Job no SY180278

08/11/2018

Nishi Patel
Lendlease
Tower Three, International Towers Sydney
Exchange Place, 300 Barangaroo Avenue
Barangaroo NSW 2000

Dear Nishi

UNSW D14 Academic Building – Preliminary fire safety engineering review

Introduction

This letter supports a State Significant Development Application (SSD 9606) submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The project, known as D14 Academic Building, proposes the demolition of the existing UNSW Hall Building and the construction of a new multipurpose building. The near-term objective is to use the building as temporary accommodation while other buildings on the campus are under construction.

D14 will accommodate the following functions:

- Faculty use
- Student led spaces
- Centrally allocated teaching spaces (CATs)
- End of trip facilities
- Retail
- Outdoors spaces that link to Alumni Park, College Walk and the Old Tote / Fig Tree precinct both on the ground plane and vertically throughout the whole building.

The development is anticipated to be approximately 14,288m^2 Gross Floor Area (GFA).

Review

The design of UNSW D14 will incorporate performance solutions complying with the performance requirements of National Construction Code Series Volume One Amendment 1 – Building Code of Australia (BCA)[1]. Exova Defire has undertaken a preliminary fire safety engineering review of the proposed design at the request of Lendlease. The review was based on the drawings and information listed in Attachment 1.

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.

The performance solutions identified to date are listed in Table 1.

[1] National Construction Code 2016, Volume One Amendment 1– Building Code of Australia, Australian Building Codes Board, Australia.

No	Description of performance solutions	DTS provision	Performance requirements
1.	Use of timber structural elements (floors, columns and beams) where non-combustible construction are required. This includes the following: • Determination of fire rating in accordance with Eurocode 5 instead of AS 1720.4-1990. • Finish to the CLT stair treads / risers exceeds 1mm thickness and is attached to combustible substrate. • Stair shafts, lift shafts and service shafts are constructed of combustible material. • Openings for tested penetrations that do not achieve the insulation criteria are allowed to be within 100mm of combustible building element. • Use of timber within façade component. • Wall and ceiling linings of fire stairs do not achieve group 1 and have not been tested to AS 5637.1:2015. • Electrical board / comms board installed in paths of travel to required exits are enclosed in timber.	Clauses C1.1, C1.9, C1.10, C1.13, C2.7, C2.8, C2.9, C2.10, C3.12, C3.15, D1.3, D2.2, D2.7, D2.25 and specifications A2.3, C1.1 and C1.10	CP1, CP2, CP4 and DP5
	Reduction in fire rating in non-retail areas to 1½ hours instead of 2 hours. This includes fire rating of stair shafts, lift shafts and service shafts.		
	Reduction of fire rating in ground floor retail to 2 hours instead of 3 hours. This includes the following: • Fire separation between the retail and non-retail portions on the ground floor. • Fire separation between the ground floor retail and the non-retail areas above.		
2.	The following areas on the ground floor are only provided with a single exit: • Waste room • End of trip facilities • Retail store • Bicycle parking / central cleaner / spares store • Retail tenancies	Clause D1.2	DP4 and EP2.2
3.	A non-fire-isolated stairway passes by four storeys from ground floor to level 2.	Clause D1.3 and part G3	CP2, DP5 and EP2.2
4.	The following travel distances apply to level 1 and above after fitout: • 30m to a point of choice • 60m to the nearest exit • 90m between alternative exits	Clauses D1.4 and D1.5	DP4 and EP2.2
5.	The total travel distance to open space via the central non-fire-isolated stairway from the eastern side of level 2 is approximately 95m instead of 80m.	Clause D1.9	DP4 and EP2.2
	The central non-fire-isolated stairway is discontinuous between levels 1 and 2.		

No	Description of performance solutions	DTS provision	Performance requirements
6.	As the proposed building has multiple entrances, the booster assembly is not within sight of the main entry.	Clause E1.3 and AS 2419.1-2005	EP1.3
	The booster assembly is not provided with fire rated protection extending 2m on each side of and 3m above the upper hose connections in accordance with AS 2419.1-2005.		
7.	The hydrant pump room is not provided with direct access from a fire isolated passageway / stairway – passing through an airlock is required.	Clause E1.3 and AS 2419.1-2005	EP1.3
8.	Sprinklers protecting the lift shafts are proposed to be of the wet type instead of the dry type required by clause 3 of specification E1.5.	Specification E1.5	EP1.4

Table 1 Preliminary list of performance solutions

It is Exova Defire'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 BCA without major changes to the proposed design.

The details of the proposed performance 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 (IFEG)[2].

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
Exova Defire

[2] International Fire Engineering Guidelines – Edition 2005, Australian Building Codes Board, Australia.

Attachment 1 Drawings and information

Drawing title	Dwg no	Date	Drawn
Site plan	18026-ADDA00002	08/11/18	Tzannes
Ground plan	18026-ADDA20000	08/11/18	Tzannes
Upper ground plant	18026-ADDA20M00	08/11/18	Tzannes
Level 1 plan	18026-ADDA20100	08/11/18	Tzannes
Level 2 plan	18026-ADDA20200	08/11/18	Tzannes
Level 3-6 plan	18026-ADDA20300	08/11/18	Tzannes
Level 7 plan	18026-ADDA20700	08/11/18	Tzannes
Plant plan	18026-ADDA20800	08/11/18	Tzannes
Roof plan	18026-ADDA29000	08/11/18	Tzannes
Elevation south	18026-ADDA41000	08/11/18	Tzannes
Elevation west	18026-ADDA42000	08/11/18	Tzannes
Elevation north	18026-ADDA43000	08/11/18	Tzannes
Elevation east	18026-ADDA44000	08/11/18	Tzannes
Section E-W	18026-ADDA51000	08/11/18	Tzannes
Section N-S	18026-ADDA52000	08/11/18	Tzannes

Other information	Ref no	Date	Prepared by
Building D14 – University of NSW BCA Assessment report	2018/2612 R1.5	08/11/18	Steve Watson & Partners

DESIGN CERTIFICATION

Thursday 8th November, 2018

Warren Smith & Partners

38 YEARS OF SERVICE

Project 2018-5867012
Revision No. 03

Lend Lease Building Pty Ltd
Level 14, Tower 3, International Towers Sydney
Exchange Place, 300 Barangaroo Avenue
Barangaroo, NSW 2000

Attention: Melissa Gaspari

Dear Melissa,

RE: UNSW D14
DESIGN CERTIFICATION

We wish to advise that Fire Services Documentation for the above project will be designed in accordance with the following Standards, Codes, Authorities requirements:

Title of Engineering	Standard, Code or Authority Requirements
Fire Hydrant Systems	• National Construction Code (NCC/BCA) Clause E1.3 • AS 2419.1 – 2005 Fire hydrant installations Part 1: System design, installation and commissioning • Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018
Fire Hose Reel Systems	• National Construction Code (NCC/BCA) Clause E1.4 • AS 1221 – 1997 Fire hose reels • AS 2441 – 2005 Amendment 1 Installation of fire hose reels • Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018
Fire Sprinkler System	• National Construction Code (NCC/BCA) Specification E1.5 • AS 2118.1 – 2017 Automatic Fire Sprinkler Systems Part 1: General Systems • AS 2118.6 – 2012 Automatic Fire Sprinkler Systems Part 6: Combined sprinkler and hydrant systems in multistorey buildings • Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018
Fire Detection, Warning, Control and Intercom Systems	• National Construction Code (NCC/BCA) Specification E2.2a • AS 1670.1 – 2015 Fire Detection, warning, control and intercom systems – Systems design, installation and commissioning Part 1 – Fire • Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018
Emergency Warning & Intercom System	• National Construction Code (NCC/BCA) Clause E4.9 • AS 1670.4 – 2004 Fire Detection, warning, control and intercom systems – System design, installation and commissioning Part 4 – Emergency Warning & Intercom Systems • Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018
Portable Fire Extinguishers	• NCC Clause E1.6 • Positioned in accordance with AS 2444 – 2001 Portable fire extinguishers and fire blankets – Selection and location

	• Defire Concept Fire Safety Strategy Ref: SY180278, Revision CFSS1.0, Dated 19.10.2018

Additionally, the Fire Services Documentation for the above project is to be designed generally in accordance with the University of New South Wales Design Standards *Section E.1 – Hydraulic Services* Revision 6 (dated April 2018), and *Section E.3.3 – Special Systems* Revision 4.2a (Dated December 2006) expect where Departures from such University of New South Wales Standards have been agreed.

Warren Smith & Partners Pty Ltd possess Indemnity Insurance to the satisfaction of the building owner or principal.

Full Name of Designer: **David Bolt**
Qualifications: **Associate Diploma in Engineering (Mechanical Engineering)**

Fire Safety Practitioner Details: **Fire Protection Accreditation Scheme**
Class Fire Systems Design
Jurisdiction – NSW & VIC
Accreditation No: FSD 14563
Valid till December 2018

Experience: **Twenty-one (21) years experience in the Fire Protection Industry**

Address of Designer: **Level 9, 233 Castlereagh Street, SYDNEY NSW 2000**
Business Telephone No: **(02) 9299 1312**
Email Address: david@warrensmith.com.au
Name of Employer: **Warren Smith & Partners Pty Ltd**

Insurances: Professional Indemnity Certificate attached which nominates Fire Services Design.

Documentation Reference:

DRAWING NO.	DRAWING TITLE
FD000000	TITLE SHEET, LEGEND & DRAWING LIST - FIRE SERVICES
FD200000	GROUND LEVEL - FIRE SERVICES
FD20M000	UPPER GROUND LEVEL - FIRE SERVICES
FD201000	LEVEL 1 - FIRE SERVICES
FD202000	LEVEL 2 - FIRE SERVICES
FD203000	LEVELS 3 TO 6 - FIRE SERVICES
FD207000	LEVEL 7 - FIRE SERVICES
FD208000	LEVEL 8 - FIRE SERVICES
FD900000	COMBINED FIRE SPRINKLER/HYDRANT/HOSE REEL SYSTEM SCHEMATIC
FD900010	FIRE ELECTRIC SCHEMATIC
FS000000	FIRE SERVICES SPECIFICATION

Should you require any further information or explanation could you please contact the undersigned.

Yours faithfully
WARREN SMITH AND PARTNERS

David Bolt
Project Manager – Fire

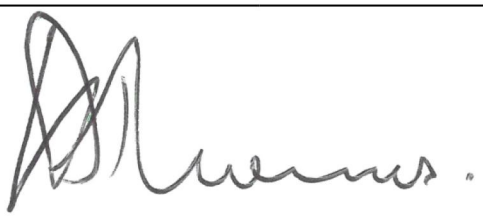
M: 0425 256 922
E: david@warrensmith.com.au

Professional Indemnity Insurance

Certificate of Currency

The policy referred to below is current as at the date of issue. Whilst a policy expiry date is indicated it should be noted that the policy may be cancelled prior to this expiry date. This certificate is provided for information purposes and is accurate based on our records at the time of issue. It summarises the cover and does not form part of the policy documentation. We are under no obligation to inform you of any subsequent changes to the insurance contract or our records. This certificate confers no rights on the holder.

INSURED:	Warren Smith & Partners Pty Ltd WS Partners Unit Trust
ADDRESS:	Level 9, 233 Castlereagh Street SYDNEY NSW 2000
POLICY NUMBER:	02PLL002395/04
PROFESSION:	Civil engineering, hydraulic/fire engineering
PERIOD OF INSURANCE:	From 4.00pm 15 May 2018 to 4.00pm 15 May 2019
INSURER:	100% Certain Underwriters at Lloyd's, London
POLICY WORDING:	Subject to PIC2017.03.05 Policy Wording and Endorsements
LIMIT OF INDEMNITY:	$10,000,000 each and every Claim
RETROACTIVE DATE:	Unlimited (excluding known claims and circumstances)
INTERMEDIARY:	IBL Limited t/as Planned Cover

Signed: 

Signed on behalf of Focus Underwriting
Date of issue: 11 May 2018