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Date	21/05/2015	Job no SY130111	Version CA1.0	
Project	161 Sussex Street, Sydney – Rooftop bar and lounge			

Dear Alissan

1. Introduction

This advice relates to the proposed extension of the existing northern hotel tower at 161 Sussex Street, Sydney to incorporate a bar and lounge on levels 11 and 12. These areas have been classified as a class 6 in accordance with clause A3.2 of the National Construction Code Series 2015 Volume One – Building Code of Australia (BCA)¹. Defire has undertaken a preliminary fire safety engineering review of the proposed design for the development application submission at the request of Savills Project Management.

The intent of the review was to determine whether we believe the design can be demonstrated to achieve compliance with the performance requirements of the BCA and document the fire safety measures that are likely to be required.

This review is based on the documentation listed in Appendix A.

2. Alternative solutions

The design of the building includes areas that do not comply with the deemed-to-satisfy (DTS) provisions of the BCA. We intend to use a performance-based fire safety engineering approach to develop alternative solutions to the DTS provisions of the BCA. Table 1 describes the BCA requirements associated with the alternative solutions.

No	Description of alternative solutions	DTS provision	Performance requirements
1.	The rooftop bar and lounge on levels 11 and 12 are not proposed to be provided with a zone smoke control system in accordance with AS/NZS 1668.1:1998.	Clause E2.2 and table E2.2a	EP2.2

Table 1 BCA requirements associated with the alternative solutions

The building has been the subject of a previous fire safety engineering assessment by Defire. Table 2 describes the BCA requirements associated with the previous alternative solutions. The proposed works are not considered to impact upon and be affected by the findings of the previous alternative solution report.

¹ National Construction Code Series 2015, Volume One – Building Code of Australia, Australian Building Codes Board, Australia.



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No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method		
161 Mar	161 Sussex St, Sydney – Four Points by Sheraton. Alternative solution report no. SY130111 R1.5 dated 24 March 2015						
1.	 The maximum travel distances within fire compartment 1 on the lower ground, ground and mezzanine floors are: Up to 25m to a point of choice to two alternative exits in lieu of 20m Up to 60m to the nearest of two exits in lieu of 40m Up to 90m between alternative exits in lieu of 60m 	e maximum travel distances in fire compartment 1 on the er ground, ground and zzanine floors are: Up to 25m to a point of choice to two alternative exits in lieu of 20m Up to 60m to the nearest of two exits in lieu of 40m Up to 90m between alternative exits in lieu of 60m		Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)		
	 A performance-based smoke hazard management system is proposed in the circulation areas on the lower ground, ground and mezzanine floors of the hotel including: Smoke exhaust inlet locations and quantities Omission of smoke exhaust from all day dining restaurant and back of house areas 	NSW table E2.2b and specification E2.2b					
2.	 The maximum travel distances within the northern ground floor and mezzanine floors proposed are: Up to 30m to a point of choice to two alternative exits in lieu of 20m Up to 50m to the nearest of two exits in lieu of 40m 	Clauses D1.4 and D1.5	DP4 and EP2.2	Equivalent to DTS A0.5(b)(ii)	Comparison to DTS A0.9(c)		
3.	The mezzanine floor is provided with an aggregate exit width of 13m in lieu of 18m.	Clause D1.6	DP4, DP6 and EP2.2	Equivalent to DTS A0.5(b)(ii)	Comparison to DTS A0.9(c)		
	More than half of the aggregate width of exits from the ground and mezzanine floors discharge via the porte cochere, northern courtyard and commercial foyer courtyard to Sussex Street which is considered as the main entry to the building.	NSW clause D1.10	DP4	Equivalent to DTS A0.5(b)(ii)	Comparison to DTS A0.9(c)		
4.	Travel distances from the sole- occupancy units in the hotel tower on levels 2 to 15 are up to 8m to a point of choice in lieu of 6m.	Clause D1.4	DP4 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)		



No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method
5.	The maximum fire rating for the class 6 all day dining restaurant and kitchen areas on the ground floor is reduced from 180 minutes to 120 minutes.	Clauses C1.1, C2.8, C2.9 and specification C1.1	CP1 and CP2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
6.	The fire control room is accessible from a single door, direct from the front entrance of the site in lieu of two accessible paths.	Clause E1.8 and specification E1.8	EP1.6	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
7.	The point of discharge of fire isolated stair 3 is in the northern ground floor lobby, within the confines of the building. An alternative discharge location is also provided on the lower ground floor at the bus parking bays on Slip Street.	Clause D1.7	CP2, DP4, DP5 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
8.	The point of discharge of fire isolated stair 2 is in the main ground floor lobby, within the confines of the building.	Clause D1.7	CP2, DP4, DP5 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
	The path of travel from the discharge location of stair 2 and 56 to open space necessitates passing through a 1.8m pinch point.	NSW Clause D1.6	DP4 and DP6		
9.	The roof trusses forming the roof structure of the northern and southern convention rooms on the mezzanine floor are to be constructed with steel in lieu of achieving the required FRL of 120/-/ The trusses will be lined on the underside with a fire protective covering.	Clause C1.1 and specification C1.1	CP1	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
10.	The Wharf Lane bridge is to be constructed with a steel structure and timber floor in lieu of achieving the required FRL of 120/-/- and 120/120/120 respectively.	Clause C1.1 and specification C1.1	CP1	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
11.	Access to fire-isolated stair 54 from the mezzanine floor is via a fire door from fire-isolated stair 55 in lieu of providing independent egress and separation between rising and descending flights of the two stairs.	Clauses D1.7, D2.4, E2.2 and table E2.2a	CP2, DP4, DP5 and EP2.2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)



No	Description of alternative solutions	DTS provision	Performance requirements (A0.10)	Method of meeting performance requirements	Assessment method
	The stair pressurisation system is not proposed to achieve a 1m/s flow rate through the door from stair 55 opening into stair 54 as required by AS/NZS 1668.1-1998. A 1m/s flow rate is proposed to be achieved across the double fire doors leading from the southern convention room.				
12.	 The following façade support structures are proposed to be constructed with steel in lieu of achieving the required FRL of 120/-/-: Porte cochere Northern courtyard Northern glazed link Commercial foyer and lift lobby Southern pre-function In addition, the BMU scissor lift parking enclosures on the mezzanine floor are not proposed to be fire rated. 	Clause C1.1 and specification C1.1	CP1	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
13.	The glazed egress doors from the northern lobby into the northern courtyard are located within 3m of the door from the central warehouse compartment. The doors are not fire-rated.	Clauses C3.3 and C3.4	CP2	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)
14.	Sprinklers are not proposed to be provided under raised floors subject to compliance with clause 5.6.1 of AS 2118.1-2006.	Clause E1.5 and AS 2118.1- 1999	EP1.4	Complies with performance requirements A0.5(b)(i)	Verification method A0.9(b)(ii)

Table 2 Previously addressed alternative solutions



3. Fire safety measures

The following fire safety measures are proposed for the building as a starting point for the fire safety engineering assessment to achieve compliance with the relevant performance requirements of the BCA.

3.1 General

- 1. The existing building is understood to comply with the applicable building standards at the time of construction. All new works will comply with the current DTS provisions of the BCA unless specifically mentioned. This section does not provide a comprehensive list of fire safety measures. The fire safety measures listed within this section relate only to the alternative solutions. The fire safety measures must be read in conjunction with the applicable building standards at the time of construction and/or the DTS provisions of the BCA.
- 2. The design must comply with the requirements of alternative solution report no. SY130111 R1.5 dated 24 March 2015 prepared by Defire.

3.2 Compartmentation and separation

3. The new bar and lounge must be fire separated from the existing hotel portions on levels 11 and 12 in accordance with clause C2.8 of the BCA. The FRL achieved by the separating wall is to be not less than 180/180/180. Doors in the fire wall self-closing or automatic-closing and achieve an FRL of -/180/30. The doors must swing in the direction of egress.

3.3 Services and equipment

4. The bar and lounge on levels 11 and 12 is not required to be provided with a zone smoke control system.

4. Conclusion

It is Defire's professional opinion that it is possible to develop alternative solutions for the issues identified without major changes to the proposed design. The proposed fire safety measures outlined in section 3 are required to achieve compliance with the relevant performance requirements of the BCA subject to completion of the detailed fire safety engineering assessment and documentation within an alternative solution report.

The details of the proposed alternative solutions are subject to the outcome of the fire engineering brief and analysis which will be carried out in accordance with the International Fire Engineering Guidelines. It is noted that additional alternative 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 regarding this information.

Yours sincerely

Jack Tam Fire safety engineer Defire – Innovative fire safety

Jason Jeffress Managing director Defire – Innovative fire safety Accredited certifier C10 – BPB 197



Appendix A Drawings and information

Drawing title	Dwg no	Date	Drawn
Site plan	A-DA2-0101 rev2	05/05/2015	Cox Richardson
Existing hotel level 10	A-DA2-0201 rev1	05/05/2015	Cox Richardson
Executive lounge – level 11	A-DA2-0202 rev2	05/05/2015	Cox Richardson
Executive bar – level 12	A-DA2-0203 rev2	05/05/2015	Cox Richardson
East & west elevations	A-DA2-0301 rev2	05/05/2015	Cox Richardson
North & south elevations	A-DA2-0302 rev1	05/05/2015	Cox Richardson
Section 01 part 1	A-DA2-0401 rev2	05/05/2015	Cox Richardson
Section 01 part 2	A-DA2-0402 rev1	05/05/2015	Cox Richardson
Section 02	A-DA2-0403 rev2	05/05/2015	Cox Richardson
Section 03	A-DA2-0404 rev1	05/05/2015	Cox Richardson

Other information	Ref no	Date	Prepared by
Four Points by Sheraton – Northern executive bar and lounge – level 11 and 12 of the existing hotel. Building Code of Australia 2015 Report – capability statement for development application submission	15-204907 rev1	30/04/2015	Philip Chun & Associates