



# **Building Code of Australia 2019 (1) Compliance Report for DA Submission**

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634-652 High Street & 87-91 Union Road,  
Penrith

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Checked By	Approved By	Date Approved
12.11.19	A	9	Draft BCA Report for S4.55 submission	Alison Domenici	Paul Curjak	12.11.19
06.02.20	B	10	Updated Report for S4.55 submission	Alison Domenici	Paul Curjak	06.02.20
14.02.20	C	10	Final Report for DA submission	Alison Domenici	Paul Curjak	14.02.20
01.10.20	D	10	Assessment of 'For Approval' Drawings		Paul Curjak	01.10.21

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## 1. Introduction

The development application subject to these proceedings is amended by way of changes detailed below:

- a) Podium - reduction in the scale of the podium from 5 storeys to 4 storeys in the middle section and 2 storeys at the northern and southern ends; decrease in the number of car parking spaces provided within the podium; increased 'sleeving' of car parking provided in the podium with apartments; and enhanced articulation.
- b) Basement - increased basement car parking from 1 to 3 levels.
- c) Ground level - enhanced activation of the ground floor through relocation of the through site pedestrian link, redistributing and enlarging commercial floorspace, providing stepped sitting edges to the western colonnade facing John Tipping Grove, and increased landscaping.
- d) Levels 1 to 3 – increased activation and connection to ground level through additional apartments and enhanced design of communal open space area.
- e) Towers - reduction in the height of Tower 2 from 37 to 35 storeys, reduction in height of Tower 1 from 14 storeys to 13 storeys, and redesign to increase building articulation.

The proposed development DA20/0148 seeks consent for a mixed-use development comprising two towers of 35 and 13 storeys located above a part 4 and part 2 storey podium providing 357 residential dwellings with ground level commercial tenancies, 3 levels of basement car parking, a new public road and associated site works on the land at 634-638 High Street and 87-93 Union Road, Penrith NSW.

The site is located at 634 – 652 High Street and 87-91 Union Road, Penrith.

This report is based upon the review of the design documentation listed in Appendix A of this Report.

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Certifying authority for the Construction Certificate. For the purposes of this Report, BCA 2019 Amendment 1 has been utilised as the version of the BCA applicable at the time of preparation of this Report.

## 2. Assessment

### 2.1. Building Assessment Data

Summary of Construction Determination:

Part of Project	Buildings 1 & 2
Classification	2, 5, 6, 7a, 7b, 9b
Number of Storeys	38
Rise In Storeys	35
Type of Construction	A
Effective Height (m)	114.6m approx.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m <sup>2</sup> )	Approximate Volume (m <sup>3</sup> )	Assumed Population
Basement 03	7a	3489m <sup>2</sup>	Note 3	116

Part of Project	BCA Classification	Approx. Floor Area (m <sup>2</sup> )	Approximate Volume (m <sup>3</sup> )	Assumed Population
Basement 02	7a	3489m <sup>2</sup>	Note 3	116
Basement 01	7a	3362m <sup>2</sup>	Note 3	112
Ground	2, 5, 6, 7a, 7b	2553m <sup>2</sup>	Note 3	305
Level 01	2, 7a	3145m <sup>2</sup>	Note 3	105
Level 02	2, 7a	3120 m <sup>2</sup>	Note 3	104
Level 03	2, 7a	3113 m <sup>2</sup>	Note 3	103
Level 04	2, 10b	3116 m <sup>2</sup>	Note 3	103
Level 05	2	1668m <sup>2</sup>	Note 3	<100
Level 06-07	2	1650m <sup>2</sup>	Note 3	<100
Levels 08	2	1696m <sup>2</sup>	Note 3	<100
Level 09-10	2	1693m <sup>2</sup>	Note 3	<100
Level 11	2	1702m <sup>2</sup>	Note 3	<100
Level 12	2	1695m <sup>2</sup>	Note 3	<100
Level 13	2	1695m <sup>2</sup>	Note 3	<100
Level 14	2	1275m <sup>2</sup>	Note 3	<100
Level 15-28	2	875m <sup>2</sup>	Note 3	<100
Level 29	2	832m <sup>2</sup>	Note 3	<100
Levels 30-32	2	845m <sup>2</sup>	Note 3	<100
Level 33	2	594m <sup>2</sup>	Note 3	<100
Levels 34	2	594m <sup>2</sup>	Note 3	<100
Level 35	10a (Plant)	591m <sup>2</sup>	Note 3	20

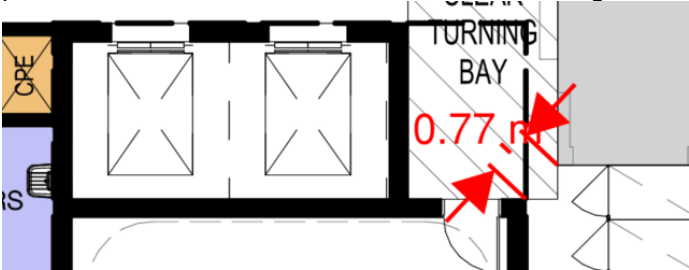
Notes:

1. The above areas do not include circulation spaces, amenities and other ancillary areas not relevant to population figures.
2. Population nos have been based on clause D1.13 of the BCA.
3. Volumes to be provided by architect.

## 2.2. BCA Compliance

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA where not addressed through design in accordance with the deemed-to-satisfy provisions. The submission for Construction Certificate will need to include verification from a suitably accredited fire engineer and access consultant (where applicable): -

No.	Performance Solution Description	DTS Clause	Performance Requirements
<b>Fire Safety Items</b>			
1	Separation between façade, fire rated slab and fire rated walls	C1.1, Spec C1.1	CP1, CP2

No.	Performance Solution Description	DTS Clause	Performance Requirements
2	<b>FRL requirements</b> It is proposed to rationalise the FRL's under a fire engineered solution in the following instances: <ul style="list-style-type: none"> <li>Ground floor retail/ loading dock</li> <li>Basement 01 bike stores / carparking</li> <li>Nil fire separation between apartment corridor and carpark on level 02 South / West Tower.</li> </ul>	C1.1, C2.8, C2.9	EP2.2
3	<b>Non-combustible building elements</b> The building contains proposed "green walls" which have combustible elements and attachments to the external walls	C1.9, C1.14	CP2, CP4
4	<b>Number of exits required</b> It is proposed to review the following areas that do not have access to 2 exits: Ground: <ul style="list-style-type: none"> <li>Water meter room</li> <li>Retail Metering/Supply fan room</li> <li>The commercial tenancy spaces if split into subtenancy?</li> <li>Standalone toilets on ground floor.</li> <li>Roof plant on level 35.</li> </ul>	D1.2	DP4
5	<b>Travel distances</b> It is proposed to review the following travel distances: Note: The basement levels have excessive travel distance non-compliances. The pinch point as demonstrated below is preventing this from being used as an egress path. If 1.0 were provided, the distances of travel will be reduced significantly.  <p>The diagram shows a plan view of a building layout. A corridor leads to a 'TURNING BAY'. A red arrow points from a point in the corridor to the turning bay, with the text '0.77m' written next to it. Other areas are labeled 'CPE' and 'IS'.</p> <p><u>Basement 03:</u></p> <ul style="list-style-type: none"> <li>Greater than 40m to the nearest exit (68m) from under the vehicle ramp to the South.</li> <li>Point of choice greater than 20m (55m) from same location above.</li> </ul> <p><u>Basement 02:</u></p> <ul style="list-style-type: none"> <li>Greater than 40m to the nearest exit (58m) from the South at top of vehicle ramp.</li> <li>Point of choice greater than 20m (44m) from same location above.</li> </ul> <p><u>Basement 01</u></p> <ul style="list-style-type: none"> <li>Greater than 20m to a point of choice (53m) from storage cages;</li> <li>Greater than 20m to a point of choice (67m) within carpark;</li> </ul> <p><u>Ground Floor:</u></p>	D1.4, D1.5	DP4

No.	Performance Solution Description	DTS Clause	Performance Requirements
	<ul style="list-style-type: none"> <li>65m between alternative exits on ground floor, for the egress corridor above the Residential Bin Store.</li> </ul> <p><u>Level 01:</u></p> <ul style="list-style-type: none"> <li>12m travel distance to a point of choice in lieu of 6m from North apartments (B105 most disadvantaged)</li> </ul> <p><u>Level 02 &amp; 03</u></p> <ul style="list-style-type: none"> <li>Egress between exits greater than 60m (68m) worst case. The point of choice through the residential parking to the East has been assumed to be the worst case.</li> <li>12m travel distance to a point of choice in lieu of 6m from North apartments (B105 most disadvantaged)</li> </ul> <p><u>Level 04</u></p> <ul style="list-style-type: none"> <li>Greater than 20m to a point of choice (23m) from pool area.</li> <li>Egress between exits greater than 60m (62m) worst case. The point of choice through the SE corner has been assumed to be the worst case.</li> <li>Greater than 6m to a point of choice (12m) from B406 (worst scenario).</li> </ul> <p><u>Level 05 – 34 (residential)</u></p> <ul style="list-style-type: none"> <li>Greater than 6m to a point of choice from a residential sole-occupancy unit (12m) worst case (particularly to the North tower).</li> </ul> <p>q <u>Level 35 Plant:</u></p> <ul style="list-style-type: none"> <li>Travel distance of 23m to a single exit, without equipment.</li> </ul>		
6	<p><b>Public Corridors in Class 2 buildings</b></p> <p>The public corridor at Levels 4 - 12 is over 40m (maximum 45m) collectively with no smoke separation;</p> <p>The public corridors on level 3 has no fire nor smoke separation to the south tower. Bounding walls to the apartment corridors to be documented.</p>	C2.14	CP2, CP4
7	<p><b>Travel via Fire-Isolated Exits</b></p> <p>Fire-isolated scissor stairs serving the buildings discharge within 6m of its building without protection.</p>	D1.7	DP4, DP5
8	<p><b>Discharge from exits</b></p> <p>The discharge points of alternative exits must be located as far apart as practical. The discharge of fire-isolated scissor stairs discharges adjacent to each other.</p>	D1.10	DP4
9	<p><b>Rising and Descending Stairs</b></p> <p>Rising and descending flights from above ground to basement without non-combustible smoke separation.</p>	D2.4	DP4, DP5
10	<p><b>Ring main within scissor stair</b></p> <p>The ring mains within the scissor stairs are not contained within their own shaft therefore they pass between each fire stair at every storey. This contravenes the requirements of AS 2118.6 which requires the ring main to be located within a single shaft.</p>	E1.3, E1.5	EP1.3, EP1.4
11	<b>Fire Control Room</b>	E1.8	EP1.6

No.	Performance Solution Description	DTS Clause	Performance Requirements
	Transition from outside to inside cannot exceed 300mm. Entry door to swing into the room.		
<b>Miscellaneous Items</b>			
12	Performance Requirement FP1.4 which relates to the prevention of the penetration of water through external walls, must be complied with. It is noted that there are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls	F1.0	FP1.4

### 3. Appendix A - Reference Documentation

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

Drawing No.	Title	Date	Revision
AR-1-1009	Basement 01	24.01.2020	86
AR-1-1010	Ground level	24.01.2020	86
AR-1-1011	Level 01	24.01.2020	86
AR-1-1012	Level 02	24.01.2020	86
AR-1-1013	Level 03	24.01.2020	86
AR-1-1014	Level 04	24.01.2020	86
AR-1-1015	Level 05	24.01.2020	86
AR-1-1016	Level 06	24.01.2020	86
AR-1-1016	Level 07-08	24.01.2020	86
AR-1-1016	Level 09	24.01.2020	86
AR-1-1020	Level 10-11	24.01.2020	86
AR-1-1022	Level 12	24.01.2020	86
AR-1-1023	Level 13	24.01.2020	86
AR-1-1024	Level 14	24.01.2020	86
AR-1-1025	Level 15	24.01.2020	86
AR-1-1026	Level 16-17	24.01.2020	86
AR-1-1027	Level 18-33	24.01.2020	86
AR-1-1032	Level 34-36	24.01.2020	86
AR-1-1038	GA Floor Plan - Roof	24.01.2020	86
AR-1-5000	North & South Elevation	24.01.2020	86
AR-1-5001	East Elevation	24.01.2020	86
AR-1-5002	West Elevation	24.01.2020	86
AR-1-5004	North & South Podium Elevations	24.01.2020	86
AR-1-5100	Section A-A	24.01.2020	86



#### 4. Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Access Panels, Doors and Hoppers	BCA Clause C3.13
2.	Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
3.	Automatic Smoke Detection and Alarm System	Clause 3 or 4 or 5 BCA Spec. E2.2a, AS 1670.1 – 2018, AS/NZS 1668.1 – 2015, AS 3786-2014
4.	Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 2017 Amdt 1, AS 2118.4 – 2012 (Residential) AS 2118.6 – 2012 (Combined sprinkler & hydrant)
5.	Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & Specification E2.2a Clause 7
6.	Emergency Lifts	BCA Clause E3.4
7.	Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2018
8.	EWIS	BCA Clause E4.9 & AS 1670.4 - 2018
9.	Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2018
10.	Exit Signs (non-illuminated)	BCA Clause E4.7
11.	Fire Blankets	BCA Clause E1.6 and AS 2444 – 2001
12.	Fire Control Centres and Rooms	BCA Spec E1.8
13.	Fire Dampers	BCA Clause C2.12, C3.15, Spec C2.5, D1.7, E2.2, E2.3, F4.12, Spec E2.2, E2.3, Spec E2.2b, & AS 1668.1 – 2015
14.	Fire Doors	BCA Clause C3.2, C3.4, C3.5, & C3.8 and AS 1905.1 – 2015
15.	Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005 Amdt 1
16.	Fire Hydrant System	Clause C2.12, E1.3, & AS 2419.1 – 2005 Amdt 1
17.	Fire Seals	BCA Clause C3.15, C3.16, Spec C3.15, Spec D1.12, & AS 1530.4 –2014
18.	Fire Shutters	BCA Spec. C3.4 & AS 1905.2 – 2005
19.	Fire Windows	BCA Spec. C3.4
20.	Lightweight Construction	BCA Clause C1.8, Spec C1.8
21.	Mechanical Air Handling System	BCA Clause E2.2, & AS 1668.2 – 2012
22.	Paths of Travel	EP&A Reg 2000 Clause 186
23.	Portable Fire Extinguishers	BCA Clause E1.6, AS 2444 – 2001
24.	Pressurising Systems	BCA Clause E2.2 & AS/NZS 1668.1 – 2015
25.	Required Exit Doors (power operated)	BCA Clause D2.19 (b)(iv)
26.	Smoke and/or Heat Alarm System	BCA Spec. E2.2a & AS 3786 – 2014
27.	Wall-Wetting Sprinklers	BCA Clause C3.4
28.	Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2015, D2.23, E3.3

## 5. Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2019:

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS	Class of building — FRL: (in minutes)			
	<i>Structural adequacy/Integrity/Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
<b>EXTERNAL WALL</b> (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is -				
For <i>loadbearing</i> parts-				
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
For non- <i>loadbearing</i> parts -				
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	-/-/-	-/-/-	-/-/-	-/-/-
<b>EXTERNAL COLUMN</b> not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is -				
less than 3 m	90/-/-	120/-/-	180/-/-	240/-/-
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
<b>COMMON WALLS and FIRE WALLS</b>	90/ 90/ 90	120/120/120	180/180/180	240/240/240
<b>INTERNAL WALLS</b>				
<i>Fire-resisting lift and stair shafts</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/120/120	180/120/120	240/120/120
<i>Non-loadbearing</i>	-/ 90/ 90	-/120/120	-/120/120	-/120/120
<i>Bounding public corridors, public lobbies and the like</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/-/-	180/-/-	240/-/-
<i>Non-loadbearing</i>	-/ 60/ 60	-/-/-	-/-/-	-/-/-
<i>Between or bounding sole-occupancy units</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/-/-	180/-/-	240/-/-
<i>Non-loadbearing</i>	-/ 60/ 60	-/-/-	-/-/-	-/-/-
<i>Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of combustion</i>				
<i>Loadbearing</i>	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
<i>Non-loadbearing</i>	-/ 90/ 90	-/ 90/ 90	-/120/120	-/120/120
<b>OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS</b>				
	90/-/-	120/-/-	180/-/-	240/-/-
<b>FLOORS</b>	90/ 90/ 90	120/120/120	180/180/180	240/240/240
<b>ROOFS</b>	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

Table 3.9 REQUIREMENTS FOR CARPARKS		FRL (not less than) Structural adequacy/Integrity/Insulation ESA/M (not greater than)
<b>Wall</b>		
(a)	<i>external wall</i>	
(i)	less than 3 m from a <i>fire-source feature</i> to which it is exposed:	
	<i>Loadbearing</i>	60/60/60
	<i>Non-loadbearing</i>	–/60/60
(ii)	3 m or more from a <i>fire-source feature</i> to which it is exposed	–/–/–
(b)	<i>internal wall</i>	
(i)	<i>loadbearing</i> , other than one supporting only the roof (not used for carparking)	60/–/–
(ii)	supporting only the roof (not used for carparking)	–/–/–
(iii)	<i>non-loadbearing</i>	–/–/–
(c)	<i>fire wall</i>	
(i)	from the direction used as a <i>carpark</i>	60/60/60
(ii)	from the direction not used as a <i>carpark</i>	as required by Table 3
<b>Column</b>		
(a)	supporting only the roof (not used for carparking) and 3 m or more from a <i>fire-source feature</i> to which it is exposed	–/–/–
(b)	steel column, other than one covered by (a) and one that does not support a part of a building that is not used as a <i>carpark</i>	60/–/– or 26 m <sup>2</sup> /tonne
(c)	any other column not covered by (a) or (b)	60/–/–
<b>Beam</b>		
(a)	steel floor beam in continuous contact with a concrete floor slab	60/–/– or 30 m <sup>2</sup> /tonne
(b)	any other beam	60/–/–
<b>Fire-resisting lift and stair shaft</b> (within the <i>carpark</i> only)		60/60/60
<b>Floor slab and vehicle ramp</b>		60/60/60
<b>Roof</b> (not used for carparking)		–/–/–
Notes:		
1.	ESA/M means the ratio of exposed surface area to mass per unit length.	
2.	Refer to Specification E1.5 for special requirements for a sprinkler system in a <i>carpark</i> complying with Table 3.9 and located within a multi-classified building.	