DESIGN CONFIDENCE

11 November 2022

Our Ref: P222_139

NSW Government
Transport for NSW
231 Elizabeth Street
Sydney NSW 2000

Attention: Jennifer Faddy

Redfern North Eveleigh Precinct Renewal Project - Chief Mechanical Engineer's Building
BCA Capability Statement for State Significant Development Application

Please find enclosed our BCA Capability statement for submission as part of the State Significant Development Application proposed at the aforementioned address.

Should you require any further information regarding this proposal, please do not hesitate to contact us.

Kind Regards

Ryan Dillon
Senior Building Regulations Consultant
For Design Confidence (Sydney) Pty Ltd

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BCA Capability Statement for State Significant Development Application

1. Introduction

This statement has been prepared by Design Confidence on behalf of Transport for NSW. It supports State Significant Development (SSD) Development Application (DA) No. SSD-39971796 for the heritage conservation and adaptive reuse of the former Chief Mechanical Engineer's Building (CME Building) in North Eveleigh, which is submitted to the Minister for Planning pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act). This statement is to address the SEAR's Built Form and Urban Design issue and assessment requirement.

The application seeks consent for the heritage conservation and adaptive reuse of the CME Building, which includes:

(i) Internal and external heritage conservation works to make the building suitable for adaptive reuse, including painting, repairs and refurbishment of the existing building (primarily internally) and installation of services to support future usage for offices or the like;

(ii) Building upgrades to ensure compliance with the Building Code of Australia, including accessibility and fire safety requirements;

(iii) Removal of any hazardous building materials; and

(iv) Minor landscaping works.

No significant additions (except those necessary to facilitate the introduction of new services, amenities and equitable access) or substantive demolition of external heritage fabric is envisaged as part of the project. Internal changes comprise the removal of some internal walls and alterations to building fabric to create suitable spaces and compliant paths of travel.

2. Background

Design Confidence has been engaged to provide building regulatory advice regarding the compliance status of the proposed mixed-use development when assessed against the relevant prescriptive requirements as contained within the Building Code of Australia (BCA) 2022 – Volume 1.

This statement has been provided to accompany the Development Application, which is State Significance. A broad assessment has been undertaken of the proposed design (as detailed within the documentation listed in Table 2.1 below).

Design Confidence has been involved on the project since the development of the architectural concept, the advice being provided to date has been in the context of the Building Code of Australia (BCA) 2022 – Volume 1, inclusive of the performance provisions contained therein.

Table 2.1 – Architectural Drawings

TITLE	DRAWING	REV	DATE
COVER SHEET, LOCATION PLAN	CCG-CME-AR-DRG-000	B	04/11/2022
DRAWING INDEX	CCG-CME-AR-DRG-100	B	04/11/2022
SURVEY	CCG-CME-AR-DRG-101	B	04/11/2022
SITE ANALYSIS PLAN	CCG-CME-AR-DRG-200	B	04/11/2022
PROPOSED SITE PLAN	CCG-CME-AR-DRG-201	B	04/11/2022
GLA & NLA CALCULATIONS SHEET	CCG-CME-AR-DRG-202	B	04/11/2022
GROUND FLOOR DEMOLITION PLAN	CCG-CME-AR-DRG-203	B	04/11/2022
PROPOSED GROUND FLOOR PLAN	CCG-CME-AR-DRG-204	B	04/11/2022
FIRST FLOOR DEMOLITION PLAN	CCG-CME-AR-DRG-205	B	04/11/2022
PROPOSED FIRST FLOOR PLAN	CCG-CME-AR-DRG-206	B	04/11/2022
ROOF PLAN	CCG-CME-AR-DRG-207	B	04/11/2022
GROUND FLOOR REFLECTED CEILING PLAN	CCG-CME-AR-DRG-208	B	04/11/2022
FIRST FLOOR REFLECTED CEILING PLAN	CCG-CME-AR-DRG-209	B	04/11/2022
ELEVATIONS	CCG-CME-AR-DRG-300	B	04/11/2022
ELEVATIONS	CCG-CME-AR-DRG-301	B	04/11/2022
SECTIONS	CCG-CME-AR-DRG-400	B	04/11/2022
SECTIONS	CCG-CME-AR-DRG-401	B	04/11/2022
DETAILS - STAIRCASE	CCG-CME-AR-DRG-500	B	04/11/2022
DETAILS - WET AREA PLANS SHEET 1	CCG-CME-AR-DRG-501	B	04/11/2022
DETAILS - WET AREA PLANS SHEET 2	CCG-CME-AR-DRG-502	B	04/11/2022
DETAILS - LIFT PLANS AND SECTION	CCG-CME-AR-DRG-503	A	04/11/2022
DETAILS - BALCONY BALUSTRADE DETAILS	CCG-CME-AR-DRG-504	B	04/11/2022

3. BCA Compliance Strategy

Table 3.1 below summaries the proposed development in the context of the BCA

Table 3.1 – BCA Summary

DESCRIPTION		
Building Classification	Office	Class 5
Rise in Storeys	Two (2)	
Storeys Contained	Two (2)	
Type of Construction	Type C	
Effective Height	4.38 m	(First Floor FFL 33.55 –Ground Floor FFL 29.17)
Largest Fire Compartment (Whole Building)	Floor area Volume	1513 m^2 6214 m^3
Max Fire Compartment Size	(3,000m^2 /18,000m^3)	Within Limitation
Climate Zone:	Climate Zone 5	

The following outlines the proposed compliance strategy for the development noting that compliance will be achieved via both prescriptive measures and performance-based solutions.

3.1 Fire Resistance & Stability

The development consists of a Class 5 building with a rise in storey of two (2). The building is therefore required to be of Type C construction. This means neither the floor nor the roof is required to be fire rated.

Building elements are required to achieve the nominated FRLs as nominated within BCA Spec 5 as applicable, these FRLs have been summarised within Table within Appendix A3.

3.2 Compartmentation & Separation

The BCA places limitations on the maximum floor area and volume an area within a building can be, this is to limit the maximum allowable fuel load available within a space which is also tied back to the fire-resistance levels building elements are required to achieve.

The whole building is considered to be one fire compartment and is within the maximum DTS floor area and volume for a Class 5 Type C building.

An Electrical Substation and/or Main switch board room that is located within the building is to be separated with fire rated construction of 120/120/120 with self-closing fire doors of -/120/30.

3.3 Fire Spread between Adjoining Buildings

The site is bounded by a public road on the Northern boundary and adjoining allotments on the remaining boundaries. The risk of fire spread is located along the Western and Southern boundary.

There are openings that are within 3m of the Southern boundary (G12 & F6) on the Southeast corner of the building and the Western boundary (Room G1 & F1). It is understood that these openings will be addressed with a mix of deemed to satisfy and performance-based solutions.

3.4 Provision for Escape

3.4.1 Number of Exits and Non-Fire Isolated Exits

The building has an effective height of less than 25m and therefore each storey is required to have one exit. The stair only connects two (2) storeys therefore is not required to be a fire isolated stair.

3.4.2 Exit Travel Distances

Travel distances throughout the development would generally comply with the exception of the travel distance to an exit 53m in lieu of 20m on the First Floor.

It is understood that a BCA Performance Solution / Fire Engineering Report will be pursued which justifies that the current design complies with the relevant Performance Requirements.

Please see Appendix A3 of this report showing travel distance markup

3.4.3 Width of exits and paths of travel to exits

A minimum 1m clear path of travel to an exit is required throughout the building.
Clear width throughout the development would generally comply with the exception of the following:

(i) 910mm opening from Room G1 and G10

(ii) 710mm opening from cubicle G18 and G20

It is understood that a BCA Performance Solution / Fire Engineering Report will be pursued which justifies that the current design complies with the relevant Performance Requirements.

3.5 Construction of exits

3.5.1 Enclosure of space under stairs and ramps

The space below the non-fire-isolated stairway to the first floor must be enclosed with:

(i) the enclosing walls and ceilings have an FRL of not less than 60/60/60; and

(ii) any access doorway to the enclosed space is fitted with a self-closing –/60/30 fire door

3.5.2 Doorways and Door swings

The automated doorway serving as exits on the Ground Floor must be opened manually under a force of not more than 110N and open automatically on power failure, or activation of a fire or smoke alarm.

Two exits on the Ground floor swing in the opposite direction of egress.

It is understood that a BCA Performance Solution / Fire Engineering Report will be pursued which justifies that the exit swinging in the opposite direction with the relevant Performance Requirements.

3.6 Services and Equipment

3.6.1 Hydrants

A fire hydrant system complying with AS2419.1-2021 is required to serve the building.

A hydrant booster remote from a building is required to be adjacent to the principal vehicular access to the site. It is understood that a BCA Performance Solution / Fire Engineering Report will be prepared to justify this departure from the hydrant standard AS2419.

3.6.2 Sprinklers

The building will be sprinkler protected with a AS2118 system installed throughout the building.

A sprinkler alarm valve must be located in a secure room or enclosure which has direct egress to road or open space. The alarm valve room is located under the stairs and does not open directly to road or open space.

It is understood that a BCA Performance Solution / Fire Engineering Report will be pursued which justifies that the current design complies with the relevant Performance Requirements.

3.6.3 Other Fire Safety Measures

Reference should be made to Section 4 below as it outlines the remaining fire safety measures currently proposed.

4 Fire Safety Measures

Table 4.1 below outlines the relevant statutory fire safety measures that will provided as part of the development such that compliance with the BCA is achieved.

Table 4.1 – Fire Safety Measures

STATUTORY FIRE SAFETY MEASURES	PROPOSED STANDARD OF PERFORMANCE
Automatic Fire Suppression System (Sprinklers)	BCA 2022 Clause E1D4, E1Dx & Spec. 17 AS 2118.1-2017
Emergency Lighting	BCA 2022 Clause E4D2, E4D3 & E4D4 AS 2293.1-2018
Exit And Directional Signage	BCA 2022 Clause E4D5, E4D6 & E4D8, Spec 25 AS 2293.1-2018
Fire Doors	BCA 2022 Clause C3D13, C3D14, C4D6, C4D7, C4D8, C4D9, C4D12 & Spec. 12, AS 1905.1-2015
Fire Hydrant Systems	BCA 2022 Clause E1D2 AS 2419.1-2021, AS 2118.6-2012 (Combined System)
Portable Fire Extinguishers	BCA 2022 Clause E1D14 AS 2444-2001
Fire Engineering Report Measure (TBC)	Fire Engineering Report (TBC)

5 Summary

Our strategy for ensuring compliance will be refined and documented over the coming months in conjunction with the continual development of the architectural documentation, if required.

In order to achieve compliance with the BCA, whilst preserving the functional and aesthetic requirements of the project, the use of performance-based designs may be required. It is our belief that performance-based design can deliver a building that meets the Performance Requirements of the BCA.

We are of the opinion that compliance can be achieved, be it via either complying with the DtS provisions or Performance requirements of the BCA.

We trust that the above information is sufficient for the Department of Planning in assessing the merit architectural design from a planning perspective.

This statement should not be construed as relieving any other parties of their legislative obligations.

I possess Indemnity Insurance to the satisfaction of the building owner or my principal.

Yours Faithfully

Ryan Dillon
Senior Building Regulations Consultant
For Design Confidence (Sydney) Pty Ltd

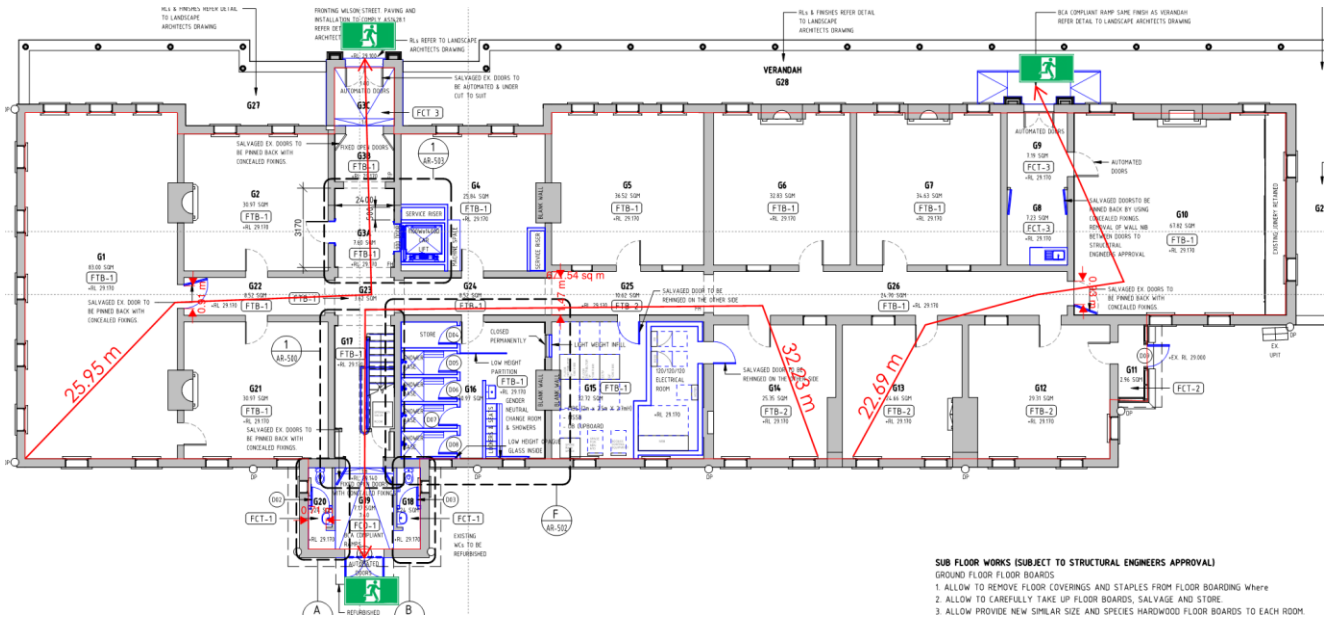
Appendix A1

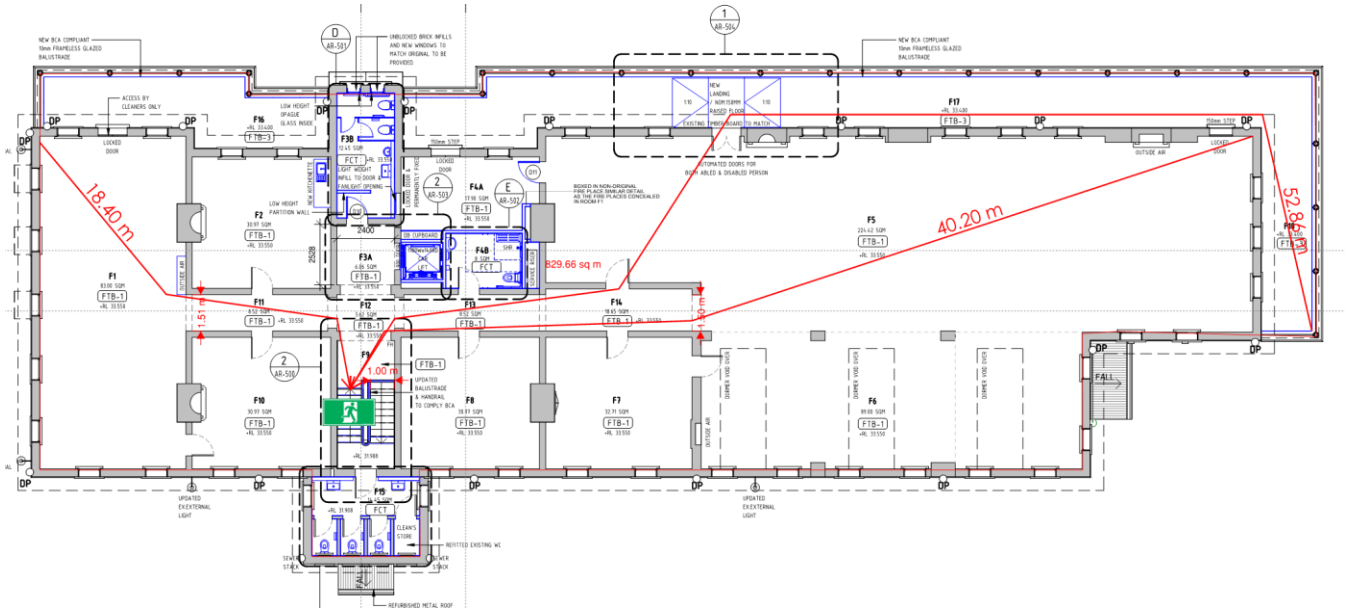
Proposed Performance Solutions

NO.	DESIGN EFFICIENCIES	DTS CLAUSE	PERFORMANCE REQUIREMENTS
1.	**Protection of openings within external walls located less than 3 m from boundary** Justify nil or reduced protection measures to openings within 3m of the Western (Room G1 & F1) and Southern (G12 & F6) boundary.	C4D4	C1P2 and C1P8
2.	**Travel Distances** Justify extended travel distances of 53m to an exit in lieu of 20m on First Floor	D2D5	D1P4 & E2P2
3.	**Width of exits and paths of travel to exits** Justify path of travel to an exit being less than 1m (910mm and 710mm)	D2D8	D1P6
4.	**Swinging doors** Justify exits on the Ground floor swinging in the opposite direction of egress.	D3D25	D1P4
5.	**Booster location** Justify the departure from the hydrant standard AS2419.1 Booster assembly not adjacent to the principal vehicular access to the site..	E1D1	E1P3
6.	**Sprinklers** Justify the sprinkler alarm valve room not having direct egress to a road or open space.	E1D4 & Spec 17	E1P4

Appendix A2

Marked up architectural drawings





Appendix A3

Required Fire Resistance Levels for Type C construction

Spec.5

Fire Resisting Construction (prev. Spec C1.1)

Type C Construction – Fire resistance of building elements (S5C24)

In building required to be constructed as Type C, each required building element must achieve the required Fire Resisting Levels (FRL's) as per the following tables –

1. External Walls (Loadbearing and Non-Loadbearing)

An external wall is considered "the outer wall of the building". External walls include columns and all other elements which is incorporated within.

Distance from a fire source feature	Required FRL's	
	Class 2, 3 or 4 Part	Class 5, 7a or 9
Less than 1.5m	90/90/90	90/90/90
1.5m to less than 3m	--/--/--	60/60/60
3m or more	--/--/--	--/--/--

Table S5C24a – Required FRL's for Loadbearing External Walls

2. External Columns (Loadbearing and Non-Loadbearing)

For the purpose of compliance with this part, an external columns are not incorporated within the external wall of the building which extends beyond the outer wall of a building.

Distance from a fire source feature	Required FRL's	
	Class 2, 3 or 4 Part	Class 7, 7a or 9
Less than 1.5m	90/--/--	90/--/--
1.5m to less than 3m	--/--/--	60/--/--
3m or more	--/--/--	--/--/--

Table S5C24b – Required FRL's for Non-Loadbearing External Walls

3. Common Walls & Fire Walls (Loadbearing and Non-Loadbearing)

As defined within Schedule 1 of the BCA, a fire wall "appropriate resistance to the spread of fire that divides a storey or building into fire compartments". Whereas a common walls is defined as a wall common to adjoining buildings.

Column Type	Required FRL's	
	Class 2, 3 or 4 Part	Class 5, 7a or 9
Loadbearing and non-loadbearing	90/90/90	90/90/90

Table S5C24c – Required FRL's for External Columns

4. Internal Walls (Loadbearing and Non-Loadbearing)

As defined within Schedule 1 of the BCA, an internal wall is considered within the building's interior and "is neither a common nor a party wall". An element which is considered loadbearing is an element which is "intended to resist vertical forces additional to those due to its own weight".

Spec.5
Cont'd

Location	Required FRL's	
	Class 2, 3 or 4 Part	Class 5, 7a or 9
Bounding public corridor, public lobbies, and the like	60/60/60	--/--/--
Between or bounding sole-occupancy units	60/60/60	--/--/--
Bounding a stair if required to be rated	60/60/60	60/60/60

Table S5C24d – Required FRL's for Internal Walls (Loadbearing)

5. FRL of roof

Location	Required FRL's	
	Class 2, 3 or 4 Part	Class 5, 7a or 9
Roof	--/--/--	--/--/--

Table S5C24e – Required FRL's for roofs