and class 2 buildings with rise in storeys of 4 or more.</p>	NA
E1D14	<p>Portable Fire Extinguishers</p> <p>PFE's are required to be located throughout the building in accordance with Part E1D14 of BCA2022. PFE's are to comply with AS2444 and be:</p> <p>(a) an ABE type fire extinguisher; and</p> <p>(b) a minimum size of 2.5 kg; and</p> <p>(c) distributed outside a sole-occupancy unit—</p> <p>(i) to serve only the storey at which they are located; and</p> <p>(ii) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10m.</p>	<p>Compliance Achievable</p> <p>Location and type of PFEs to be shown on architectural or building services drawings.</p>
E1D15	<p>Fire control centers</p> <p>A fire control centre facility in accordance with Specification 19 must be provided for –</p> <p>(a) a building with an effective height of more than 25 m; and</p> <p>(b) a Class 6, 7, 8 or 9 building with a total floor area of more than 18000 m2.</p>	NA
E1D16	<p>Fire precautions during construction</p> <p>In a building under construction not less than one fire extinguisher to suit Class A, B and C fires and electrical</p>	<p>Compliance Achievable</p> <p>Sufficient notation to be provided on plans accompany the application for Crown Certificate.</p>

Section E – Services and Equipment		
Clause	Requirement	Comments
	fires must be provided at all times on each storey adjacent to each required exit or temporary stairway or exit.	
Part E2		
E2D8	Buildings not more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building In a Class 2 building, if the building is not more than 25 m in effective height it must be provided with an automatic smoke detection and alarm system complying with Specification 20.	Compliance Achievable. Fire protection engineer (dry fire) to design accordingly. Details demonstrating compliance to be provided with the application for Crown Certificate. Automatic smoke detection and alarm system to comply with the requirements under Specification 20 of the BCA.
Part E3		
E3D2	Lift Installations An electric passenger lift installation and an electrohydraulic passenger lift installation must comply with Specification 24	Compliance Achievable. Lift details/specifications required to ensure Compliance with Spec 24 of E3D2 is met. Details demonstrating compliance to be provided with the application for Crown Certificate.
	Stretcher facility in lifts A stretcher facility must be provided in at least one emergency lift or where an emergency lift is not required, if passenger lifts are installed to serve any storey above an effective height of 12 m, in at least one of those lifts to serve each floor served by the lifts.	NA Effective height below 12m and emergency lift not required in the building.
E3D4	Warning against use of lifts in fire 1) A warning sign must be displayed where it can be readily seen near every call button for a passenger lift or group of lifts throughout a building. (3) Each warning sign required by (1) must comply with the details and dimensions of Figure E3D4 and consist of— a) incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall; or b) letters incised or inlaid directly into the surface of the material forming the wall.	Compliance Achievable A statutory signage package is to be provided to demonstrate compliance with the application for Crown Certificate.
E3D6	Landings Access and egress to and from lift well landings must comply with Parts D2, D3 and D4 of BCA.	Compliance Achievable Compliance declaration required from the lift manufacturer.

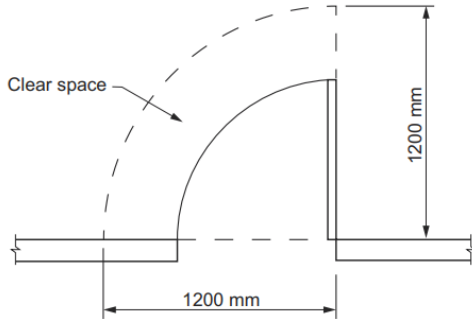
Section E – Services and Equipment		
Clause	Requirement	Comments
E3D7	Passenger lift types and their limitations There are no limitations on the use of electric passenger lifts.	Compliance Achievable Compliance declaration required from the lift manufacturer.
E3D8	Accessible features required for passenger lifts Refer to BCA for list of requirements.	Compliance Achievable Compliance declaration required from the lift manufacturer.
E3D11	Fire service recall control switch Refer to BCA for list of requirements.	Compliance Achievable Compliance declaration required from the lift manufacturer.
E3D12	Lift car fire service drive control switch Refer to BCA for list of requirements.	Compliance Achievable Compliance declaration required from the lift manufacturer.
Part E4		
E4D2 - E4D8	Emergency lighting and existing sign requirements including design and operation Emergency lighting, exit and direction signs are to be located, designed and installed in accordance with Part E4 of BCA2022 and AS2293.1-2018.	Compliance Achievable Electrical Engineer to design accordingly. Details demonstrating compliance to be provided with the application for Crown Certificate.

Section F – Health and Amenity		
Clause	Requirement	Comments
Part F1		
F1D3	Stormwater drainage Stormwater drainage must be designed and constructed in accordance with AS/NZS 3500.3 and relevant conditions of DA consent.	Compliance Achievable Hydraulic drawings and design certificate to be provided with the application for Crown Certificate.
F1D4	Exposed Joints Exposed joints in the drainage surface on a roof, balcony or similar horizontal surface part of a building must be protected in accordance with Section 2.9 of AS 4654.2 and not be located beneath or run through a planter box, water feature or similar part of the building.	Designers to note

Section F – Health and Amenity		
Clause	Requirement	Comments
F1D5	External waterproofing membranes A roof, balcony or similar horizontal surface part of a building must be provided with a waterproofing membrane consisting of materials complying with AS 4654.1 and designed and installed in accordance with AS 4654.2.	Compliance Achievable Design certificate to be provided with the application for Crown Certificate.
F1D6 – F1D7	Damp-proofing moisture from the ground must be prevented from reaching the structure by installation of damp-proof course or impervious sheet material in accordance with AS3660.1 where required. If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870.	Compliance Achievable Structural engineer to detail on the structural drawings and to be coordinated with architectural drawings.
Part F2		
F2D2	Wet area construction In a Class 2 building, building elements in a bathrooms, showers, laundries and sanitary compartment must be water resistant or waterproof in accordance with Specification 26 and comply with AS 3740.1-2021.	Compliance achievable Design certificate to be provided with the application for Crown Certificate.
F2D4	Floor wastes In a class 2 building, a bathroom or laundry located at any level above a sole-occupancy unit or public space must have a floor waste. Where a floor waste is installed, the minimum continuous fall of the floor plane to the waste must be 1:80 and the maximum continuous fall of a floor plane to the waste must be 1:50.	Compliance achievable. Design certificate to be provided with the application for Crown Certificate.
Part F3		
F3D2	Roof covering A concrete roof must be covered with an external waterproofing membrane complying with AS4654.1 & 2.	Compliance achievable. Design certificate to be provided with the application for Crown Certificate.
F3D3	Sarking Sarking-type material used for weatherproofing of roofs and walls must comply with AS 4200.1 and AS 4200.2.	Compliance achievable Design certificate to be provided with the application for Crown Certificate. Also, please note the requirements for materials within the walls as per Clause C2D10 of BCA.

Section F – Health and Amenity		
Clause	Requirement	Comments
F3D4	Glazed assemblies glazed assemblies in external walls must comply with AS2047.	Compliance achievable
F3D5	Wall cladding External wall cladding must comply with one or a combination of the following: <ul style="list-style-type: none"> a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. b) Autoclaved aerated concrete: AS 5146.3. c) Metal wall cladding: AS 1562.1. Any other type of cladding must be detailed in a performance solution report.	Compliance Achievable A performance solution is required as lightweight FC cladding are shown on the plans.
Part F4		
F4D2	Facilities in residential buildings For facilities in Class 2 buildings, the following applies: <ul style="list-style-type: none"> (a) Within each sole-occupancy unit, provide— <ul style="list-style-type: none"> (i) a kitchen sink and facilities for the preparation and cooking of food; and (ii) a bath or shower; and (iii) a closet pan; and (iv) a washbasin. (b) For laundry facilities, provide either— <ul style="list-style-type: none"> (i) in each sole-occupancy unit – <ul style="list-style-type: none"> (A) clothes washing facilities, comprising at least one washtub and a space for a washing machine; and (B) clothes drying facilities comprising clothes line or a hoist with not less than 7.5 m of line, or space for one heat operated drying cabinet or appliance in the same room as the clothes washing facilities; or (ii) a separate laundry for each 4 sole-occupancy units, or part thereof, that must comprise— 	Compliance achievable. Floor plans to provide sufficient information demonstrating compliance.

Section F – Health and Amenity

Clause	Requirement	Comments
	<p>(A) clothes washing facilities, comprising at least one washtub and a space for a washing machine; and</p> <p>(B) clothes drying facilities comprising clothes line or a hoist with not less than 7.5 m of line per sole-(B)occupancy unit, or space for one heat operated drying cabinet or appliance.</p> <p>(c) For the purposes of (a) and (b), a kitchen sink or washbasin must not be counted as a laundry washtub.</p>	
F4D8	<p>Construction of sanitary compartments</p> <p>Where there is less than 1.2m space as shown in figure F4D8 of the BCA between an inward opening door and the closet pan, the door must be readily removable from the outside (i.e. lift off hinges).</p> <p>Figure F4D8: Construction of sanitary compartments</p> 	<p>Compliance achievable.</p> <p>Further details required with the application for Crown Certificate.</p>
Part F5		
F5D2	<p>Height of rooms and other spaces</p> <p>The height of rooms and other spaces in a Class 2 building must be not less than:</p> <p>a) for a kitchen, laundry, or the like — 2.1 m; and</p> <p>b) for a corridor, passageway or the like — 2.1 m;</p>	<p>Compliance Achievable</p>

Section F – Health and Amenity

Clause	Requirement	Comments
	<p>and</p> <p>c) for a habitable room excluding a kitchen — 2.4 m; and</p> <p>d) in a habitable room, or space within a habitable room, with a sloping ceiling or projections below the ceiling line—</p> <p>i. in an attic — a height of not less than 2.2 m for not less than two-thirds of the floor area of the room or space; and</p> <p>ii. in other rooms — a height of not less than 2.4 m for not less than two-thirds of the floor area of the room or space; and</p> <p>in a non-habitable room, or space within a non-habitable room, with a sloping ceiling or projections below the ceiling line — a height of not less than 2.1 m for not less than two-thirds of the floor area of the room or space.</p> <p>Minimum height of 2m required above stairway nosing.</p>	
Part F6		
F6D2	<p>Provision of natural light</p> <p>Natural light must be provided to all habitable rooms in a class 2 building.</p>	Compliance Achievable
F6D3	<p>Methods and extent of natural light</p> <p>Required natural light must be provided by windows that have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like.</p>	<p>Compliance Achievable</p> <p>Detailed drawings must include window schedule detailing area of glazing in each window to demonstrate compliance.</p>
F6D5	<p>Artificial lighting</p> <p>Artificial lighting in a class 2 building must be provided in sanitary compartments, required stairways, passageways, ramps, sanitary compartments, bathrooms, shower rooms, airlocks, laundries, common stairways and other spaces used in common by the occupants of the building in</p>	<p>Compliance Achievable</p> <p>Electrical plans and certification to be provided with the application for Crown Certificate.</p>

Section F – Health and Amenity		
Clause	Requirement	Comments
	accordance with AS1680.0.	
F6D6	Ventilation of room A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F6D7; or a mechanical ventilation or air-conditioning system complying with AS 1668.2 and AS/NZS 3666.1.	Compliance Achievable Mechanical plans and certification to be provided with the application for Crown Certificate.
F6D7	Natural ventilation (1) Natural ventilation provided in accordance with F6D6(a) must consist of openings, windows, doors or other devices which can be opened— (a) with a ventilating area not less than 5% of the floor area of the room required to be ventilated; and (b) open to— (i) a suitably sized court, or space open to the sky; or (ii) an open verandah, carport, or the like; or (iii) an adjoining room in accordance with F6D8.	Compliance Achievable Mechanical plans and certification to be provided with the application for Crown Certificate.
F6D9	Restriction on location of sanitary compartments A sanitary compartment must not open directly into: a) a kitchen or pantry; or b) a public dining room or restaurant; or c) a room used for public assembly; or a workplace normally occupied by more than one person.	Complies Sanitary facilities located in the hallways.
Part F7		
F7D3 to F7D8	Sound insulation rating of building elements The proposal will need to meet the sound insulation requirements of Part F7 of the BCA.	Compliance Achievable Acoustic Consultant to provide a design certificate with the application for Crown Certificate.
Part F8		
F8D3	External wall construction Where pliable building membranes installed, they must comply with AS4200.1 & 2 and requirement of this section	Compliance Achievable Architect to note with respect to type and location of sarking. Wall section details to demonstrate compliance.

Section F – Health and Amenity

Clause	Requirement	Comments
	of the BCA.	
F8D4	Exhaust system Exhaust systems flow rates and installation in residential SOUs must meet the requirement of this section of the BCA.	Compliance Achievable Mechanical plans and certification to be provided with the application for Crown Certificate

Section J – Energy Efficiency

The class 2 building is subject to the Building Sustainability Index (BASIX) and Section J including NSW variations as applicable below.

- (1) For a Class 2 building or a Class 4 part of a building, where a relevant development consent or an application for a complying development certificate requires compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under Version 3.0 or earlier, NSW Section J of NCC 2019 Volume One Amendment 1 applies.
- (2) For a Class 2 building or a Class 4 part of a building, where a relevant development consent or an application for a complying development certificate requires compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under Version 4.0 or later, Section J of NCC 2022 Volume One applies.

ESD consultant to provide a report demonstrating compliance with DtS provision of the BCA.

3.0 Conclusion

We have assessed the drawings with respect to the Building Code of Australia 2022. We are confident that the design is generally capable of meeting the Deemed-to-Satisfy and Performance Requirements of the Building Code of Australia 2022, except where noted within sections of this report. Areas of the design are still being developed but are unlikely to impact on the DA submission, these areas of the design will be addressed prior to issue to issue of Crown Certificate as per Section 6.28 of the EP&A Act 1979.

Appendix A – FRL of Building Elements

FRL of Building Elements for Type A Construction (Class 2)	
<i>Loadbearing parts of external walls</i>	
Distance from fire source Feature	FRL (in minutes)
Less than 1.5 m	90/90/90
1.5 to less than 3 m	90/60/60
3 m to less than 9 m	90/60/30
<i>Non-loadbearing parts of external walls</i>	
Distance from fire source Feature	FRL (in minutes)
Less than 1.5 m	-/90/90
1.5 m to less than 3 m	-/60/60
3 m or more	-/-/-
<i>External columns not incorporated in an external wall</i>	
Column type	FRL (in minutes)
Loadbearing column	90/-/-
Non-loadbearing column	-/-/-
<i>Common walls and fire walls</i>	
Wall Type	FRL (in minutes)
Loadbearing or non-loadbearing	90/90/90
<i>Loadbearing internal walls</i>	
Location	FRL (in minutes)
Fire-resisting lift and stair shafts	90/90/90
Bounding public corridors, public lobbies and the like	90/90/90
Between or bounding sole-occupancy units	90/90/90
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	90/90/90
<i>Non-loadbearing internal walls</i>	
Location	FRL (in minutes)
Fire-resisting lift and stair shafts	-/90/90
Bounding public corridor, public lobbies and the like	-/60/60
Between or bounding sole-occupancy units	-/60/60
Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion	-/90/90
<i>Other building elements not covered above</i>	
Building Element	FRL (in minutes)
Other loadbearing internal walls and columns	90/-/-
Floors	90/90/90
Roofs	90/60/30

Appendix B – List of proposed fire safety measures

Proposed Fire Safety Measures	
Fire Safety Measures	Proposed Standard of Performance
Access panels, doors & hoppers to fire resisting shaft	BCA 2022 C4D14 & AS 1905.1-2015, AS 1905.2-2005
Automatic fire detection and alarm system	BCA 2022 E2D3, Specification 20, S20C3 (smoke alarm system) or S20C4 (smoke detection system) or S20C5 (combination smoke alarm and smoke detection); S20C7 (building occupant warning system); Specification 20, and AS 1670.1-2018 & AS 3786-2014 Amdt 1 & AS 1670.3-2018.
Emergency lighting	BCA 2022 E4P2, E4P4 & AS 2293.1-2018
Exit signs	BCA 2022 E4D5, E4D6, E4D7 (non-illuminated exit signs), E4D8, Specification 25 & AS 2293.1-2018,
Fire dampers	BCA 2022 C4D13, C4D15, AS/NZS 1668.1-2015 Amdt 1, AS 1668.2-2012 Amdt 1 & 2, AS 1682.1-2015 & AS 1682.2-2015.
Fire doors	BCA 2022 C3D13 (separation of equipment), C3D14 (electricity supply systems), C4D4 (separation of external walls & associated openings in fire compartments), C4D5, Specification 12; C4D6 (doorways & fire walls), C4D12 (bounding construction), C4D14 (openings in shafts) & AS 1905.1-2015 Amdt 1.
Fire hydrant systems	BCA 2022 E1D2 & AS 2419.1-2021
Fire seals protecting openings in fire resisting components of the building	BCA 2022 C4D15, Specification 13, C4D6, D2D17, AS 1530.4.-2014 & AS 4072.1-2005 Amdt 1
Lightweight construction	BCA 2022 C2D9 & Specification 6
Portable fire extinguishers	BCA 2022 E1D14 & AS 2444-2001.
Warning and operational signs	E3D5 (lifts)
Fire Engineering Report	If a performance solution is required.

Appendix C – Climate zones of greater Sydney and surrounding areas

