
Job no SY140017

11/11/2020

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Dear Tom

One Sydney Harbour Building R4B – Updated fire engineering review for Amending SSD DA

Introduction

This letter supports a State Significant Development (SSD) Development Application (DA) submitted to the Department of Planning, Infrastructure and Environment (DPIE) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The 'amending' SSD DA seeks approval for eight additional storeys and 5,650sqm of gross floor area (GFA), amongst other items, to Residential Building R4B approved under SSD 6965. This SSD DA proposes to amend the 60-storey Residential Building R4B development approved under SSD 6965, which in turn necessitates the inclusion of condition(s) of consent to this SSD DA that require the modification of SSD 6965.

Residential Building R4B – Development Consent SSD 6965

Development consent SSD 6965 was granted by the NSW Minister for Planning on 7 September 2017 for Residential Building R4B, comprising of a 60-storey mixed use building, with 297 residential units and retail floor space at ground level. This included a total gross floor area (GFA) of 38,896sqm, 38,602sqm of which was approved for residential floor space, and the remaining 294sqm was approved for retail floorspace.

Consent was also provided for associated building public domain works, fit-out and use of the basement, a link bridge connecting to Building R4A and associated building identification signage.

On 7 February, 2020, development consent SSD 6965 was amended to account for a range of design changes, including an increase in total GFA from 38,896sqm to 38,911sqm, comprised of an increase in retail GFA from 294sqm to 309sqm, and a reduction in the number of apartments to 283.

A second application to modify development consent SSD 6965 has been submitted to the DPIE. The amendments contained within the modification application broadly relate to the following changes:

- increase the number of apartments from 283 to 290;
- revised dwelling mix and internal layout changes;
- changes to the landscaped podium layout; and
- changes to the number of car spaces from 320 to 324.

It is anticipated that this modification application to development consent SSD 6965 will be determined prior to the determination of this SSD DA. As such, this SSD DA is made with the above changes in mind.

Overview of proposed development

This 'amending' SSD DA seeks consent for eight additional storeys with 5,650sqm of GFA and containing 32 additional apartments, and an allocation of 7 additional car parking spaces to Residential Building R4B. More specifically, this SSD DA proposes to amend Residential Building R4B, through:

- an increase to the overall building height from RL208.23 up to RL235 (an additional 8 levels)
- increase the overall number of apartments from 290 to 322
- revise the dwelling mix and apartment relocations within the building envelope; and
- change to the number of car spaces from 324 to 331.

Review

Warringtonfire has undertaken an updated fire safety engineering review to determine whether the modified design can be demonstrated to achieve compliance with the performance requirements of the National Construction Code Volume One – Building Code of Australia (NCC) 2019. The review was based on the drawings and information listed in Appendix A.

No	Description of performance solutions	DTS provision	Performance requirements
1.	Reduction of fire rating in ground floor retail to 2 hours instead of 3 hours. This includes the following areas: • Fire separation between the retail and residential portions on the ground floor. • Fire separation between the retail ground floor and the residential storeys above.	Clauses C1.1, C2.7, C2.8 and C2.9 and specification C1.1	CP1 and CP2
2.	The fire separation between buildings R4A and R4B is proposed to be assessed on a performance basis. This includes the following areas: • Separation between the buildings on level 2 by an automatic closing fire shutter. • The glazing to the bridge link and the openings in the external wall of R4B belong to different buildings and are not proposed to be protected.	Clauses C1.1, C2.7, C3.2, C3.4 and C3.5	CP2 and CP8
3.	The required fire rated floors and walls bounding the sole-occupancy units extend to the inner skin of the double skin façade noting that the outer skin is open and more akin to a wind screen attachment. The lightweight construction of the SOUs butts into the façade and is not a tested system in this configuration. The blinds system incorporated within the double skin which forms part of the external walls does not meet the non-combustibility requirements. The plastic packers incorporated within the façade system do not meet the non-combustibility requirements and have not been specifically exempted.	Clauses C1.1, C1.8, C1.9 and C3.16 and specification C1.1	CP2 and CP8
4.	Reduction of structural adequacy to 60 minutes instead of 90 minutes for floor slabs of residential levels in wet areas. This is due to a reduced slab thickness in these areas.	Clause C1.1 and specification C1.1	CP1 and CP2
5.	The slab to the bridge link and supporting structure between R4A and R4B at level 2 is not proposed to be fire rated.	Clause C1.1 and specification C1.1	CP1 and CP2

No	Description of performance solutions	DTS provision	Performance requirements
6.	Extended travel distances as follows: - Distance to a point of choice from the level 1 outdoor terrace of up to 27m. - Distance between alternative exits for level 1 of up to 60m. - Distance to a point of choice from the level 2 landscape zone of up to 35m. - Distance between alternative exits for level 2 of up to 60m. - Distance to a point of choice from the levels 25 and 65 plant rooms of up to 30m.	Clauses D1.4 and D1.5	DP4 and EP2.2
7.	The intercom system for re-entry from the fire-isolated exits are provided on every fourth storey instead of every storey.	Clause D2.22	DP2
8.	The hydrant booster assembly facing Watermans Quay is not within sight of the main building entry.	Clause E1.3	EP1.3
9.	The proposed combined sprinkler and hydrant system will include the following: - Proprietary FM approved class B monitoring switches are proposed to be used on isolation valves instead of class A switches retrofitted to the valve. - High pressure valves manufactured by either Vatac or Victaulic not covered under AS 4118.1.6-1995 are to be utilised on the high pressure stage of the combined sprinkler / hydrant system. - The vertical ring main pipework is within both stairs due to the scissor stair arrangement, instead of being within separated fire-rated exits. - The sprinkler control assemblies are located at fire stair landings instead of being in a secure room or enclosure with direct egress to road or open space. - Provision of dual purpose duty and relay fire pumps. - Connection of dual purpose duty and relay pumps to the upper level of each cascade zone, consistent with AS 2419.1:2017, instead of into each pressure zone. - Adoption of AS 2419.1:2017 with the exception of supply feeding the roof top fire tank at a pressure of 3,200kPa which exceeds 2,400kPa specified in clause 2.3.2 - The location of the test facility is proposed at the most remote part of the pipework distribution network (as per AS 2419.1:2017) instead of at the fire pump discharge point (AS 2118.6-2012 and AS 2941-2013). - Solar panels are located directly above the roof top tank which will not afford the 600mm clearance required by AS 2304-2019, referenced in AS 2419.1:2017. - Shower cubicles within sprinkler protected bathrooms and ensuites are not proposed to be provided with sprinkler coverage.	Clauses E1.3 and E1.5	CP2, EP1.3 and EP1.4

No	Description of performance solutions	DTS provision	Performance requirements
	- Sprinklers are not proposed to the underside of the bridge link positioned over the top of the strada roof linking buildings R4A and R4B. - Sprinklers are not proposed to selected awnings / soffits – eg over the swimming pool. - Sprinklers are not proposed to the ground floor residential lobby entry airlock. - Fire rated separation is not proposed between sprinklered and non-sprinklered areas.		
10.	The travel distance from the entrance doorway of a sole-occupancy unit to the nearest fire extinguisher is up to 11m instead of 10m.	Clause E1.6	EP1.2
11.	The fire control room is located within basement level B0 and involves a change in level to a road or open space in excess of 300mm – approximately 3m.	Clause E1.8 and specification E1.8	EP1.6
12.	The emergency warning and intercom system does not comply as the speech intelligibility requirement may not be achieved in the bathrooms and balconies of the sole-occupancy units.	Clause E4.9	EP4.3
13.	Access to all floors is not afforded via the emergency lift – ie upper levels of skyhomes. The skyhomes contain their own passenger lifts to the upper level which does not connect into the main lift core.	Clause E3.4	EP3.2

The areas of the design which impact upon fire brigade operations were reviewed with Fire and Rescue NSW via the fire engineering brief process, with their latest comments received on 2 October 2019. This includes perimeter vehicular access, location of fire control room and location of fire hydrant booster. Fire and Rescue NSW were supportive of the design proposed.

Conclusion

It is Warringtonfire's professional opinion that it is possible to develop performance solutions for the issues identified to demonstrate compliance with the relevant performance requirements of the NCC without major changes to the proposed design.

The details of the proposed performance solutions are subject to the outcome of the fire engineering analysis which will be carried out in accordance with the International Fire Engineering Guidelines.

The performance solutions for the building will be developed as part of the ongoing design and development process and documented in a format suitable for submission to the relevant approval authorities. It is noted that additional performance solutions may be identified during the ongoing design development process in consultation with the design team.

Please contact me on 02 9211 4333 if you have any questions.

Yours sincerely



Victor Tung
Accredited fire safety engineer
Fire safety engineering
Warringtonfire

Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
Context plan	BR4B_ASD_PA2_0001	31/08/20	RPBW / PTW
Plan ground floor level 00	BR4B_ASD_PA2_2000	31/08/20	RPBW / PTW
Plan podium level P1	BR4B_ASD_PA2_2001	31/08/20	RPBW / PTW
Plan podium level P2	BR4B_ASD_PA2_2002	31/08/20	RPBW / PTW
Plan lower plate level 01	BR4B_ASD_PA2_3001	31/08/20	RPBW / PTW
Plan lower plate level 02-19, 21-32	BR4B_ASD_PA2_3005	31/08/20	RPBW / PTW
Plan plant level 20	BR4B_ASD_PA2_3020	31/08/20	RPBW / PTW
Plan mid plate level 33-46	BR4B_ASD_PA2_3033	31/08/20	RPBW / PTW
Plan plant level 47	BR4B_ASD_PA2_3047	31/08/20	RPBW / PTW
Plan upper plate level 48-63	BR4B_ASD_PA2_3048	31/08/20	RPBW / PTW
Plan skyhomes level 64	BR4B_ASD_PA2_3064	31/08/20	RPBW / PTW
Plan skyhomes level 65	BR4B_ASD_PA2_3065	31/08/20	RPBW / PTW
Plan roof level	BR4B_ASD_PA2_3066	31/08/20	RPBW / PTW
Elevation north-east (park)	BR4B_ASD_PA2_4001	31/08/20	RPBW / PTW
Elevation west (Barangaroo Ave)	BR4B_ASD_PA2_4002	31/08/20	RPBW / PTW
Elevation south-east (lift lobby)	BR4B_ASD_PA2_4003	31/08/20	RPBW / PTW
Elevation south (Watermans Quay)	BR4B_ASD_PA2_4004	31/08/20	RPBW / PTW
Overall section AA	BR4B_ASD_PA2_5001	31/08/20	RPBW / PTW
Overall section BB	BR4B_ASD_PA2_5002	31/08/20	RPBW / PTW

Other information	Ref no	Date	Prepared by
Building Code of Australia Assessment Report – One Sydney Harbour Building R4B.	075112-04BCA rev 3.5	11/11/20	McKenzie Group Consulting