8 November 2018

Steve Watson & Partners
Level 17, 456 Kent Street
Sydney NSW 2000

Attention: Nick Hontas

Structural Design Statement – Foundations, Concrete and Structural Steel Elements
UNSW D14 Redevelopment

PROJECT ADDRESS: UNSW Sydney, Botany Street, Kensington
LOT AND DP NUMBERS: Lot 3 in DP 1104617
DEVELOPMENT APPLICATION NUMBERS: SSD 9606

Pursuant to the provision of Section 93 of the Local Government Act 1993 and Clause A2.2 of the NCC, **I state that:**

The Structural Design of the building foundations, concrete elements and structural steel (timber connections by Lendlease Design Make (LLDM)) for **UNSW D14 Redevelopment** will comply with:

(a) The relevant clauses of the NCC Building Code of Australia 2016 Amendment 1 Volume 1 - A2.3, Section B, Specification C1.1 (2.2, 2.3, 2.6, 2.7, Part 3), C1.11, D2.2, D2.3
(b) The Project Approval Plans released for construction, for fire resistance levels for design of structural elements and masonry walls.
(c) The relevant Australian Standards listed in the Building Code of Australia (Specification A1.3) particularly AS1170 Structural Design Actions (Parts 1-4), AS4100 Steel Structures, AS1288 Glass in Buildings and AS3600 Concrete Structures.
(d) This statement includes seismic restraint requirements for services under AS1170.4
(e) The Concept fire safety strategy (Draft) prepared by Exova Defire, Report No. CFSS1.0 SY180278, dated 19/10/2018
(f) The Preliminary Geotechnical Investigation prepared by Douglas Partners, Report No. 86457.00.R.002.Rev1, dated November 2018.

This statement covers items included within Lendlease Applied Insight scope only, notably building foundations, concrete elements and structural steel members. Timber elements and associated connections are designed by LLDM, refer 'Structural Design Statement – Timber Superstructure' issued by LLDM on 8/11/2018.

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Signature:

Date: 8 November 2018
Name of Employer: Lendlease Building Pty Limited

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Steve Watson & Partners
Level 17, 456 Kent Street
Sydney NSW 2000

Attention: Nick Hontas

Structural Design Statement – Timber Superstructure
UNSW D14 Redevelopment

PROJECT ADDRESS: UNSW Sydney, Kensington NSW 2052
LOT AND DP NUMBERS: Lot 3 in DP 1104617
DEVELOPMENT APPLICATION NUMBERS: SSD9606

We, Lend Lease DesignMake, being Structural Engineers within the meaning of the Building Code of Australia, are responsible for the structural design of the drawings noted in the attached transmittal. We are responsible for the structural design of the timber superstructure only and all remaining elements are certified with the corresponding certification issued Lend Lease Applied Insights dated 8th November 2018.

We certify that this work has been designed in accordance with the relevant performance criteria of the Building Code of Australia, including the relevant codes of the Australian Standards* and in accordance with accepted engineering practice and principles.

This certification shall not be construed as relieving any other parties of their responsibilities.

*A notable deviation from the Australian Standards is the substitution of AS 1720 with EN 1995 and relevant European Technical Approvals (ETA).

This substitution has been made as EN 1995 in conjunction with relevant ETAs deliver a more comprehensive and relevant guidance than AS 1720 for the design of structures comprising of European softwood. The Eurocodes and Australian Standards may be used in conjunction as both codes are limit state design codes where by resistance factors and load factors are applied to characteristic values.

This substitution causes a diversion from the Deemed to Satisfy provision of the Building Code Australia – clause B1.4. A summary table of this is given on the following page in Table 1. As such, a Performance Solution has been progressed as outlined in clause A0.3 of BCA Volume 1 to address the Performance Requirement BP1.1 and BP1.2

Comparison to Deemed to Satisfy has been selected as the primary Assessment Method outlined in clause A0.5 of the BCA Volume 1 as the deviation comprises of replacing one recognized design code with another within the framework of limit state

design and achieves the performance requirements outlined in the BCA as demonstrated in Table 2.

Table 1 – Summary of Deemed to Satisfy Provisions Adopted

BCA DTS Clause	Complied with	Sub clause	Complied with	Commentary
B 1.0	P	a) or	-	The design deviates from the DTS provision in clause B 1.4
		b)	P	A performance solution is adopted to meet the performance requirements determined in accordance with A 0.3
FB 1.1	P	a)	P	Actions applied in accordance with AS standards and B 1.2
		b)	-	Timber material resistance is calculated via alternative method than outlined in B 1.4. Refer to B 1.0 sub-clause b)
B 1.2	P	a)	P	Permanent actions calculated to AS 1170.1
		b)	P	Imposed actions calculated to AS 1170.1
		c)	P	Wind, snow and seismic actions calculated to AS 1170.2-4
		d) and e)	P	Additional action on structure in accordance with AS standards
B 1.4	O	a)	-	No masonry in design scope
		b)	O	No concrete elements in design scope
		c)	P	Steel elements designed in accordance with standards
		d)	-	No steel – RC composite in design scope
		e)	-	No aluminum in design scope
		f)	O	Timber superstructure designed to Eurocode 5 and European Technical Approvals through alternate solution
		g)	-	No piling in design scope
		h)	-	No glazed assemblies in design scope
		i)	P	Timber superstructure is designed to be protected through the use of an appropriate termite management system as specified by the architect and Lendlease Building.
		j)	-	No roof assemblies in design scope
		k)	-	No particleboard structural flooring in design scope
		l)	-	No large doors in design scope
		m)	-	No lift cores in design scope, NA as lift core walls are timber and have FRL requirements
B 1.5	-			No software designing to DTS provision used
B 1.6	-			Structure not in a flood hazard area

Table 2 – Summary of Performance Solution Adopted

No	Description of Non-Compliance	DtS Clause	Performance Requirement	Method of Meeting Performance Requirement	Assessment Method
1	To permit a change to the design code used the design of Engineered Timber from AS1720 to Eurocode 5 (EN1995:1-1)	B1.0, B1.1, B1.2, B1.4	BP1.1, BP1.2	A0.2(a) Performance Solution	A0.5 Combination of (a) to (d)

The comparison of the Performance Solution, Eurocode 5 to the Deemed to Satisfy, AS1720, as above demonstrates the performance solution complies with the requirements of the BCA, in particular BP1.1 and BP1.2.

Yours faithfully,

Tim Butler

ICE, MIEAust, MEng

Principal Structural Engineer / Lend Lease DesignMake