21/03/2019

C/- DWP
16 Telford St
Newcastle NSW 2300

BCA/NCC Compliance assessment of the plans for proposed University (Nihon University), Student Accommodation Building with associated Carparking and cafeteria at 1 Church St Newcastle NSW

1. Introduction

This report is a general assessment of the existing building and of the plans for the proposed attached Student Accommodation/ University and associated works at the above address to determine if construction shown generally complies with the (NCC/BCA) Building Code of Australia 2016

It is achknowledged that the existing building has significant Heritage value and BCA/NCC compliance may be difficult to achieve.

Plans for the proposed building work were assessed against the Deemed-to-Satisfy (DTS) Provisions of the BCA. As per below plan I also undertook a Building Inspection with DWP representative.

See Attached Addendum of plans Drawn by Azusa Sekkei Architects that were assessed.

The assessment relates to the BCA/NCC 2016 and NSW Environmental Planning and Assessment legislation current at the time and therefore does not necessarily infer building compliance with the same legislation at some other point in time. The assessment relates specifically to the building the subject of this report and therefore should not be construed to apply to any other building.

Generally the report only comments on non-compliances, or where insufficient detail is shown to confirm compliance. Other comment may be made where necessary to explain requirements for interrelated elements and systems of the building. The use of notes and diagrams from BCA and relevant Australian Standards on CC issue plans may address some of the requirements listed below.

Note: Non-compliances and potential issues noted in red, important to note in green

Building Code of Australia (BCA/ NCC) Compliance:

The Building Designer has advised that they will be addressing elements of BCA Compliance wwith a Performance Solution.

BCA Compliance for proposed and existing building can be met by a "Performance Solution" which provides two options.

This report will only provide "Deemed to Satisfy Solution" in that the existing and proposed will be measured up against the Deemed to Satisfy requirement of the BCA/NCC 2016

A Performance Solution would require specialist input and/or a report from an appropriately qualified engineer or similar, (i.e. Fire Engineer, Access Consultant, Structural Engineer or the like)

PART A0 APPLICATION

A0.1 Compliance with the NCC

Compliance with the NCC is achieved by satisfying the *Performance Requirements*.

A0.2 Meeting the Performance Requirements

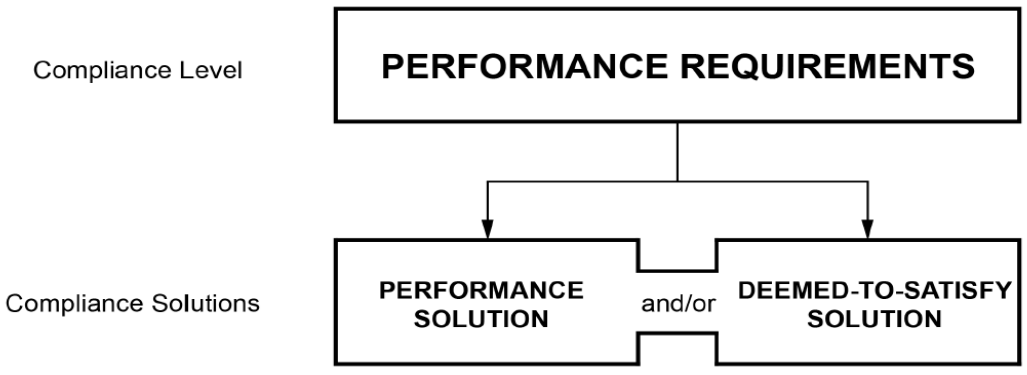
The *Performance Requirements* can only be satisfied by a—

(a) *Performance Solution*; or

(b) *Deemed-to-Satisfy Solution*; or

(c) combination of **(a)** and **(b)**.

Figure A0.2
NCC COMPLIANCE STRUCTURE



2. Limitations

This report generally only comments on new BCA/NCC requirements (2016)

The report does not specifically comment on the following:

- Fire Safety Measures (Wet and Dry) for the existing building, it is assumed that existing fire safety measures are not to be relied upon, with new Fire Safety Measures serving both existing and proposed as part of new use and development.
- Accessibility under BCA/NCC is not covered in this report and will require input from an accredited access consultant (Disability Access)
- **Existing construction generally and FRL's of existing building elements, e.g. FRL of existing Courthouse for ALL building elements are to be verified by a Structural Engineer in that the Structural Adequacy and Fire Safety are not to be reduced as a result of Development AND the FRL's of existing building meet the requirements of the BCA/NCC for the new use**
- Glazing or any other building element that is existing and is not subject to upgrade under any required Development Consent.

This report must be read in conjunction with the following:

- All other consultant reports (i.e. Mechanical, Fire Services, Electrical, Structural and the like previously undertaken and/or reports currently issued or under consideration)

3. Description of Building/s

Location:	**1 Church St Newcastle**	
Use of Building:	University, Student Accommodation, Cafeteria and Associated Carparking	
Classification:	9b/7a/ 6/3	(A3.2/A3.3)
Rise in Storeys:	4 (Total)	(C1.2)
Effective Height:	less than 25m	(A1.1)

4. Fire-Resisting Construction (General)

Construction Requirements –

- **external walls of the building, floor framing of lift pits must be non-combustible**
- **Floors of new additions and existing floors are required to be non combustible atop of any FRL requirements. The existing floors of the Newcastle Courthouse are timber this is a NON COMPLIANCE with the BCA/NCC DTS provisions**
- **loadbearing internal walls (including those that are part of a loadbearing shaft) must be of concrete or masonry**
- **Internal walls required to have an FRL as outlined below, shafts (proposed lift, stairs, services) are to extend to the underside of the floor above, the underside of a roof with and FRL or non - combustible roof lining.**
- **Attachments to fire resisting construction/ wall cladding: lightweight cladding panels to be non-combustible construction. (e.g. Wall cladding to external parts of building)**
- **ANY wall cladding is to be "non combustible" in existing or proposed building**
- **non-loadbearing—**

  internal walls required to be fire-resisting *(as listed below)*; and lift, ventilating, pipe, garbage, or similar shaft, must be of non-combustible construction

(Specification C1.1)

FIRE RESISTANCE LEVEL (FRL) REQUIREMNTS OF BUILDING ELEMENTS (TABLE 3 of SPECIFICATION C1.1 BCA NCC) –

(A) Class 9b University and Carpark

Existing building and proposed addition (includes where upgrade is considered OR required by Newcastle City Councils consent to existing building are to be as per below where relevant and practicable:

Building elements require the following fire resistance levels (FRLs):

- **Loadbearing external walls** above finished ground level: less than 3m from fire source feature : 120/120/120, 3m or more from fire source feature 120/60/30, **non loadbearing** external walls within 3m of fire source feature -/120/120
- Walls of all lift and stair shafts: 120/120/120
- Internal walls: Ventilating, pipe, garbage, and like shafts loadbearing: 120/90/90 ; non-loadbearing: -/90/90; shafts **(lift, stairs, passageways and services**): loadbearing: 120/120/120. non- loadbearing: -/120/120, bounding public corridors – loadbearing 120/-/-
- Other loadbearing internal walls and internal beams: 120/-/-
- Internal columns: loadbearing: 120/-/-, External Columns loadbearing 120/-/-
- Floors: 120/120/120

(Specification C1.1)

(B) Class 6 Cafeteria

Building elements require the following fire resistance levels (FRLs):

- Loadbearing external walls: Within 3m of boundary: 180/180/180, 1.5 to 3m: 180/180/120, 3m or more from boundary:180/60/30
- Non-loadbearing external walls 3m or more from boundary : No FRL required, non-loadbearing walls between 1.5m to 3m: -/180/120, within 3m of boundary: -/180/180
- External loadbearing columns not incorporated in an external wall: 180/-/-
- Internal walls: Ventilating, pipe, garbage, and like shafts loadbearing: 180/120/120; non-loadbearing: -/120/120; shafts (lift, stairs, services): loadbearing: 180/120/120. non-loadbearing: -/120/120
- Other loadbearing internal walls and internal beams: 180/-/-
- Internal columns: loadbearing: 180/-/-
- Floor: 180/180/180

(C) Class 3 Residential Levels (Serviced apartments)

Important Note: Each bedroom is treated as an SOU for the purposes of the below fire safety requirements

Building elements require the following fire resistance levels (FRLs):

- Loadbearing External walls: Within 3m of boundary 90/90/90, 3m or more from boundary: 90/60/30
- Non-loadbearing external walls with 3m of boundary: -/90/90
- External loadbearing columns not incorporated in an external wall: 90/-/-
- Internal walls: between sole occupancy units(bedrooms) and bounding public corridors, public lobbies and the like: loadbearing: 90/90/90. Non-loadbearing: -/60/60;
- Internal walls: Ventilating, pipe, garbage, and like shafts loadbearing: 90/90/90 ; non-loadbearing: -/90/90; shafts (**services, lifts, stairs, passageways):** loadbearing: 90/90/90. non-loadbearing: -/90/90
- Other loadbearing internal walls and internal beams: 90/-/-
- Internal columns: loadbearing: 90/-/-
- Floors: Between residential all other floors (90/90/90)
- Roof: NIL

NOTE (1): Unless there is a fire wall and fire doors installed between residential and University / Cafeteria/ Carparking (i.e. Construction achieving the HIGHER FRL for the bounding classification concerned is required) achieving at least 120minutes(Uni/ Carparking) or 180 minutes (Cafeteria) the above (Residential) FRL's would be increased to 120/120/120 or 180/180/180 respectively (including floor) as applicable and dependant on arrangement of floor plan

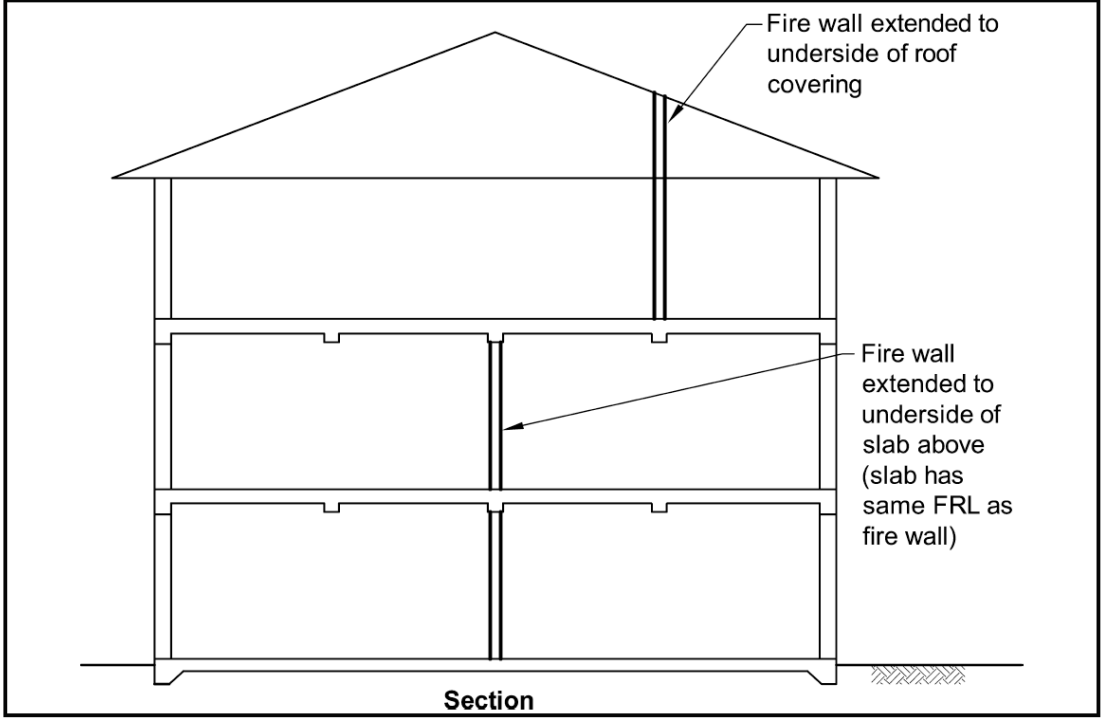
(2) Where Fire walls are proposed to separate classifications then the FRL required would be 120/120/120 or 180/180/180 for the classification concerned (abutting Higher FRL applies) with any openings protected with self closing fire doors e.g. -120/30 or -/180/30 Any walls that not common and are within 6m will require FRL with openings suitably protected.

Separation of fire compartments

C2.7(c) clarifies that a fire wall built in accordance with C2.7(a) can be considered to divide a building into different fire compartments for the purpose of Sections C, D and E (see Figure 2.7(2)).

Figure C2.7(2)

EXAMPLE OF A METHOD OF SEPARATING A BUILDING INTO FIRE COMPARTMENTS BY A FIRE WALL IN ACCORDANCE WITH C2.7(c)

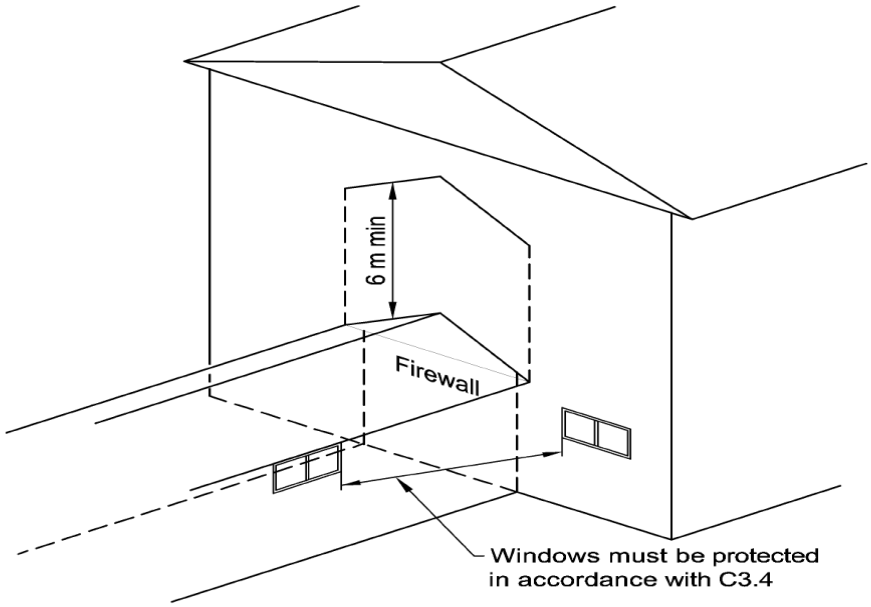


For a fire wall to compartment a building it must extend to the underside of any roof covering or between floors that have an equivalent FRL to the fire wall.

If the building is being separated into fire compartments by a fire wall have different roof levels there is no requirement to extend the fire wall to the underside of the higher roof level or above the lower roof level. This is because the fire wall serves as a means to limit the floor area of the building. When a fire wall is applied in this case, the building cannot be treated as two separate buildings for the purpose of Sections C, D and E of the BCA.

Figure C2.7(3)

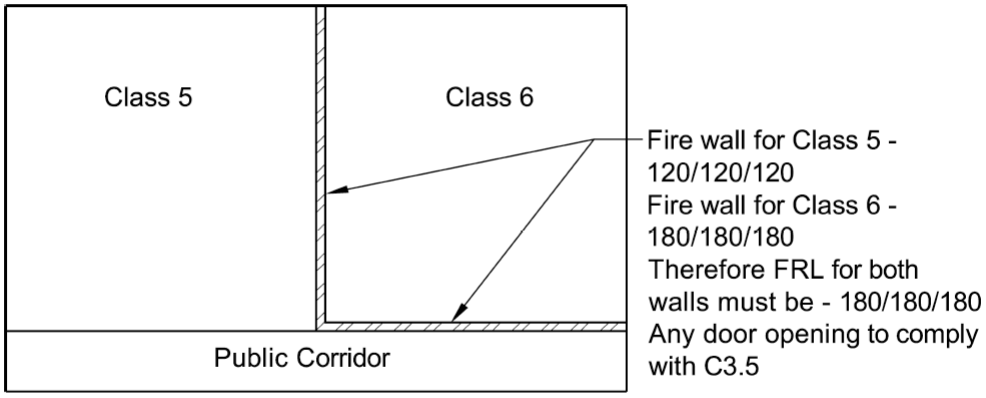
EXAMPLE OF FIRE WALL USED AS AN EXTERNAL WALL TO SEPARATE A BUILDING IN ACCORDANCE WITH C2.7(b)(iii)



Elevation

Figure C2.8(1)

EXAMPLES OF FIRE WALLS SEPARATING DIFFERENT CLASSIFICATIONS IN A BUILDING OF TYPE A CONSTRUCTION



Floor plan

(a) Bounding a public corridor

NOTE: I have been advised that a Sprinkler system will be installed

Where a sprinkler system in NOT installed "Vertical Separation" ias per below is required

Vertical Separation is required to stop fire spread from floor to floor via openings in external walls:

Vertical separation is required for this building where openings in external walls (doors/windows etc.) of the building are located above another opening of the next in below storey but only where the vertical projection is less than 450mm (e.g. offset from each other is less than 450mm) this excludes opening to internal fire isolated stairwells which get a concession.

From looking at the elevations, the building appears to have openings above openings which will require separation/ protection in accordance with one of the below methods.

The balconies will require 450mm extension beyond openings per below diagrams, the architect will need design the below requirements accordingly into the building

Where the above applies separation is required by:

A spandrel or curtain wall which;

(A) is not less than 900 mm in height; and

(B) extends not less than 600 mm above the upper surface of the intervening floor; and

(C) is of non-combustible material having an FRL of not less than 60/60/60

OR

A slab or horizontal construction (such as balcony) that;

(A) Projects outwards from the external face of the wall not less than 1100mm and extends along the wall not less than 450mm beyond openings concerned and is non-combustible achieving an FRL of 60/60/60

See below diagrams relating to C2.6 (Vertical Separation):

Figure C2.6(1)
SECTION SHOWING USE OF SPANDREL TO SEPARATE EXTERNAL WINDOW OPENINGS

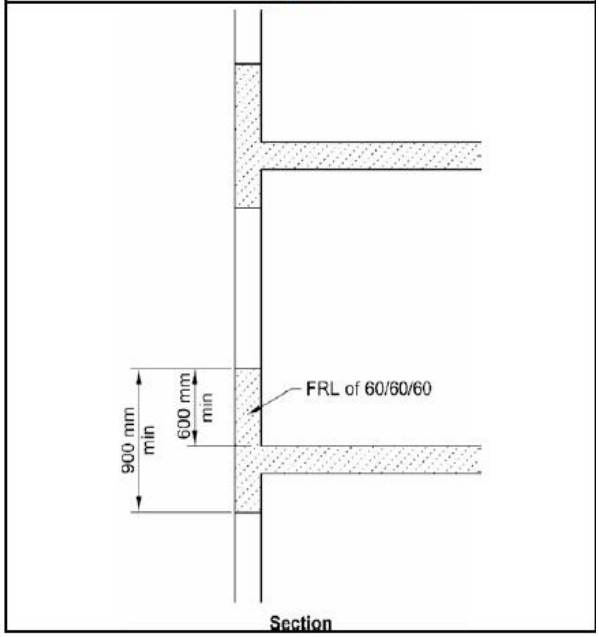
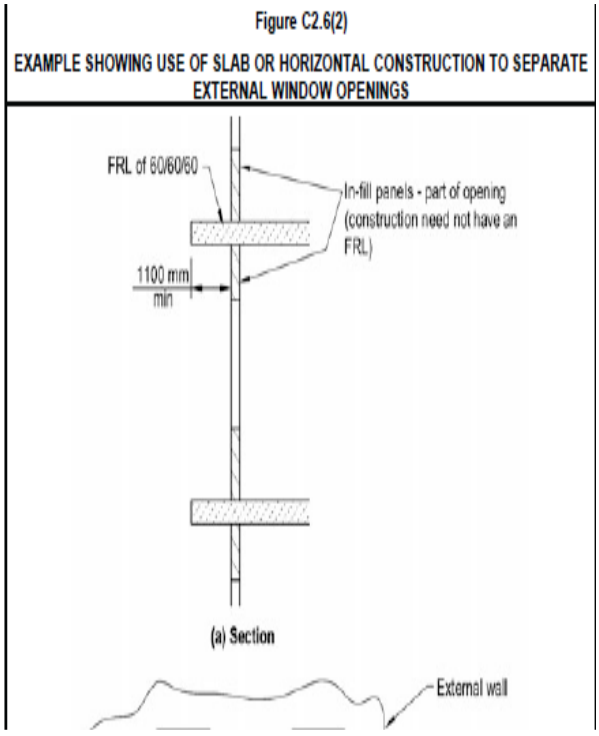
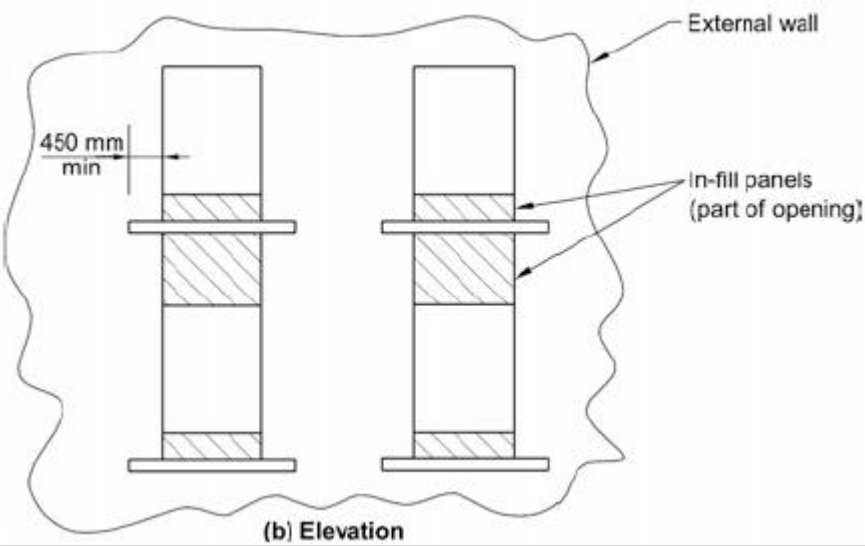


Figure C2.6(2)
EXAMPLE SHOWING USE OF SLAB OR HORIZONTAL CONSTRUCTION TO SEPARATE EXTERNAL WINDOW OPENINGS





(b) Elevation

Separation of lift shafts
(a) Any lift connecting more than 2 *storeys*, or more than 3 *storeys* if the building is sprinklered, (other than lifts which are wholly within an *atrium*) must be separated from the remainder of the building by enclosure in a *shaft* in which—

(i) in a building *required* to be of Type A construction—the walls have the relevant FRL prescribed by **this report for the level concerned**

Any electrical substations and/or main switchboards (that sustain emergency equipment) located **within** the building must be separated from any other part of the building by construction with an FRL of 120/120/120 with any openings protected with a self-closing fire door having an FRL of not less than -/120/30. Fire Hydrant/Sprinkler pump rooms located within building will also require the above FRL with access via a Fire Isolated Passageway achieving 120/120/120 with required airlocks.

Fire Safety General Provisions:

Switchboards which sustain electrical supply to emergency equipment such as fire hydrant booster pumps and occupant warning must be separated from non-emergency equipment switchgear by metal partitions to minimise spread of a fault (C2.13)

The Fire Hazard Properties required for construction materials, carpets/vinyls/internal linings, for Walls and Ceilings etc. are as follows:

- Floor materials and floor coverings: must have amaximum smoke development rate of 750 percent-minutes;

(Specification C1.10)

Table 2 CRITICAL RADIANT FLUX (CRF in kW/m ^{2}) OF FLOOR MATERIALS AND FLOOR COVERINGS

Class of building	General		Fire-isolated exits and fire control rooms
	Building not fitted with a sprinkler system complying with Specification E1.5	Building fitted with a sprinkler system complying with Specification E1.5	
Class 2, 3, 5, 6, 7, 8 or 9b, excluding— (i) Class 3 accommodation for the aged; and	2.2	1.2	2.2

Table 3 WALL AND CEILING LINING MATERIALS (Material Groups permitted)

Class of building	Fire-isolated exits and fire control rooms	Public corridors		Specific areas		Other areas
	Wall/ceiling	Wall	Ceiling	Wall	Ceiling	Wall/ceiling
Class 2 or 3						
Excluding accommodation for the aged, people with disabilities, and children						
Unsprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Sprinklered	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3
Class 3 or 9a						
Accommodation for the aged, people with a disability, children and *health-care buildings*						
Unsprinklered	1	1	1	1, 2	1, 2	1, 2, 3
Sprinklered	1	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Class 5, 6, 7, 8 or 9b *schools*						
Unsprinklered	1	1, 2	1, 2	1, 2, 3	1, 2	1, 2, 3
Sprinklered	1	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3	1, 2, 3

There are Hallways that exceen 40m in total and will need to comply with below

C2.14 Public corridors in Class 2 and 3 buildings

In a Class 2 or 3 building, a *public corridor*, if more than 40 m in length, must be divided at intervals of not more than 40 m with smoke-proof walls complying with **Clause 2 of Specification C2.5.**

5. Protection of Openings

The following openings also will require protection:

- **Openings within 3m of Southern Boundary require protection in accordance with one of the options below**

C3.4 Acceptable methods of protection

(a) Where protection is *required*, doorways, *windows* and other openings must be protected as follows:

(i) Doorways—

(A) internal or external wall-wetting sprinklers as appropriate used with doors that are *self-closing* or *automatic* closing; or

(B) –/60/30 fire doors that are *self-closing* or *automatic* closing.

(ii) *Windows*—

(A) internal or external wall-wetting sprinklers as appropriate used with *windows* that are *automatic* closing or permanently fixed in the closed position; or

Deemed-to-Satisfy Provisions

(B) –/60/– fire *windows* that are *automatic* closing or permanently fixed in the closed position; or

(C) –/60/– *automatic* closing fire shutters.

(iii) Other openings—

(A) excluding voids — internal or external wall-wetting sprinklers, as appropriate; or

(B) construction having an FRL not less than –/60/–.

(b) Fire doors, fire *windows* and fire shutters must comply with **Specification C3.4**.

- **Openings to SOU Bedroom entry doors) require a rating of -/60/30 and be self closing**
- **Openings bounding egress path on Eastern boundary require protection (see Access Egress part of report)**
- Openings within 3m from a side or rear boundary protected in accordance with C3.4
- Openings within 6m of adjacent building (where separated into Fire Compartments) protected in accordance with C3.4
- Openings in the required fire isolated stairways are to be protected by -/60/30 fire doors that are self-closing or automatic closing.
- Openings in fire isolated lift shafts are to be protected by -/60/- fire doors that operate in accordance with Part C3.10 of the BCA.
- Doors to fire exits are to have fire door signage in accordance with D2.23 and Clause 183 of the Environmental Planning and Assessment Regulation 2000.

Lift indicator panels including a lift call panel, indicator panel or other panel in the wall of the fire isolated lift shaft must be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 in area.

Fire-isolated *exits* must not be penetrated by any services other than—

(a) Electrical wiring permitted by 2.7(e) of the BCA to be installed within the *exit*; or

(b) Water supply pipes for fire services.

Penetrations of walls, floors and ceilings required to have an FRL by services are to be protected in accordance with Specification C3.15 or where a shaft is used to penetrate floor/ceilings in accordance with Specification C1.1 of the BCA. (i.e. (3). Fire Resisting Construction in this report with openings achieving -/60/30

Openings in walls of shafts providing access to ventilating, pipe, garbage or other services shaft must be protected by the relevant methods below;

(a) if it is in a sanitary compartment — a door or panel which, together with its frame, is non-combustible or has an FRL of not less than –/30/30; or

(b) a self-closing –/60/30 fire door or hopper; or

(c) an access panel having an FRL of not less than –/60/30; or

(d) if the *shaft* is a garbage shaft — a door or hopper of non-combustible construction.

6. Access and Egress

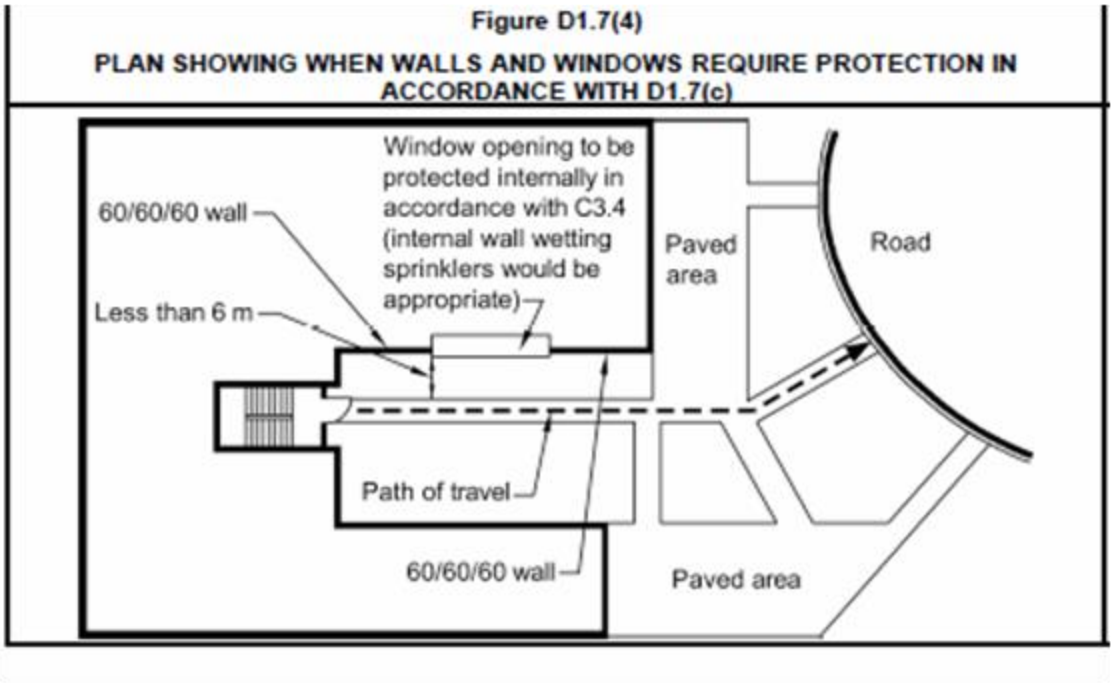
Plans provided show the following non-compliances:

(1) There is Tunnel (that used to connect police station and courthouse) located on lower level which exceeds max travel distance allowed in the event of a fire and also discharges within building. I have been advised that it will be decomissioned with possible access restriction to part.

(2) The required exit stair from storage level has an existing stairway that does not comply with exit width, Slope Relationship (Steepness), or balustrade minimum heights. See Stairways and Balustrade section of report for compliance requirements)

(3) The stairway serving Storage level in existing building is not fire isolated and connects 3 levels (however where the building is to be Sprinkler protected as suggested by Architect, this does not require fire isolation) and will comply subject to compliant sprinkler system being installed.

(4) Balustrade to Gallery overlooking court does not comply (see Stairways and Balustrades) section of report



D2.24 Protection of openable windows (to ALL bedrooms)

(a) A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in—

(i) in all bedrooms of this building

(b) Where the lowest level of the window opening is less than 1.7 m above the floor, a window opening covered by (a) must comply with the following:

(i) The openable portion of the window must be protected with—

(A) a device capable of restricting the window opening; or
(B) a screen with secure fittings.

(ii) A device or screen required by (i) must—

(A) not permit a 125 mm sphere to pass through the window opening or screen; and
(B) resist an outward horizontal action of 250 N against the—

(aa) window restrained by a device; or
(bb) screen protecting the opening; and

(C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.

(c) A barrier with a height not less than 865 mm above the floor is required to an openable window—

(i) in addition to window protection, when a child resistant release mechanism is required by (b)(ii)(C); and

(ii) where the floor below the window is 4 m or more above the surface beneath if the window is not covered by (a).

(d) A barrier covered by (c) must not—

(i) permit a 125 mm sphere to pass through it; and
(ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.

D1.17 Access to lift pits

Access to lift pits must—

(a) where the pit depth is not more than 3 m, be through the lowest landing doors; or
(b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following:
(i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii).

(ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer.

(iii) Access to the doorway must be by a stairway complying with AS 1657.

(iv) In lieu of D2.21, doors fitted to the doorway must be—

(A) of the horizontal sliding or outwards opening hinged type; and

(B) self-closing and self-locking from the outside; and
(C) marked on the landing side with the letters not less than 35 mm high:

'DANGER LIFTWELL ' ENTRY OF UNAUTHORIZED PERSONS PROHIBITED ' KEEP CLEAR AT ALL TIMES'

General requirement for all doors

ALL doors must be readily openable without a key from the side that faces a person seeking egress by a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor.

(D2.21)

Installations in exits and paths of travel - Services or equipment comprising:

Electricity meters, distribution boards or ducts, telecommunication distribution boards, electrical motors, or any other motors or equipment may be installed in paths of travel to an exit if enclosed by non-construction or construction with a fire protective covering with doorways suitable sealed against smoke spread.

7. Statutory required Fire Safety Measures (DRAFT)

Emergency lighting complying with AS 2293.1 is required in any room or space to which there is public access in every storey of the building. (E4.2(f))

Emergency lighting complying with AS 2293.1 must be installed in every passageway or corridor that is part of the path of travel to an exit, any room with a floor area more than 100m² that does not open to a corridor or space that has emergency lighting or to a road or open space, i.e. and any room that has a floor area more than 300m² (E4.2(b))

As per recent changes braille exit signage is required to be provided for each exit door to comply with D3.6 (a)(ii) of BCA.

Emergency lighting complying with AS 2293.1 must also be installed in all exit stairways. (E4.2)

Exit signs complying with AS 2293.1 are required over exit doors and in appropriate positions in corridors, hallways and the like indicating the direction to a required exit where exits are not readily apparent to persons occupying or visiting the building. In particular and dependant on egress path chosen from areas on all levels and carpark, directional signage will be required to direct people egressing to at least 2 exits to road or open space. (E4.5, E4.6)

The proposed building requires the provision of the following fire fighting equipment:

- Fire hydrants(entire building) and fire hose reels(basement non classroom use remainder)

(Part E1)

Portable Fire Extinguishers must be provided

in the residential part of the building and must be—

(i) an ABE type fire extinguisher; and

(ii) a minimum size of 2.5 kg; and

(iii) distributed outside a sole-occupancy unit

(A) to serve only the storey at which they are located; and

(B) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10 m.

Fire hydrants must be provided to the building in accordance with AS 2419.1. On-site hydrants have coverage of 70m and if external must not be located closer than 10 m to a building unless shielded by fire-rated construction. (E1.3)

NOTE: As per the changes to the BCA for 2014, Fire hose reels are not required for residential levels, however are required for basement level and must be provided in accordance with AS 2441 and located internally or externally to achieve the system coverage of 40m. Hose reels must be located adjacent to an internal hydrant (but not within fire isolated exit) or within 4m of an exit and additional hose reels may be located in paths of travel to an exit to achieve the required coverage. A hydraulic consultant will be required to design the hose reel systems.

(E1.4)

Automatic smoke detection and alarm systems must be provided in accordance with Specification E2.2a of the BCA, which includes occupant warning systems (Tables E2.2a)

The carpark level is to be provided with mechanical ventilation system in accordance with AS 1668.2 or a system of natural ventilation complying with Section 4 of AS1668.4

A stretcher lift must be provided to comply with BCA E3.2.

Details of Fire Hydrant / Sprinkler Booster system and location will require design by Hydraulic Consultant

Essential Fire and Other Safety Measures	Standard of Performance
Access panels, doors and hoppers to fire resisting shaft	BCA Clause C3.13
Automatic Fail Safe Devices	BCA Clause D2.21
Automatic Fire Detection and Alarm System	BCA Spec. E2.2a and AS 1670-2015
Automatic Fire Suppression System (sprinklers) AS SUGGESTED BY DESIGNER	BCA Spec. E1.5 and AS 2118.1-1999
Emergency Lighting	BCA Clauses E4.2/E4.4 & AS/NZS 2293.1-2005
Exit Signs	BCA Clauses E4.5/NSW E4.6/E4.7/E4.8 and AS/NZS 2293.1-2005
Fire Dampers	AS/NZS 1668.1-1998, AS 1682.1-1991
Fire Doors	BCA Spec. C3.4 & BCA Clauses C2.12, C2.13, C3.4, C3.5, C3.6, C3.7, C3.8, C3.10, D2.8, Spec E1.8 and AS1905.1-2005
Fire Hydrant Systems	BCA Clause E1.3 & AS 2419.1-2005
Fire Seals (protecting openings in fire resisting components of the building)	BCA Clause C3.15
Fire Shutters	BCA Spec. C3.4
Fire Windows	BCA Spec. C3.4
Hose Reel System	BCA Clause E1.4 & AS 2441-2005
Lightweight Construction	BCA Clause C1.8 and BCA Spec. C1.8
Mechanical Air Handling Systems 1. Auto-shutdown of Air-handling System. 2. Mechanical Ventilation to Carpark.	BCA Clauses E2.2a & b, F4.12 and AS/NZS 1668.1-1998
Openings in Fire-isolated Lift Shafts	BCA Clause C3.10 and AS 1735.11-1986
Path of Travel for stairways, passageway and ramps	EP&A Reg. 2000 Clauses 184-186
Portable Fire Extinguishers	BCA Clause E1.6 and AS 2444-2001
Smoke Detectors and Heat Detectors (Where auto shutdown is proposed and if required in kitchen)	BCA Spec. E2.2 and AS 3786-1993
Wall Wetting Drencher Systems	BCA Clause C3.4 and AS 2118.2-1995
Warning and Operational Signs	BCA C3.6 (Sliding Fire Doors) D2.23 (Signs on Fire Doors) E3.3 (Lift Sign), EPA Regs 2000, Clause 183

8. Stairways and balustrades (includes existing stairs)

All stairways must have an unobstructed width between handrails of 1m.

Stair construction is to comply with BCA D2.13, D2.16 and D2.17 including riser and going dimensions, slope relationship, construction of landings and handrails. Stairs to have Risers: max 190 min 115; Goings: max 355 min 240; Slope Relationship (2R +G) max 700 min 550. Each flight must have not more than 18 nor less than 2 risers. The riser opening must not allow a 125 mm sphere to pass through between treads. Landings are to be not less than 750 mm long.

Non- Compliance - Some existing stairs do not comply with this requirement

All treads of ALL stairways must have —

Conspicuous edges to the treads of steps, and

(A) a Luminous contrasting nosing (includes fire isolated stairways); and

(B) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; OR

(B) a nosing strip with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586

All landings of ALL stairways must have —

(A) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; OR

(B) a strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586, where the edge leads to a flight below.

The balustrades to landings, decks, balconies and the like must have a height of not less than 1 m above finished surfaces. All balustrades must have openings that do not permit a 125 mm sphere to pass through it and for stairs, the space is tested above the nosing line. Balustrades must also comply with Part B of the BCA in terms resistance to impact, forces and the like.

For balustrades and windows more than 4 m above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing.

Non- Compliance - Some existing stairs do not comply with this requirement

9. Sanitary and Other Facilities

Fully enclosed sanitary compartments must have doors that open outwards, slide or are readily removable from outside of the sanitary compartment unless there is a clear space of at least 1.2m between the door hinge and the closet pan. Plans are not fully dimensioned and this requirement may apply to some SOU's which have inward swinging doors

(F2.5)

10. Light and Ventilation

The plans of the proposed building work show details of windows and other openings that provide natural lighting and ventilation to comply with BCA requirements.

Lighting and Ventilation to the Basement/ Carpark, Commercial levels will need to be designed to comply with BCA Part F. Mechanical ventilation will be required to satisfy this part.

Sanitary compartments without openable windows will require mechanical ventilation.

(Part F4)

Artificial lighting is to comply with AS/NZS 1680.0. (F4.4)

11. Sound Insulation

Note: Architectural plans should detail tested system no. for forms of construction in relation to building elements below.

F5.4 Sound insulation rating of floors

(a) A floor in a Class 2 or 3 (STUDENT ACCOMMODATION) building must have an Rw + Ctr (airborne) not less than 50 and an Ln,w + CI (impact) not more than 62 if it separates—

(i) sole-occupancy units; or

(ii) a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification.

F5.5 Sound insulation rating of walls

(a) Walls in residential parts of building must—

(i) have an Rw + Ctr (airborne) not less than 50, where it separates sole-occupancy units; and

(ii) have an Rw (airborne) not less than 50, if it separates a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like, or parts of a different classification; and

(iii) comply with F5.3(b) if it separates—

(A) a bathroom, sanitary compartment, laundry or kitchen in one sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or

(B) a sole-occupancy unit from a plant room or lift shaft.

Where a wall required to have sound insulation has a floor above, the wall must continue to—
(i) the underside of the floor above; or

(ii) a ceiling that provides the sound insulation required for the wall.

(f) Where a wall required to have sound insulation has a roof above, the wall must continue to—

(i) the underside of the roof above; or

(ii) a ceiling that provides the sound insulation required for the wall.

NOTE: For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and

(i) for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and
(ii) for other than masonry, there is no mechanical linkage between leaves except at the periphery.

F5.6 Sound insulation rating of internal services

(a) If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole-occupancy unit, the duct or pipe must be separated from the rooms of any sole-occupancy unit by construction with an Rw + Ctr (airborne) not less than—

(i) 40 if the adjacent room is a habitable room (other than a kitchen); or

(ii) 25 if the adjacent room is a kitchen or non- habitable room.

(b) If a storm water pipe passes through a sole-occupancy unit it must be separated in accordance with (a)(i) and (ii).

F5.7 Sound isolation of pumps

A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump

12. Energy Efficiency

This will need to be assessed by an energy efficiency consultant to comply with Section J of the BCA.

13. Access for people with a disability

Note: An access consultant would need to be engaged to provide detailed design advice and input for complying construction for existing and proposed

15. Conclusion

There a few BCA DTS non-compliances and other items requiring further verification that have been identified in the report, and those that will bee eaddreesseed with a Firee Eengineeeeered Solution, however, other than the non-compliances noted in this report the design can readily incorporate the other requirements listed in this report. It is suggested that where details cannot be provided diagrammatically they are provided as notes or the like on plans and in building specifications.

Scott O'Donohue
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Addendum Attached – Architectural Plans

Rev	Drawing No.	Title of Drawing
(Diagram & Information)		
0	A – 000	Drawing List
0	A – 001	Project Summary
0	A – 002	Perspective – 1
0	A – 003	Perspective – 2
0	A – 004	Perspective – 3
0	A – 005	Perspective – 4
0	A – 006	Perspective – 5
0	A – 007	Perspective – 6
0	A – 008	Conservation Plan
0	A – 009	Demolition Plan
0	A – 010	Conversion Plan
0	A – 011	Design Option Studies – 1
0	A – 012	Design Option Studies - 2
(General)		
0	A – 101	Car Circulation Diagram
0	A – 102	Site Analysis Plan
0	A – 103	North East Perspective
0	A – 104	North West Perspective
0	A – 105	South East/South West Perspective
0	A – 106	Aerial Perspective
0	A – 107	Site Plan
0	A – 108	1st Floor Plan
0	A – 109	2nd Floor Plan
0	A – 110	3rd Floor Plan
0	A – 111	4th Floor Plan
0	A – 112	Roof Floor Plan
0	A – 113	Existing Elevation
0	A – 114	North & South Elevations
0	A – 115	East & West Elevations
0	A – 116	Courthouse Elsevations & Section
0	A – 117	Sections – 1
0	A – 118	Sections – 2
0	A – 119	Amenity Planning
0	A – 120	Shadow Diagram_Shadow by Neighbours

0	A – 121	Shadow Diagram_Shadow by Campus

0	A – 122	Sunlight Analysis
0	A - 123	Notification Plan
C	LP – 01	Cover Sheet
C	LP – 02	Site Analysis
C	LP – 03	Site Photography
C	LP – 04	Design Statement
C	LP – 05	Landscape Plan 1st Floor
C	LP – 06	Landscape Plan 4th Floor + Street Elevation
C	LP – 07	Planting & Theming Palette
1	C[- 100	Cover Sheet
1	C[- 120	Stormwater Management Plan
1	C[- 125	Typical Sections and Details
1	C[- 130	Erosion & Sediment Control Plan & Details
A	S – 1	Survey Information – 1
A	S – 2	Survey Information – 2