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BCA COMPLIANCE ASSESSMENT REPORT

Building Address	157 Ocean Street, Narrabeen
Report No.	3580-BCA
Report For	Strata Plan 3128 (157 Ocean Street Narrabeen)
Report By	Greg Murrow
Title / Company	Director Murrow Consulting Pty Ltd
Date	30 May 2024

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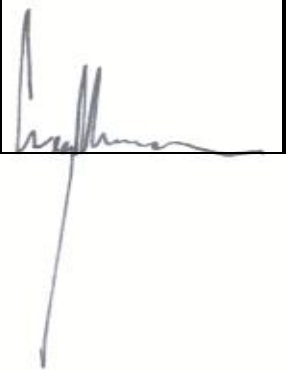
REPORT REVISION STATUS

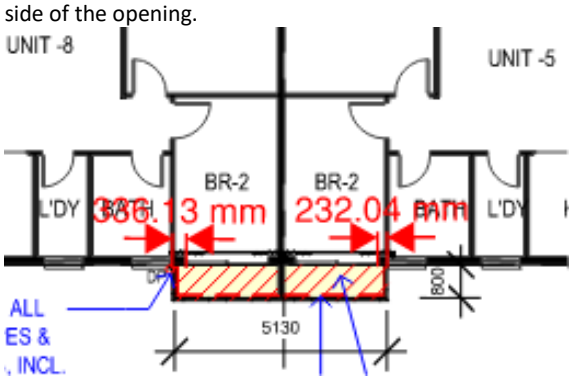
Report No.	Revision	Issue Date	Report Status	Author		
3580-BCA	A	30/05/2024	Issue 1	Prepared and approved by:	Greg Murrow **Director**	

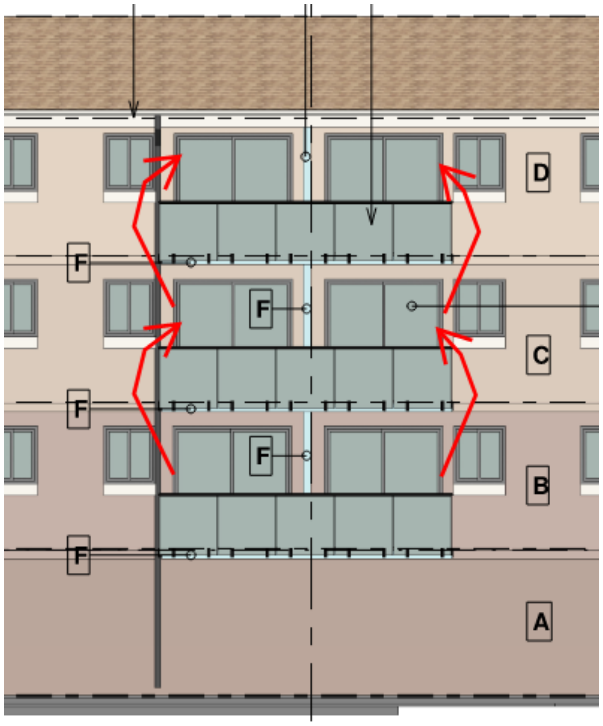
A. EXECUTIVE SUMMARY

This report provides a Building Code of Australia 2022 (BCA) compliance assessment of the proposed balcony and balustrades replacement work at the existing multi-storey residential apartment building at 157 Ocean Street, Narrabeen.

The purpose of this report is to identify the non-compliance matters contained in the proposed design (proposed new works) against the Deemed-to-Satisfy (DTS) Provisions of the BCA 2022 Volume One and to provide recommendations to overcome the DTS non-compliances.

The proposed design, in relation to numerous DTS Provisions, shall be further detailed as nominated in the Section D table prior to the issue of a Construction Certificate (CC), however the following is a list of identified DTS non-compliances and issues that should be considered now either by design amendments, additional information or by way of a Performance Solution prior to the issue of a CC:

DTS Provision	Outline of DTS non-compliance	Recommendation to address DTS non-compliance
C3D7 Vertical separation of openings in external walls	Unless the building will be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 installed throughout, the openings in the external walls shall comply with the vertical separation requirements of C3D7 as required, that is: • They are protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab, or • They are provided with a 1.1m horizontal projection (FRL (60/60/60) also extending at least 450mm either side of the opening. The following openings in external walls do not comply with the vertical separation requirements of C3D7 – **does not comply with C3D7**: • Juliet balcony between Level 1 and Level 2: o Glass sliding doors of the Unit 8 bedroom 2 is not separated from the glass sliding doors of the Unit 7 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening. o Glass sliding doors of the Unit 5 bedroom 2 is not separated from the glass sliding doors of the Unit 4 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening.  • Juliet balcony between Level 2 and Level 3: o Glass sliding doors of the Unit 9 bedroom 2 is not separated from the glass sliding doors of the Unit 8 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening.	Design amendments or obtain a Performance Solution formulated in accordance with BCA Part A2.

DTS Provision	Outline of DTS non-compliance	Recommendation to address DTS non-compliance
	o Glass sliding doors of the Unit 6 bedroom 2 is not separated from the glass sliding doors of the Unit 5 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening.  1 South Elevation 1 : 100	

B. INTRODUCTION

This report provides a Building Code of Australia 2022 (BCA) compliance assessment of the proposed balcony and balustrades replacement work at the existing multi-storey residential apartment building at 157 Ocean Street, Narrabeen.

This report is limited to an assessment of the proposed new building works (listed below in italics) and does not extend to proposing an upgrade to the parts of the existing building not subject to the proposed building works.

***SCOPE OF WORKS**:*
1. Demolition of the southern (Juliet style) balconies L1 to L3
2. Demolition of the western balconies (facing the street) L1 to L3
3. Construct new reinf conc balconies to these locations (replace the old with matching new concrete balconies, to engineers details)
4. Demolish and replace concrete driveway slab along North,East and West driveways
5. Investigate and make good as may be required to sewer and/or stormwater pipes below driveway.
6. Demolish existing Hebel balcony balustrades; and replace with new stainless steel and glass balustrades. Glass balustrades are to be frameless glass with ss pin fixed to edge of concrete balcony slab) - to be designed to AS 1288). Include a 50mm dia top ss handrail to top of glass balustrades.
7. Replace all garage doors (Colourbond Tilt-a-doors)
8. Install selected waterproof trafficable membrane to top and edges of all new and existing balconies.
9. Remove and replace all gutters and downpipes, including re-sizing as required for volume of flow.
10. Re-paint all external walls /eaves/fascias/ and balcony slab soffits and edges, etc (all exterior surfaces of the building but not alum windows or doors)
11. Construct new front fence and letterboxes with planter areas in the fence
12. Construct new fence and gate to Bin Storage area (southern side of building)

PURPOSE OF THE REPORT

This report only applies to the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

The purpose of this report is to identify the non-compliance matters contained in the proposed design (proposed new works) against the Deemed-to-Satisfy (DTS) Provisions of the BCA 2022 Volume One and to provide recommendations to overcome the DTS non-compliances.

INFORMATION RELIED UPON

The following information and inspection has been relied upon in the execution of this report:

Item No.	Documentation			Date
Inspection				
1.	Inspection of the existing building at 157 Ocean Street, Narrabeen and external areas.			10.05.24
Plans				
2.	Architectural plans (Job No. 17009) issued by Woodhouse & Danks Architects.			
	Drawing No.	**Drawing Title**	**Issue**	
	DWG No.	**DWG Title**	**Revision**	
	DA-01	Perspective, Location, Vicinity Map	DA Issue	11.08.23
	DA-02	Site Development Plan	DA Issue	11.08.23
	DA-03	Ground Floor Plan	DA Issue	11.08.23
	DA-04	Typical 1F, 2F, & 3F Demolition Plan	DA Issue	11.08.23
	DA-05	First Floor Plan	DA Issue	11.08.23
	DA-06	Second Floor Plan	DA Issue	11.08.23
	DA-07	Third Floor Plan	DA Issue	11.08.23
	DA-08	Roof Plan	DA Issue	11.08.23
	DA-20	North Elevation	DA Issue	11.08.23
	DA-21	Propose North Elevation	DA Issue	11.08.23
	DA-22	West Elevation	DA Issue	11.08.23

Item No.	Documentation			Date
	DA-23	Propose West Elevation	DA Issue	11.08.23
	DA-24	South Elevation	DA Issue	11.08.23
	DA-25	Propose South Elevation	DA Issue	11.08.23
	DA-26	East Elevation	DA Issue	11.08.23
	DA-27	Propose East Elevation	DA Issue	11.08.23
	DA-28	Balcony Details	DA Issue	11.08.23
	DA-30	Section 1 & 2	DA Issue	11.08.23
Applicable BCA				
3.	National Construction Code – Volume One – Building Code of Australia 2022 (Version 01.05.23), published by the Australia Building Codes Board (ABCB).			2023

REPORT EXCLUSIONS

The following exclusions / limitations apply to this report:

1. This report only applies to the existing multi-storey residential apartment building at 157 Ocean Street, Narrabeen.
2. This report does not address any matters that are outside the scope of the BCA Volume One 2022.
3. This report is limited to an assessment of the proposed balcony and balustrades replacement work only and does not extend to proposing an upgrade to the parts of the building not subject to the proposed building works.
4. This report is limited to an assessment against sections C, D, E, F, G and I of the BCA only.
5. This report does not consider the Disability (Access to Premises) Standards 2010.
6. This report does not provide any guarantee against complaints made under the Disability Discrimination Act 1992.
7. There was no assessment of any documentation other than that specifically listed in the table below.
8. This report does not consider any structural elements or geotechnical matters relating to the building.
9. This report does not provide any assessment of the existing fire resistance levels (FRLs) of the building or the combustibility or fire hazard properties of any materials inside / outside the building, such as cladding.
10. This report does not provide any assessment of any external wall systems including but not limited to any external insulation, finishing system, wall panelling, cladding or façade material.
11. This report does not provide for the formulation of Performance Solutions or fire engineering advice.
12. This report does not consider Work Health & Safety considerations.
13. This report does not consider Council's local planning policies such as DCPs and LEPs.

C. BUILDING INFORMATION

BUILDING BCA INFORMATION SUMMARY

The following is a summary of the BCA assessment data in relation to the existing four (4) storey residential apartment building at 157 Ocean Street, Narrabeen, NSW.

Applicable Edition of BCA	2022	
BCA Building Classification(s)	Ground Floor – Class 7a carpark Levels 1, 2 and 3 - Class 2 residential units	
Number of "storeys"	4	
"Rise in storeys"	4	
Type of Construction	Type A Construction (if built new today)	
"Effective height"	3m	
"*Fire source features*"	North	More than 3m to north adjoining allotment boundary
	East	More than 3m to eastern adjoining allotment boundary (adjoining beach)
	South	2.82-2.85m to southern adjoining allotment boundary
	West	More than 6m to far side of Ocean Street.

Note: Terms in italics above are BCA defined terms.

***Fire-source feature**: Any one or more of the following:*
(a) The far boundary of a road, river, lake or the like adjoining the allotment.
(b) A side or rear boundary of the allotment.
(c) An external wall of another building on the allotment which is not a Class 10 building.

D. BCA COMPLIANCE ASSESSMENT TABLE

The following table details the relevant (applicable) DTS compliance of the proposed new works.

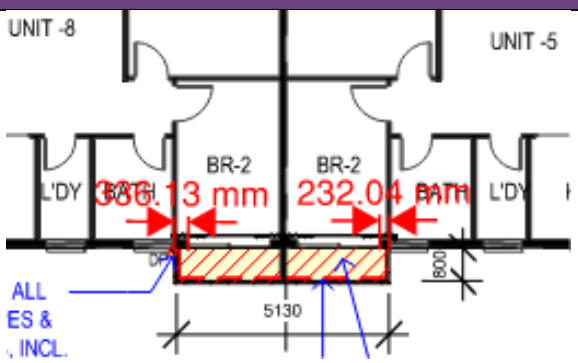
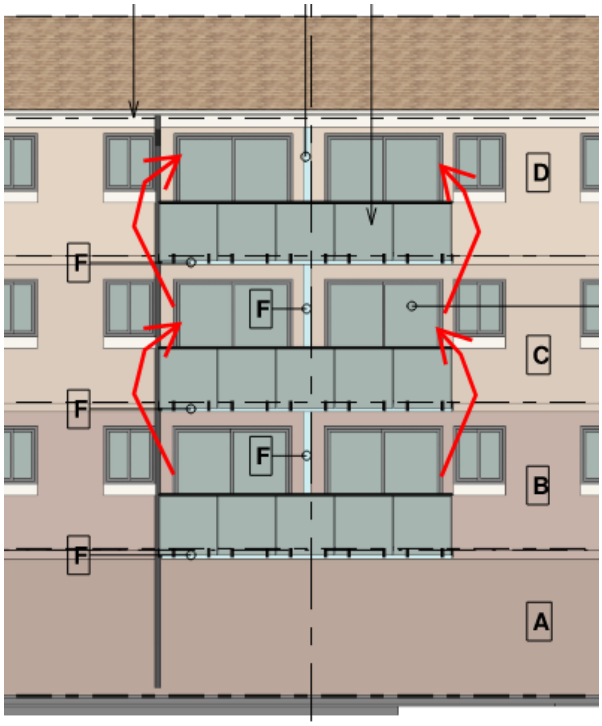
BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
SECTION C FIRE RESISTANCE		
Part C1 Fire resistance		**No DTS Provisions. This Part only contains Objectives, Functional Statements, Performance Requirements and Verification Methods.**
Part C2 Fire resistance and stability		
C2D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements C1P1 to C1P9 are satisfied by complying with— (a) C2D2 to C2D15, C3D2 to C3D15 and C4D2 to C4D17; and (b)-(e) Not applicable. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
C2D2 Type of construction required & Specification 5 Fire-resisting construction	To be further detailed at CC stage	As required by Table C2D2, Type A Construction is required for all new building elements in accordance with Clauses S5C1 to S5C20 (inclusive) and Tables S5C11a to S5C11g of Specification 5 (see Annexure 1). Each new building element listed in Tables S5C11a to S5C11g, and any beam or column incorporated in it, must have an FRL not less than that listed in each Table for the particular class of building concerned. **Required minimum FRLs of building elements (see Annexure 1):** • New external columns require an FRL of not less than 90/-/-. • New loadbearing internal walls, internal beams, trusses and columns require an FRL of not less than 90/-/-. • The new balcony floors must have an FRL of not less than 90/90/90.
C2D3 Calculation of rise in storeys	Noted	RIS – 4
C2D9 Lightweight construction	To be further detailed at CC stage	Subclause (1) Lightweight construction must comply with Specification 6 if it is used in a wall system that is required to have an FRL. Subclause (2) If lightweight construction is used for the fire-resisting covering of a steel column or the like, and if- (a) the covering is not in continuous contact with the column, then the void must be filled solid, to a height of not less than 1.2 m above the floor to prevent indenting; and (b) the column is liable to be damaged from the movement of vehicles, materials or equipment, then the covering must be protected by steel or other suitable material.
C2D10 Non-combustible building elements	To be further detailed at CC stage	Subclause (1) The following building elements and their components must be non-combustible: (a) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation. (b) The flooring and floor framing of lift pits. (c) Non-loadbearing internal walls where they are required to be fire-resisting.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		Subclause (2) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction. Subclause (3) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification 5. Subclause (4) The requirements of (1) and (2) do not apply to the following: (a) Gaskets. (b) Caulking. (c) Sealants. (d) Termite management systems. (e) Glass, including laminated glass, and associated adhesives, including tapes. (f) Thermal breaks associated with- (i) glazing systems; or (ii) external wall systems, where the thermal breaks- (A) are no larger than necessary to achieve thermal objectives; and (B) do not extend beyond one storey; (C) do not extend beyond one fire compartment. (g) Damp-proof courses. (h) Compressible fillers and backing materials, including those associated with articulation joints, closing gaps not wider than 50mm. (i) Isolated- (i) construction packers and shims; or (ii) blocking for fixing fixtures; or (iii) fixings, including fixing accessories; or (iv) acoustic mounts. (j) Waterproofing materials applied to the external face, used below ground level and up to 250 mm above ground level. (k) Joint trims and joint reinforcing tape and mesh of a width not greater than 50 mm. (l) Weather sealing materials, applied to gaps not wider than 50 mm, used within and between concrete elements. (m) Wall ties and other masonry components complying with AS 2699 Part 1 and Part 3 as appropriate, and associated with masonry wall construction. (n) Reinforcing bars and associated minor elements that are wholly or predominately encased in concrete or grout. (o) A paint, lacquer or a similar finish or coating. (p) Adhesives, including tapes, associated with stiffeners for cladding systems. (q) Fire-protective materials and components required for the protection of penetrations. Subclause (5) The following materials, when entirely composed of itself, are non-combustible and may be used wherever a non-combustible material is required: (a) Concrete. (b) Steel, including metallic coated steel. (c) Masonry, including mortar. (d) Aluminium, including aluminium alloy. (e) Autoclaved aerated concrete, including mortar.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		(f) Iron. (g) Terracotta. (h) Porcelain. (i) Ceramic. (j) Natural stone. (k) Copper. (l) Zinc. (m) Lead. (n) Bronze. (o) Brass. <u>Subclause (6)</u> The following materials may be used wherever a non-combustible material is required: (a) Plasterboard. (b) Perforated gypsum lath with a normal paper finish. (c) Fibrous-plaster sheet. (d) Fibre-reinforced cement sheeting. (e) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0. (f) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5. (g) Bonded laminated materials where— (i) each lamina, including any core, is non-combustible; and (ii) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (iii) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively; and (iv) when located externally, are fixed in accordance with C2D15.
C2D11 Fire hazard properties	To be further detailed at CC stage	<u>Subclause (1) – NSW C2D11(1)</u> The fire hazard properties of the following new internal linings, materials and assemblies must comply with Specification 7: (a) Floor linings and floor coverings. (b) Wall linings and ceiling linings. (c) Air-handling ductwork. (d) Not applicable. (e) Not applicable. (f) Not applicable. (g) Sarking-type materials. (h) Attachments to floors, ceilings, internal walls, common walls, fire walls and to internal linings of external walls. (i) Other materials including insulation materials other than sarking-type materials. <u>Subclause (2) – NSW C2D11(2)</u> Paint or fire-retardant coatings must not be used in order to make a material comply with a required fire hazard property, except in respect of a material referred to in NSW Specification 7, NSW Table S7C7 and to which Notes 4 and 5 are applicable. <u>Subclause (3) – NSW C2D11(3)</u> The requirements of (1) do not apply to a material or assembly if it is one of those listed in NSW C2D11(3).
C2D14 Ancillary elements	To be further detailed at CC stage	An ancillary element must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		external wall that is required to be non-combustible unless it is one of the following: (a) An ancillary element that is non-combustible. (b) A gutter, downpipe or other plumbing fixture or fitting. (c) A flashing. (d) A grate, grille or similar cover not more than $2m^2$ in area associated with a building service. (e) An electrical switch, socket-outlet, cover plate or the like. (f) A light fitting. (g) A required sign. (h) A sign other than one provided under (a) or (g) that— (i) achieves a group number of 1 or 2; and (ii) does not extend beyond one storey; and (iii) does not extend beyond one fire compartment; and (iv) is separated vertically from other signs permitted under (h) by at least 2 storeys. (i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that— (i) meets the relevant requirements of Table S7C7 as for an internal element; and (ii) serves a storey— (A) at ground level; or (B) immediately above a storey at ground level; and (iii) does not serve an exit, where it would render the exit unusable in a fire. (j) A part of a security, intercom or announcement system. (k) Wiring. (l) Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface. (m) Collars, sleeves and insulation associated with service installations. (n) Screens applied to vents, weepholes and gaps complying with AS 3959. (o) Wiper and brush seals associated with doors, windows or other openings. (p) A gasket, caulking, sealant or adhesive directly associated with (a) to (o). <u>Limitations</u> C2D14 does not apply to ancillary elements fixed, installed or attached to the internal face or lining of an external wall. <u>Notes</u> C2D14 does not prevent the mounting of domestic air-conditioning condenser units on external walls. <u>Explanatory information</u> Ancillary elements fixed, installed or attached to the internal face or lining of an external wall may be subject to other provisions such as C2D11.
C2D15 Fixing of bonded laminated cladding panels	To be further detailed at CC stage	<u>Subclause (1)</u> In a building required to be of Type A or B construction, externally located bonded laminated cladding panels must have all layers of cladding mechanically supported or restrained to the supporting frame. <u>Subclause (2)</u> An externally located bonded laminated cladding panel need not comply with (1) if it is one of the following: (a) A laminated glass system.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		(b) Layered plasterboard product. (c) Perforated gypsum lath with a normal paper finish. (d) Fibrous-plaster sheet. (e) Fibre-reinforced cement sheeting. (f) A component of a garage door. <u>Notes</u> For C2D15(1), mechanical support or restraint means fixing that does not solely rely on chemical adhesive and includes concealed fixing systems such as cassette fixing, channel-type fixing and face fixing. <u>Explanatory Information</u> For structural requirements relating to the fixing of cladding, refer to Section B. For most cladding systems, the requirements of Section B will necessitate mechanical fixing of the cladding panel to the supporting frame.
Part C3 Compartmentation and separation		
C3D1 Deemed-to-Satisfy Provisions	Noted	<u>Subclause (1)</u> Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements C1P1 to C1P9 are satisfied by complying with— (a) C2D2 to C2D15, C3D2 to C3D15 and C4D2 to C4D17; and (b)-(e) Not applicable. <u>Subclause (2)</u> Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
C3D7 Vertical separation of openings in external walls	Does not comply	Unless the building will be provided with a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17 installed throughout, the openings in the external walls shall comply with the vertical separation requirements of C3D7 as required, that is: • They are protected with a 900mm high (FRL 60/60/60) spandrel extending at least 600mm above the separating slab, or • They are provided with a 1.1m horizontal projection (FRL (60/60/60) also extending at least 450mm either side of the opening. The following openings in external walls do not comply with the vertical separation requirements of C3D7 – **does not comply with C3D7**: • Juliet balcony between Level 1 and Level 2: o Glass sliding doors of the Unit 8 bedroom 2 is not separated from the glass sliding doors of the Unit 7 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening. o Glass sliding doors of the Unit 5 bedroom 2 is not separated from the glass sliding doors of the Unit 4 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		 • Juliet balcony between Level 2 and Level 3: o Glass sliding doors of the Unit 9 bedroom 2 is not separated from the glass sliding doors of the Unit 8 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening. o Glass sliding doors of the Unit 6 bedroom 2 is not separated from the glass sliding doors of the Unit 5 bedroom 2 as the balcony does not comprise a minimum 1.1m horizontal projection (FRL (60/60/60) extending at least 450mm either side of the opening.  1 South Elevation 1 : 100
Part C4 **Protection of openings**		
C4D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements C1P1 to C1P9 are satisfied by complying with- (a) C2D2 to C2D15, C3D2 to C3D15 and C4D2 to C4D17; and (b)-(e) Not applicable.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		Subclause (2) Where a Performance Solution is proposed the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
C4D2 Application of Part	Noted	
C4D3 Protection of openings in external walls	Not applicable	There are no new openings in an external wall that are required to have an FRL.
C4D16 Construction joints	To be further detailed at CC stage	Subclause (1) 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- (a) identical with a prototype tested in accordance with AS 4072.1 and AS 1530.4 to achieve the required FRL; or (b) that differs from a prototype in accordance with Section 4 of AS 4072.1 and achieves the required FRL. Subclause (2) The determination of the required FRL must be confirmed in a report from an Accredited Testing Laboratory in accordance with Specifications 1 and 2. Subclause (3): Not applicable.
C4D17 Columns protected in lightweight construction to achieve an FRL	To be further detailed at CC stage	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 or resistance to the incipient spread of fire.
SECTION D ACCESS AND EGRESS		
Part D1 Access and egress		**No DTS Provisions. This Part only contains Objectives, Functional Statements, Performance Requirements and Verification Methods.**
Part D2 Provision for Escape		Not applicable.
D2D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements D1P1 to D1P6, D1P8 and D1P9 are satisfied by complying with- (a) D2D2 to D2D23, D3D2 to D3D30 and D4D2 to D4D13; and (b)-(g) Not applicable. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable. Subclause (3): Not applicable.
D2D2 Application of Part	Noted	The Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a sole-occupancy unit in a Class 2 building.
Part D3 Construction of exits		
D3D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1)

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements D1P1 to D1P6, D1P8 and D1P9 are satisfied by complying with— (a) D2D2 to D2D23, D3D2 to D3D30 and D4D2 to D4D13; and (b)-(g) Not applicable. Subclause (2) Where a Performance Solution is proposed the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable. Subclause (3): Not applicable.
NSW D3D2 Application of Part	Noted	Subclause (1): Except for- (a) Not applicable. (b) D3D14, D3D15(a), D3D17, D3D18, D3D19, D3D20, D3D22(5), D3D22(6), D3D23 and D3D29, the Deemed-to-Satisfy Provisions of this Part do not apply to the internal parts of a sole-occupancy unit in a Class 2 building. Subclause (2): Not applicable.
D3D17 Barriers to prevent falls	To be further detailed at CC stage	Subclause (1) A continuous barrier must be provided along the side of- (a) a roof to which general access is provided; and (b) a stairway or ramp; and (c) a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and (d) any delineated path of access to a building, if the trafficable surface is 1 m or more above the surface beneath. Subclause (3) A barrier required by (1) must be constructed in accordance with D3D18, D3D19, D3D20 and, if a wire barrier is used, D3D21.
D3D18 Height of barriers	To be further detailed at CC stage	NSW Subclause (1) The height of a barrier required by D3D17 must be not less than the following: (a)-(d) Not applicable. (e) For all other locations — 1 m. Subclause (2) For a barrier provided under (1)- (a) barrier heights are measured vertically from the surface beneath, except that for stairways the height must be measured above the nosing line of the stair treads; and (b) Not applicable. Balustrades to balconies Balustrades to be not less than 1m high at level surfaces measured from the trafficable floor.
D3D19 Openings in barriers	To be further detailed at CC stage	Subclause (1) Except where allowed by (2), openings in a required barrier must not allow a 125 mm sphere to pass through. Subclauses (2)-(5): Not applicable. Subclause (6) Where a required barrier is fixed to the vertical face forming an edge of a landing, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		Subclause (7) For the purposes of (6), the opening is measured horizontally from the edge of the trafficable surface to the nearest internal face of the barrier.
D3D20 Barrier climbability	To be further detailed at CC stage	Subclause (1) A barrier required by D3D17, located on a floor more than 4 m above the surface beneath, must not incorporate horizontal or near horizontal elements that could facilitate climbing between 150 mm and 760 mm above the floor. Subclause (2): Not applicable.
D3D21 Wire barriers	Not applicable	
D3D29 Protection of openable windows	Not applicable	
Part D4 **Access for people with a disability**	Not applicable	
SECTION E **SERVICES AND EQUIPMENT**	Not applicable	
SECTION F **HEALTH AND AMENITY**		
Part F1 **Surface water management, rising damp and external waterproofing**		
F1D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements F1P1 to F1P4 are satisfied by complying with F1D2 to F1D8. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
F1D2 Application of Part	Noted	Subclause (1) F1D4 and F1D5 do not apply to a roof with a covering complying with F3D2(a) to (d). Subclause (2) F1D3 to F1D5 do not apply to a balcony, podium or similar horizontal surface part of a building— (a) where the flooring is of timber decking or other perforated flooring; or (b) which is located directly above ground.
F1D3 Stormwater drainage	To be further detailed at CC stage	Stormwater drainage must be designed and constructed in accordance with AS/NZS 3500.3.
F1D4 Exposed joints	To be further detailed at CC stage	Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must- (a) be protected in accordance with Section 2.9 of AS 4654.2; and not (b) be located beneath or run through a planter box, water feature or similar part of the building. Notes For the purposes of F1D4, an exposed joint is a construction joint, control joint, expansion joint, contraction joint or movement joint

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		and includes an exposed joint which is directly below a drainage surface. Explanatory Information: Location of exposed joints To minimise the potential of water ingress, the exposed joint should be located at a ridge or high point of the structural substrate, where possible. Explanatory Information: Exposed joints subject to excessive movement Where an exposed joint is subject to excessive movement, such as more than 10 mm, additional measures should be considered to ensure protection of the exposed joint. These additional measures may include use of a hob with a minimum height of 50 mm formed within the structural substrate for the full length of both sides of the exposed joint, and the exposed joint protected by a discontinuous membrane in accordance with Section 2.9 of AS 4654.2.
F1D5 External waterproofing membranes	To be further detailed at CC stage	A roof, balcony, podium or similar horizontal surface part of a building must be provided with a waterproofing membrane— (a) consisting of materials complying with AS 4654.1; and (b) designed and installed in accordance with AS 4654.2.
F1D6 Damp-proofing	To be further detailed at CC stage	Subclause (1) Except for a building covered by (3), moisture from the ground must be prevented from reaching— (a) the lowest floor timbers and the walls above the lowest floor joists; and (b) the walls above the damp-proof course; and (c) the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders. Subclause (2) Where a damp-proof course is provided, it must consist of— (a) a material that complies with AS/NZS 2904; or (b) impervious sheet material in accordance with AS 3660.1. Subclause (3): Not applicable.
F1D7 Damp-proofing of floors on the ground	To be further detailed at CC stage	Subclause (1) 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. Subclause (2) The requirements of (1) do not apply where— (a) weatherproofing is not required; or (b) the floor is the base of a stair, lift or similar shaft which is adequately drained by gravitation or mechanical means.
Part F2 Wet areas and overflow protection		
F2D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements F2P1 and F2P2 are satisfied by complying with F2D2 to F2D4. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
F2D4 Floor wastes	To be further detailed at CC stage	Subclause (1): Not applicable. Subclause (2) Where a floor waste is installed— (a) the minimum continuous fall of a floor plane to the waste must be 1:80; and (b) the maximum continuous fall of a floor plane to the waste must be 1:50.
Part F3 **Roof and wall cladding**		
F3D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirement F3P1 is satisfied by complying with F3D2 to F3D5. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
F3D2 Roof coverings	To be further detailed at CC stage	A roof must be covered with- (a) roof tiles complying with AS 2049, fixed in accordance with AS 2050; or (b) metal sheet roofing complying with AS 1562.1; or (c) plastic sheet roofing designed and installed in accordance with AS 1562.3; or (d) terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597, except in cyclonic areas; or (e) an external waterproofing membrane complying with F1D5.
F3D3 Sarking	To be further detailed at CC stage	Sarking-type material used for weatherproofing of roofs and walls must comply with AS 4200.1 and AS 4200.2.
F3D4 Glazed assemblies	To be further detailed at CC stage	Subclause (1) Subject to (2) and (3), the following glazed assemblies in an external wall, must comply with AS 2047 requirements for resistance to water penetration: (a) Windows. (b) Sliding and swinging glazed doors with a frame, including French and bi-fold doors with a frame. (c) Adjustable louvres. (d) Shopfronts. (e) Window walls with one piece framing. Subclause (2): Not applicable. Subclause (3) The following glazed assemblies need not comply with (1): (a) All glazed assemblies not in an external wall. (b) Revolving doors. (c) Fixed louvres. (d) Skylights, roof lights and windows in other than the vertical plane. (e) Sliding and swinging glazed doors without a frame. (f) Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047. (g) Second-hand windows, re-used windows and recycled windows. (h) Heritage windows.
F3D5 Wall cladding	To be further detailed at CC stage	Subclause (1) External wall cladding must comply with one or a combination of the following: (a) Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. (b) Autoclaved aerated concrete: AS 5146.3.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		(c) Metal wall cladding: AS 1562.1. Subclause (2): Not applicable.
Part F4 **Sanitary and other facilities**	Not applicable	
Part F5 **Room heights**	Not applicable.	
Part F6 **Light and ventilation**	Not applicable.	
Part F7 **Sound transmission and insulation**		
F7D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements F7P1 to F7P4 are satisfied by complying with F7D2 to F7D8. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
F7D2 Application of Part	Noted	The Deemed-to-Satisfy Provisions of this Part apply to Class 2 buildings.
F7D3 Determination of airborne sound insulation ratings	To be further detailed at CC stage	A form of construction required to have an airborne sound insulation rating must- (a) have the required value for weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) determined in accordance with AS/NZS ISO 717.1 using results from laboratory measurements; or (b) comply with Specification 28.
F7D4 Determination of impact sound insulation ratings	To be further detailed at CC stage	Subclause (1) A floor in a building required to have an impact sound insulation rating must- (a) have the required value for weighted normalised impact sound pressure level ($L_{n,w}$) determined in accordance with AS ISO 717.2 using results from laboratory measurements; or (b) comply with Specification 28. Subclause (2) A wall in a building required to have an impact sound insulation rating must- (a) for a Class 2 or 3 building be of discontinuous construction. (b) Not applicable. Subclause (3) For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and- (a) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and (b) for other than masonry, there is no mechanical linkage between leaves except at the periphery.
F7D5 Sound insulation rating of floors	To be further detailed at CC stage	Subclause (1) A floor in a Class 2 or 3 building must have an $R_w + C_{tr}$ (airborne) not less than 50 and an $L_{n,w}$ (impact) not more than 62 if it separates- (a) sole-occupancy units; or

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		(b) a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification. Subclause (2): Not applicable.
F7D6 Sound insulation rating of walls	Not applicable	
F7D7 Sound insulation rating of internal services	Not applicable	
F7D8 Sound isolation of pumps	Not applicable	
Part F8 **Condensation management**		
F8D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Compliance with Performance Requirement F8P1 is satisfied by complying with Deemed-to-Satisfy Provisions F8D2 to F8D5. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
F8D2 Application of Part	Noted	The Deemed-to-Satisfy Provisions of this Part only apply to a sole-occupancy unit of a Class 2 building and a Class 4 part of a building.
F8D3 External wall construction	Not applicable	
F8D4 Exhaust systems	Not applicable	
F8D5 Ventilation of roof spaces	Not applicable	
SECTION G **ANCILLARY PROVISIONS**		
Part G1 **Minor structures and components**		
G1D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Performance Requirement G1P1 must be complied with. Explanatory Information There are no Deemed-to-Satisfy Provisions for G1P1. Subclause (2) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements G1P2 to G1P5 are satisfied by complying with G1D2 to G1D4. Subclause (3) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
NSW G1D5 Provision for cleaning windows	To be further detailed at CC stage	Subclause (1) A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level. Subclause (2) A building satisfies (1) where— (a) the windows can be cleaned wholly from within the building; or

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
		(b) provision is made for the cleaning of the windows by a method complying with the Work Health and Safety Act 2011 and regulations made under that Act.
Part G2 **Boilers, pressure vessels, heating appliances, fireplaces, chimneys and flues**		
G2D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements G2P1 and G2P2 are satisfied by complying with G2D2 to G2D4. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
Part G3 **Atrium construction**		
G3D1 Application of Part	Not applicable	
Part G4 **Construction in alpine areas**		
G4D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Provisions is proposed, Performance Requirements G4P1 to G4P4 are satisfied by complying with— (a) G4D2 to G4D8; and (b) Not applicable. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable.
G4D2 Application of Part	Not applicable	
Part G5 **Construction in bushfire prone areas**		
G5D1 Deemed-to-Satisfy Provisions	Noted	Subclause (1) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements G5P1 and subject to G5D2, G5P2, are satisfied by complying with G5D3 and G5D4. Subclause (2) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2G2(3) and A2G4(3) as applicable
NSW G5D2 Application of Part	Not applicable	
Part G6 **Occupiable outdoor areas**		
G6D1 Application of Part	Not applicable	
NSW Part G7 **Livable housing design**	Not applicable	Part G7 does not apply in NSW as livable housing design requirements do not apply to sole-occupancy units in a Class 2 building in NSW.

BCA DEEMED-TO-SATISFY PROVISION	COMPLIES/ DOES NOT COMPLY/ OTHER	COMMENTS
SECTION I SPECIAL USE BUILDINGS		
Part I1 Class 9b buildings		
NSW I1D1 Application of Part	Not applicable	

E. CONCLUSION

This report provided a BCA 2022 compliance assessment of the proposed balcony and balustrades replacement work at the existing multi-storey residential apartment building at 157 Ocean Street, Narrabeen.

The purpose of this report was to identify the non-compliance matters contained in the proposed design (proposed new works) against the DTS Provisions of the BCA 2022 Volume One and to provide recommendations to overcome the DTS non-compliances.

The proposed balcony and balustrades replacement work, in relation to numerous DTS Provisions, shall be further detailed as nominated in the Section D table of this report and approved by obtaining development consent and a CC prior to commencing work.

If you require any further information, please contact the undersigned.

Signed

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ANNEXURE 1 – BCA SPECIFICATION 5 & TYPE A CONSTRUCTION REQUIREMENTS

Specification 5 Fire-resisting construction

S5C1 Scope

[2019: Spec C1.1: 1]

This Specification contains requirements for the *fire-resisting construction* of building elements.

General requirements

S5C2 Exposure to fire-source features

[2019: Spec C1.1: 2.1]

(1) A part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the *fire-source feature*, or vertical projection of the feature, is not obstructed by another part of the building that—

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

(b) is neither transparent nor translucent.

(2) A part of a building element is not exposed to a *fire-source feature* if the *fire-source feature* is—

(a) an *external wall* of another building that stands on the allotment and the part concerned is more than 15 m above the highest part of that *external wall*; or

(b) a side or rear boundary of the allotment and the part concerned is below the level of the finished ground at every relevant part of the boundary concerned.

(3) If various distances apply for different parts of a building element—

(a) the entire element must have the FRL applicable to that part having the least distance between itself and the relevant *fire-source feature*; or

(b) each part of the element must have the FRL applicable according to its individual distance from the relevant *fire-source feature*.

(4) The requirements of (3) do not override or permit any exemption from S5C3.

S5C3 Fire protection for a support of another part

[2019: Spec C1.1: 2.2]

(1) Where a part of a building *required* to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part, subject to (2), must—

(a) have an FRL not less than that *required* by other provisions of this Specification; and

(b) if located within the same *fire compartment* as the part it supports have an FRL in respect of *structural adequacy* the greater of that *required*—

(i) for the supporting part itself; and

(ii) for the part it supports; and

(c) be *non-combustible*—

(i) if *required* by other provisions of this Specification; or

(ii) if the part it supports is *required* to be *non-combustible*.

(2) The following building elements need not comply with (1)(b) and (1)(c)(ii):

(a) An element providing lateral support to an *external wall* complying with S5C24(1)(b) or C2D12.

(b) An element providing support within a *carpark* and complying with S5C19, S5C22 or S5C25.

(c) A roof providing lateral support in a building—

(i) of Type A construction if it complies with S5C15(a), (b) or (d); and

(ii) of Type B and C construction.

(d) A column providing lateral support to a wall where the column complies with S5C6(1) and (2).

(e) An element providing lateral support to a *fire wall* or *fire-resisting* wall, provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall.

S5C4 Lintels

[2019: Spec C1.1: 2.3]

(1) A lintel must have the FRL *required* for the part of the building in which it is situated.

(2) A lintel need not comply with (1) if it does not contribute to the support of a fire door, fire *window* or fire shutter, and—

(a) it spans an opening in—

(i) a wall of a building containing only one *storey*; or

(ii) a non-*loadbearing* wall of a Class 2 or 3 building; or

(b) it spans an opening in masonry which is not more than 150 mm thick and—

(i) not more than 3 m wide if the masonry is non-*loadbearing*; or

(ii) not more than 1.8 m wide if the masonry is *loadbearing* and part of a solid wall or one of the leaves of a cavity wall.

S5C5 Method of attachment not to reduce the fire-resistance of building elements

[2019: Spec C1.1: 2.4]

The method of attaching or installing a finish, lining, *ancillary element* or service installation to the building element must not reduce the fire-resistance of that element to below that *required*.

S5C6 General concessions

[2019: Spec C1.1: 2.5]

(1) Steel columns — A steel column, other than one in a *fire wall* or *common wall*, need not have an FRL in a building that contains—

(a) only 1 *storey*; or

(b) 2 *storeys* in some of its parts and 1 *storey* only in its remaining parts if the sum of the *floor areas* of the upper *storeys* of its 2 *storey* parts does not exceed the lesser of—

(i) 1/8 of the sum of the *floor areas* of the 1 *storey* parts; or

(ii) in the case of a building to which one of the maximum *floor areas* specified in Table C3D3 is applicable — 1/10 of that area; or

(iii) in the case of a building to which two or more of the maximum *floor area* specified in Table C3D3 is applicable — 1/10 of the lesser of those areas.

(2) Timber columns — A timber column may be used in a single *storey* building if—

(a) in a *fire wall* or *common wall* the column has an FRL not less than that listed in Table S5C11d, S5C21d or S5C24c as appropriate; and

(b) in any other case where the column is *required* to have an FRL in accordance with Table S5C11a, S5C11c, S5C11g, S5C21a, S5C21c, S5C21g, S5C24a or S5C24b, it has an FRL of not less than 30/–/–.

(3) Structures on roofs — A *non-combustible* structure situated on a roof need not comply with the other provisions of this Specification if it only contains—

(a) lift motor equipment; or

(b) one or more of the following:

(i) Hot water or other water tanks.

(ii) Ventilating ductwork, ventilating fans and their motors.

(iii) Air-conditioning chillers.

(iv) *Window* cleaning equipment.

(v) Other service units that are *non-combustible* and do not contain flammable or combustible liquids or gases.

(4) Curtain walls and panel walls — A requirement for an *external wall* to have an FRL does not apply to a *curtain wall* or *panel wall* which is of *non-combustible* construction and fully protected by *automatic* external wall-wetting sprinklers.

(5) Balconies and verandahs — A balcony, verandah or the like and any incorporated supporting part, which is attached to or forms part of a building, need not comply with Table S5C11c, S5C11g, S5C21c, S5C21g, S5C24b or S5C24e if—

(a) it does not form part of the only path of travel to a *required exit* from the building; and

(b) in Type A construction—

(i) it is situated not more than 2 *storeys* above the lowest *storey* providing direct egress to a road or *open space*; and

(ii) any supporting columns are of *non-combustible* construction.

S5C8 Enclosure of shafts

[2019: Spec C1.1: 2.7]

(1) *Shafts required* to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that *required* for the walls of a non-*loadbearing shaft* in the same building.

(2) The provisions of (1) need not apply to—

(a) the top of a *shaft* extending beyond the roof covering, other than one enclosing a *fire-isolated stairway* or *ramp*; or

(b) the bottom of a *shaft* if it is *non-combustible* and laid directly on the ground.

Type A Fire-Resisting Construction

S5C11 Type A fire-resisting construction — fire-resistance of building elements

[2019: Spec C1.1: 3.1 and Table 3]

(1) In a building *required* to be of Type A construction—

(a) each building element listed in Tables S5C11a, S5C11b, S5C11c, S5C11d, S5C11e, S5C11f and S5C11g, and any beam or column incorporated in it, must have an FRL not less than that listed in those Tables for the particular

class of building concerned; and

(b) any *internal wall required* to have an FRL with respect to *integrity* and *insulation* must extend to—

(i) the underside of the floor next above; or

(ii) the underside of a roof complying with Table S5C11g; or

(iii) if under S5C15 the roof is not *required* to comply with Table S5C11g, the underside of the *non-combustible* roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or *sarking-type material*, must not be crossed by timber or other *combustible* building elements; or

(iv) a ceiling that is immediately below the roof and has a *resistance to the incipient spread of fire* to the roof space between the ceiling and the roof of not less than 60 minutes; and

(c) a *loadbearing internal wall* and a *loadbearing fire wall* (including those that are part of a *loadbearing shaft*) must be constructed from—

(i) concrete; or

(ii) masonry; or

(iii) subject to (2), *fire-protected timber*; or

(iv) any combination of (i) to (iii); and

(d) the FRLs specified in Table S5C11c for an external column apply also to those parts of an internal column that face and are within 1.5 m of a *window* and are exposed through that *window* to a *fire-source feature*.

(2) For the purposes of (1)(c)(iii), fire-protected timber may be used, provided that—

(a) the building is—

(i) a separate building; or

(ii) a part of a building—

(A) which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or

(B) which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and

(b) the building has an *effective height* of not more than 25 m; and

(c) the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification 17; and

(d) any insulation installed in the cavity of the timber building element *required* to have an FRL is *non-combustible*; and

(e) cavity barriers are provided in accordance with Specification 9.

(3) For the purposes of Table S5C11a and Table S5C11b, *external wall* includes any column and other building element incorporated within it or other external building element.

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

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy/ Integrity / Insulation*			
	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	90/60/60	120/90/90	180/180/120	240/240/180
3 m or more	90/60/30	120/60/30	180/120/90	240/180/90

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

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 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 to less than 3 m	–/60/60	–/90/90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–

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

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

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

Wall type	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 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 S5C11e: Type A 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	90/90/90	120/–/–	180/–/–	240/–/–
Between or bounding *sole-occupancy units*	90/90/90	120/–/–	180/–/–	240/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

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

Location	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 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 corridors*, 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	–/90/90	–/120/120	–/120/120

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

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, internal beams, trusses and columns	90/–/–	120/–/–	180/–/–	240/–/–
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60

S5C12 Type A fire-resisting construction — concessions for floors

[2019: Spec C1.1: 3.2]

A floor need not comply with Table S5C11g if—

(a) it is laid directly on the ground; or

(b) in a Class 2, 3, 5 or 9 building, the space below is not a *storey*, does not accommodate motor vehicles, is not a storage or work area, and is not used for any other ancillary purpose; or

(c) it is a timber *stage* floor in a Class 9b building laid over a floor having the *required* FRL and the space below the *stage* is not used as a dressing room, store room, or the like; or

(d) it is within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building; or

(e) it is an open-access floor (for the accommodation of electrical and electronic services and the like) above a floor with the *required* FRL.

S5C13 Type A fire-resisting construction — floor loading of Class 5 and 9b buildings: Concession

[2019: Spec C1.1: 3.3]

If a floor in a Class 5 or 9b building is designed for a live load not exceeding 3 kPa—

(a) the floor next above (including floor beams) may have an FRL of 90/90/90; or

(b) the roof, if that is next above (including roof beams), may have an FRL of 90/60/30.