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National Construction Code (BCA) 2011
Initial Assessment Report

Eastlakes Town Centre
Gardeners Road, Sydney, NSW, 2018

- Mixed-Use Retail & Residential Development

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DATE	ISSUE	STATUS	PREPARED BY	REVIEWED BY
10/04/2012	*1*	*Preliminary*	*AM*	*IB*
26/04/2012	*2*	*Pre-Final*	*AM*	*IB*
05/07/2012	*3*	*Final*	*AM*	*IB*

1.0 INTRODUCTION

In accordance with your instruction, we have undertaken an assessment of the proposed mixed-use retail and residential development under the National Construction Code (BCA 2011) prior the submission of a Project Application with NSW Department of Planning & Infrastructure.

The development consists of two levels of basement car-parking, ground floor level for retail use and a further two to eight levels of residential use above, over a number of buildings.

1.1 REFERENCED DOCUMENTS

The following documentation was reviewed in the preparation of the attached report:

- Architectural drawings: Project 11001 prepared by Rice Daubney;

Drawing No's:

- *DA01 – Existing Site Survey Plan*
- *DA02 Rev D – Site Plan*
- *DA03 Rev E – Basement Level 2 Plan*
- *DA04 Rev E – Basement Level 1 Plan*
- *DA05 Rev E – Ground Floor Plan*
- *DA06 Rev E – Level 1 Plan*
- *DA07 Rev E – Level 2 Plan*
- *DA08 Rev E – Level 3 Plan*
- *DA09 Rev E – Level 4 Plan*
- *DA10 Rev E – Level 5 Plan*
- *DA11 Rev E – Level 6 Plan*
- *DA12 Rev E – Level 7 Plan*
- *DA13 Rev E – Level 8 Plan*
- *DA14 Rev A – Roof*
- *DA22 Rev D – North & West Elevations*
- *DA23 Rev D – South & East Elevations*
- *DA24 Rev D – East & South Elevations*
- *DA25 Rev D – North & West Elevations*

- National Construction Code Volume 1, Building Code of Australia 2011
- Guide to the Building Code of Australia 2011
- Environmental Planning and Assessment Act 1979.
- Environmental Planning and Assessment Regulation 2000.

1.2 LIMITATIONS

- This report is a preliminary review of the above referenced documents with the aim of listing only BCA non-compliances at this stage.
- **This report comprises of an assessment against the BCA 2011, being the version of the BCA in force at the time of the assessment.** Notwithstanding this, the building will be subject to compliance with the version of the BCA in force at the time of the receipt of the application for Construction Certificate, and should be re-assessed against this version of the BCA where necessary.
- No assessment has been undertaken with respect to the Disability Discrimination Act 1992 (DDA). The building owner should be satisfied that their obligations under the DDA have been addressed. In this instance, further advice should be sought from an access consultant where required.
- No assessment has been made relative to compliance with AS4299.
- Please note under the NCC (BCA 2011), Part D3 – Access for Persons with a Disability, is not assessed within the report.
- No comment is made in regard to the structural components of the development, storm water control, mechanical, electrical, hydraulics or fire services installations.

2.0 BUILDING CHARACTERISTICS

BCA Classification:	Class 2 (Residential – Buildings 1, 1A, 1B, 2, 3, 5, 6, 6A, 6B & 7, Level 01 to Level 08) Class 3 (Serviced Apartments – Buildings 4 & 4A, Level 01 – Level 05) Class 5 (Retail Offices – Ground Floor Level) Class 6 (Retail – Ground Floor Level) Class 7a (Car-parking - Basement Levels 1 & 2) Class 7b (associated residential storage areas located in car-park areas)
Rise in Storeys:	Eight (8) subject to compliance with clause C1.2
Type of Construction:	Type A Construction
Effective Height:	**Northern Building** 21m (based upon the RL of the discharge point of the Fire Isolated Stair and the RL Level 06 of Building 01) **Southern Building** 24m (based upon the RL of the lobby and the RL of Level 07 of Building 2), subject to compliance with clause C1.2.
Floor Area	Car-park & Storage Areas: 43,475m^2 Retail/Commercial Areas: 15,960m^2 Class 2 Residential: 34,052m^2 Class 3 Serviced Apartments: 6,266m^2

3.0 SUMMARY OF COMPLIANCE ISSUES

3.1 SECTION B – STRUCTURE

1. Structural Engineers Design details and Certification will be required for the Construction Certificate stage to detail compliance to Part B1 – Structural provisions of the BCA and AS1170.

3.2 SECTION C – FIRE RESISTANCE

2. C1.2: Calculation of Rise in Storeys

The rise in storeys is the sum of the greatest number of storeys above the finished ground level at any part of the external walls of the building and any storeys within the roof space.

For the purposes of calculating the rise in storeys of a building:

A mezzanine is regarded as a storey in that part of the building in which it is situated if its floor area is more than 200 m2 or more than 1/3 of the floor area of the room, whichever is the lesser.

The Mezzanine Level in Unit R2-9s, Building 7 will be required to comply with this clause.

3. C2.2: General Floor Area and Volume Limitations

The size of any fire compartment in a Class 6 or 7 part must not exceed the Floor Area and Volume limitations detailed under Table C2.2. In this regard, the Floor Area and Volume limitations for Type A Construction is 5,000m^2 and 30,000m^3. The Basement car-park levels are considered one fire compartment that appears to exceed the maximum floor area requirements of Table C2.2.

The installation of a sprinkler system to Spec E1.5 to the Basement Levels is proposed therefore the requirements of Table C2.2 do not apply.

The Class 2 & 3 Residential units from Ground Level to Level 08 are required to be fire-separated individual fire compartments. Each sole-occupancy residential unit is considered a separate fire compartment.

4. C2.6: Vertical Separation of Openings in External Walls

Windows and other openings above each other in different storeys require spandrel separation of not less than 900mm in height, achieving an FRL of 60/60/60 or the protection by balconies that extend not less than 1.1m horizontally and 450mm to either side of the opening.

Capable of complying.

5. C2.7: Separation by Fire Walls

Where fire walls are proposed they are required to have an FRL as described below under Specification C1.1. In addition, any openings in the fire walls are required to be treated in accordance with Part C3 (Fire seals/Fire Doors etc). Furthermore, fire walls must extend from floor to slab or from floor to the roof covering.

Capable of complying, where required by Clause C2.2 & Clause C2.8.

6. C2.8 Separation of Classifications in the Same Storey

Different classifications in the same storey are required to be either fire-separated by fire walls achieving the higher FRL or the whole storey is required to have the higher FRL to all building elements as per the Table Spec C1.1 of the BCA.

Capable of complying subject to Clause C2.7.

7. C2.9: Separation of Classifications in Different Storeys

Where different classifications are situated one above the other in different storeys, they must be separated by floors having an FRL prescribed under Specification C1.1 below for the classification of the lower storey.

Capable of complying subject to Table 3 of Specification C1.1.

8. C2.10 Separation of Lift Shafts

Given the proposed lifts connect more than 2 storeys, they are required to be located in a shaft having an FRL prescribed under Specification C1.1.

Capable of complying.

9. C2.11: Stairways and Lifts in One Shaft

Under this clause a stairway and lift must not be located in the same shaft if either the stair or lift are required to have an FRL.

Compliance appears to be achieved.

10. C2.12: Separation of Equipment

Where it is proposed to install lift motor rooms, emergency generators, boilers or battery rooms they are required to be separated by construction achieving an FRL of 120/120/120. Any doorways into such rooms are required to be self-closing Fire Doors requiring an FRL of -/120/30.

Capable of complying.

11. C2.13: Separation of Equipment

The proposed electricity substation and the main electrical switch rooms (sustaining equipment operating in emergency mode) are required to be enclosed in construction achieving an FRL of 120/120/120 and any door to such rooms must be a self-closing -/120/30 Fire Door. This may be applicable to separate switch boards which supply emergency equipment to Hydrant booster pumps, Sprinkler pumps, Smoke Control Systems, Emergency Lifts and Sounds and Intercom Systems.

Capable of complying.

12. C2.14: Public Corridors in Class 2 and 3 Buildings

In a Class 2 or 3 building, a public corridor, if more than 40m in length, must be divided at intervals of not more than 40 in length by smoke proof walls.

Capable of complying.

13. C3.2: Protection of Openings in External Walls

Under this clause, any openings in the external wall of the building that are within three metres of a side or rear boundary of the allotment, or six metres from the far boundary of a road are required to be protected in accordance with C3.4 of the BCA.

Capable of complying.

14. C3.3 Separation of External Walls & Associated Openings in Different Fire Compartments

This will apply where fire walls are provided to separate fire compartments to the Retail parts and would require protection to openings in external walls of fire compartments that oppose another fire compartment at Ground Level. This will also be subject to compliance to the outcome of Clause C2.2 above, where Retail fire compartments will be required to be comply with area and volume limitations.

Capable of complying.

15. C3.5: Doorways in Fire Walls

Subject to the outcome of C2.2 and C2.8 above, compliance of this clause may be required.

Capable of complying.

16. C3.8: Openings in Fire Isolated Exits

The doors to the fire-isolated exits and passageways are required to be protected by -/60/30 self-closing Fire Doors. In addition, any window in an external wall of a fire-isolated exit must be protected in accordance with C3.4 if it is within six metres of, and exposed to, a window or other opening in a wall of the same building other than the same fire-isolated enclosure.

No window openings were observed in Fire Isolated Stairs, where applicable please provide confirmation of compliance with the above requirements.

Compliance with door openings can be readily achieved.

17. C3.10: Openings in Fire Isolated Lift Shafts

The lift shafts are required to be protected by -/60/- Fire Doors that comply with AS 1735.11.

18. C3.11: Bounding Construction

The doors to the Residential sole occupancy units are required to be self-closing -/60/30 Fire Doors.

19. C3.12: Openings for Floors & Ceilings for Services

Services throughout the building passing through each storey are required to be protected within a shaft, achieving a FRL as detailed to Spec. C1.1 or in accordance with Clause C3.15.

20. C3.15: Openings for Service Installations

Where service installations penetrate floors or walls required to have an FRL, they are to be protected by fire seals (Fire Collars/Fire Stopping) that comply with Specification C3.15. Where a Mechanical Ventilation System penetrates floors, Fire Dampers are required to be provided in accordance with AS 1668.1 or the provision of a shaft as per Spec. C1.1.

21. Specification C1.1: Fire Resisting Construction (*FSF: Fire Source Feature)

The proposed building elements are required to comply with Table 3 of Specification C1.1 for Type A Construction. In this regard, the following FRL's generally apply:

Class 2 & 3 Residential/Serviced Apartments

External Walls (Load bearing)	
Less than 1.5m (FSF):	*90/90/90*
1.5m to less than 3m (FSF):	*90/60/60*
3m or more (FSF):	*90/60/30*
External Walls (Non-load bearing)	
Less than 1.5m (FSF):	*- /90/90*
1.5m to less than 3m (FSF):	*- /60/60*
3m or more (FSF):	*No FRL*
Fire Walls:	*90/90/90*
Lift and Stair Shafts:	*90/90/90*
Walls Separating Units and Corridors:	*90/90/90 or - /60/60*
Service Shafts :	*- /90/90*
Internal Walls/Columns/Beams:	*90/ - / -*
Floors:	*90/90/90*
Roof:	*90/60/30*

Your attention is drawn to other concessions that may be applicable under Spec C1.1 of the BCA.

Class 5 & 7a Office/Car-park

External Walls (Less than 3m to FSF):	*120/120/120*
Internal Walls/Columns/Beams:	*120/ - / -*
Floors and Ramps:	*120/120/120*
Lift and Stair Shaft:	*120/120/120*
Fire Walls:	*120/120/120*

Class 6 Retail

External Walls (Load bearing):	
Less than 1.5m (FSF):	*180/180/180*
1.5m to less than 3m (FSF):	*180/180/120*
3m or more (FSF):	*180/120/90*
External Walls (Non-load bearing):	
Less than 1.5m (FSF):	*- /180/180*
1.5m to less than 3m (FSF):	*- /180/120*
3m or more (FSF):	*No FRL*
Fire Walls:	*180/180/180*
Lift and Stair Shafts:	*180/120/120*
Service Shafts:	*- /120/120*
Internal Walls/Columns/Beams:	*180/ - / -*
Floors:	*180/180/180*
Roof:	*180/60/30*

Class 7b

External Walls (Load bearing)	
Less than 1.5m (FSF):	*240/240/240*
1.5m to less than 3m (FSF):	*240/240/180*
3m or more (FSF):	*240/180/ 90*
External Walls (Non-load bearing)	
Less than 1.5m (FSF):	*–/240/240*
1.5m to less than 3m (FSF):	*–/240/180*
3m or more (FSF):	*–/–/–*
Fire Walls:	*240/240/240*
Lift and Stair Shafts:	
Loadbearing	*240/120/120*
Non-Loadbearing	*–/120/120*
Walls Separating Units and Corridors:	
Loadbearing	*240/–/–*
Non-Loadbearing	*–/–/–*
Service Shafts	
Loadbearing	*240/120/120*
Non-Loadbearing	*–/120/120*
Internal Walls/Columns/Beams:	*240/–/–*
Floors:	*240/240/240*
Roof:	*240/ 90/ 60*

3.3 SECTION D – ACCESS AND EGRESS

22. D1.2: Number of Exits Required

As the effective height of the buildings is less than 25 metres, each storey is required to be served by a minimum of one exit for the purposes of this clause. The basement car-park is required to be provided with two exits per storey.

Capable of complying.

23. D1.3: When Fire isolated Stairways are Required

All stairs serving the residential parts of 3 consecutive storeys or more are required to be fire-isolated under this clause.

The stairs serving the car-park are not required to be fire-isolated but for egress distance purposes all stairs have been proposed as Fire Isolated.

24. D1.4: Exit Travel Distances

The doorway of any residential sole occupancy unit is required to be within 6 metres of an exit or a point of choice to two alternative exits.

All sole occupancy units appear to be compliant.

In the basement car-park and retail levels, all points on the floor are required to be within 20 metres to an exit or a point of choice of two or more exits. Where there is a point of choice of two exits, all points on the floor are required to be within 40 metres to one of the exits.

Capable of complying subject to an Alternative Solution prepared by an Accredited C10 Fire Engineer.

Note 1: Further details showing the location of all exits and paths of travel to exits are to be provided at Certification stage.

Note 2: Our assessment does not have regard to the future fit-out of the retail tenancies and therefore the exit travel distances are likely to be increased.

25. D1.5: Distances Between Alternative Exits

The distance between alternative exits on the residential floors must not exceed 45m.

The distance between alternative exits to the basement car park and retail levels are required to be not more than 60m apart.

Compliance appears to be achieved.

26. D1.6: Dimensions of Exits

Under this clause, the unobstructed height in a required exit or a path of travel to an exit must not exceed 2m, except doorways which may be not less than 1980mm. In addition, the unobstructed width of an exit, or a path of travel to an exit must not be not less than 1 metre. Please note that doors may be 750mm (or 850mm for disabled access requirements).

We have considered the required exit widths in the table below having regards to the car park, retails/commercial levels.

Population	No. of Persons	Required Exit Width	Proposed Exit Width	Complies Yes/No
Basement Car park Levels (North)	**180 per floor**	**2m**	**4m (4 x 1m)**	**Yes**

Basement Car park Levels (South)	**480 per floor**	**4.5m**	**9m (9 x 1m)**	**Yes**
Commercial/Retail Floor	**TBA**	**TBA**	**TBA**	**TBA**

Further details are to be provided having regards to the location and width of exit doors to commercial units.

Note 1: The population was calculated under Table D1.13, the actual occupancy numbers may be considered less.

Note 2: Doorways may be 250mm less than the required exit width.

27. D1.7: Travel via Fire Isolated Exits

A doorway from a room must not open directly into a stairway that is required to be fire isolated unless it is from a public corridor/lobby, or a sole occupancy unit occupying all of a storey or a sanitary compartment, airlock or the like.

Hydrant pump rooms and sprinkler valve rooms must not open directly into a Fire Isolated Stair.

In addition, each fire isolated stairway must provide independent egress from each storey served and discharge directly to a road or open space. Alternatively, the fire isolated exits may discharge into a 'covered area' that adjoins a road or open space that is open for 1/3 of its perimeter and has an unobstructed clear height throughout of not less than 3 metres, and is within 6 metres of a road or open space.

Capable of complying.

The path of travel discharging from a Fire Isolated Exit must necessitate passing an external wall of the same building unless, the wall has an FRL of 60/60/60 or any openings are protected internally in accordance with Clause C3.4 of the BCA.

It would appear that the discharge points for certain fire isolated stairs are bounded by unprotected openings of Retail tenancies. Where required, protection methods mentioned in Clause C3.4 will be required

28. D1.8: External Stairway or ramps in lieu of fire isolated exits

Considering no building has an effective height greater than 25 metres, external stairway or ramps may be used in lieu of fire isolated exits. It is understood that an external or partially open stairway may be proposed for Levels GF & 1 of Building 2.

It is recommended that an Accredited Fire Engineer reviews the design of the proposed stairway.

29. D1.9: Travel by non-fire isolated stairways or ramps

Five non-fire isolated fire stairs have been initially identified serving Buildings 1b & 5 and appear to comply with this clause.

30. D1.10: Discharge from Exits

All exit paths to open space are required to be 1m in width and bollards will be required to exit doors that could be blocked by vehicles on the basement car parking levels.

31. D2.2: Fire Isolated Stairways and Ramps

The fire isolated stairways are to be constructed of non-combustible materials and so that if there is local failure, it will not cause structural damage to, or impair the fire resistance of the shaft. Details and design certification are to be provided by the Structural Engineer for the Certification stage.

32. D2.4 Separation of Rising and Descending Stair Flights

The fire-isolated stair exits must have no direct connection between a flight rising from a storey below and a flight descending from a storey above at the level of access to a road or open space.

All stairs appear to be compliant.

33. D2.7: Installations in Exits and Path of Travel

Services or equipment comprising electricity meters, distribution boards, central telecommunication distribution boards/equipment, electrical motors or other motors serving equipment in the building, can be installed in a corridor or the like, leading to a required exit if the services or equipment are enclosed with non-combustible construction or appropriate fire-protection covering and doorways suitably sealed against smoke spread from the enclosure.

34. D2.11: Fire isolated passageways

Fire-isolated passageways serving fire stairs at the level of egress to a road or open space are required to achieve the same FRL as the Fire Stairs and be fully enclosed.

35. D2.13/D2.14/D2.15/D2.16 & D2.17: Stairs, Balustrades and Handrails

The proposed treads and risers, landings, door thresholds, balustrades and handrails are required to comply with the requirements of the applicable sections as stated. All balustrades are required to be 1m high to landings, floors and Residential balconies, and 865mm to the stairs. All balustrades are required to have no openings that could permit a 125mm sphere and no climbable elements where the drop below is 4m measured to the Ground Floor level. Note concessions for fire-isolated stair balustrades for use of emergency purposes only.

Provide confirmation that any operable louvers to enclosed balconies (if acting as the balustrades) are non-climbable. If separate balustrades are provided behind, please confirm compliance with D2.16 of the BCA.

36. D2.19: Doorways & Doors

If auto-sliding exit doors are proposed to the retail level or in the lobby, they are required to be openable under a force of not more than 110N and open automatically on power failure and fire trip and lead directly to the road/open space.

37. D2.20: Swinging Doors

A swinging door forming part of an exit must not encroach more at any part of its swing by more than 500mm on the required width of a stairway, ramp or passageway.

Exit doors are required to swing in the direction of egress. Note: Where a building or part is less than 200m^2 and it is the only required exit from this part of the building, it may swing inwards provided it is fitted with a hold open device (i.e. the lobby).

Details are to be provided for the retail levels where they are pending.

38. D2.21: Operation of Latch

A door in a required exit or in a path of travel to an exit must be readily openable from the side facing a person seeking egress, by a single hand downward action or pushing action on a device located between 900mm and 1100mm above finished floor level.

39. D2.22: Re-entry from Fire-Isolated Exits

Doors of a fire isolated exit may be locked from the inside as no Building is more than 25m in effective height unless the clause provisions of (b) apply.

40. D2.23: Signs on Doors

Signs are to be installed on Fire Doors to fire isolated exits on the side facing a person seeking egress. “FIRE DOOR - DO NOT OBSRUCT, DO NOT KEEP OPEN”. In addition the doors discharging from the fire isolated exits are to have signage located on the outside of the doors that states “FIRE SAFETY DOOR – DO NOT OBSRUCT”.

3.4 SECTION E – SERVICES AND EQUIPMENT

41. E1.3: Fire Hydrants

The proposed building is required to be served by a Fire Hydrant system complying with AS 2419.1 - 2005. Details and design certification are required from the Hydraulic Consultant for the Certification stage.

A hydrant booster assembly is required to be positioned strictly in accordance with clause 7.3 of the above standard and pump set/room to comply accordingly.

Please provide details confirming compliance.

42. E1.4: Fire Hose Reels

The proposed building is required to be served by Fire Hose Reels complying with AS 2441 – 2005. Hose reels are required to be located externally, internally within 4 metres of an exit, or internally adjacent to a fire hydrant (other than one within a fire isolated exit). Details are required from the Hydraulic Consultant for the Certification stage.

43. E1.5: Sprinklers

Given the proposed Southern Building is more than 25m in Effective Height **unless otherwise determined by an Accredited Fire Engineer.** It is required to be provided with a sprinkler system complying with Spec E1.5 and AS 2118.1. Details and design certification are required from the Hydraulic Consultant for the Certification stage.

Note: Sprinkler Valve enclosures must be located in a secure enclosure which has direct egress to a road or open space for use by the Fire Brigade, in addition a building occupant warning system is required connected to the sprinkler system with a direct monitoring link to the Fire Brigade.

The proposed location appears not to comply but is capable of complying where an Alternative Solution is prepared by a Fire Engineer.

44. E1.6: Portable Fire Extinguishers

Portable Fire Extinguishers in accordance with this clause and AS 2444 are required to Emergency Switch Room locations and any commercial kitchens associated with any potential Retail use.

45. E1.8: Fire Control Centres

A fire control centre is required to be provided in accordance with Spec E1.8 as the Southern building has a Class 6 & 7 fire compartment greater than 18,000m^2 and is more than 25m in Effective Height.

Please confirm the size of the Northern Buildings Class 6 & 7 fire compartments, where this collectively exceeds 18,000m^2, a Fire Control Centre will be required.

Please note, a Fire Control centre must not involve a change in levels of more than 300mm between any part of its floor and the associated public road or open space.

46. E2.2: Smoke Hazard Management

Any fire isolated exits/passageways having more than 2 access doors from the same storey is required to have an Automatic Air Pressurisation System to the entire exit to AS 1668.1.

The Class 2 Residential part must be provided with an Automatic Smoke Detection and Alarm System complying with Specification E2.2a.

Where the building contains Class 6 retail parts the building may be required to be provided with Zone Smoke Control System in accordance with AS 1668.1.

The Carpark basement levels are to be provided with mechanical ventilation system in accordance with AS 1668.2 and must comply with clause 5.5 of AS 1668.1 except that:

a) Fans with noted blades suitable for operation at normal temperatures may be used; and

b) The electrical power and control cabling need not be fire rated.

47. Part E3: Lift Installations

A minimum of one lift is required to be a stretcher use facility to serve all floors, having a clear space not less than 600mm wide x 2000mm long x 1400mm high.

Each lift is required to have facilities for use by persons with disabilities in accordance with AS1735 and contain fire service controls. The type of lift is required to be in accordance with Table E3.6a of the BCA and have accessible features in accordance with Table E3.6b. Please provide specific confirmation.

48. E4.2, E4.4, E4.5, E4.6, E4.8 & E4.9: Emergency Lighting & Exit Signage and Sound/Intercom systems

Emergency Lighting and Exit signage are required to be installed throughout the building in accordance with AS 2293.1 - 2005.

3.5 SECTION F – HEALTH AND AMENITY

49. F2.1: Facilities in Residential Buildings

Each residential unit would appear to have adequate facilities as per Table F2.1 of the BCA.

Where more than 10 units are provided, separate WC facilities are required at Ground Floor level for employees to service these levels. **Please confirm location.**

50. F2.3: Facilities in Class 3 to 9 Buildings

Having regards to the retail parts of the building, sanitary facilities and their locations are evident on the plans. The proposed number of sanitary facilities is required to comply with the below as per Table F2.3 of the BCA for the classification type.

North Restaurant/Cafe Space				**Calculation**
Required Facilities	**Closet pans**	**Urinals**	**Washbasins**	*Gross Floor Area 3,700m²* ***Note:*** *A 30% allowance has been for non-usable and transitional areas, such as those mentioned in (a) of BCA Clause D1.13, therefore:* ***Net Floor Area***
175 x Male	2	4	2	
175 x Female	5	N/A	3	
North Shopping Centre Space				
Required Facilities	**Closet pans**	**Urinals**	**Washbasins**	

374 x Male	1	1	1	***2590 m²*** *Café = 350 persons (350 m² @ 1m² /P) Retail = 747 persons (2,240m² @ 3m²/P)*
374 x Female	2	N/A	1	**Total Persons = 1,097**

South Restaurant/Cafe Space				**Calculation**
Required Facilities	**Closet pans**	**Urinals**	**Washbasins**	*Gross Floor Area 12,000m²* ***Note:*** *A 30% allowance has been for non-usable and transitional areas, such as those mentioned in (a) of BCA Clause D1.13, therefore:* ***Net Floor Area 8,400 m²*** *Café = 1,050 persons (1,050 m² @ 1m² /P) Retail = 2,450 persons (7,350m² @ 3m²/P)*
525 x Male	4	6	3	
525 x Female	7	N/A	4	
South Shopping Centre Space				
Required Facilities	**Closet pans**	**Urinals**	**Washbasins**	
1,225 x Male	2	2	2	
1,225 x Female	3	N/A	3	**Total Persons = 3,500**

51. F2.4: Facilities for People with Disabilities

As the building is required to be accessible a unisex sanitary compartment must be provided in accessible parts of the building in accordance with Table F2.4(a).

This table states, where sanitary compartments are provided in common areas, not less than 1 accessible unisex facility shall be provided. Therefore, the sanitary facilities are required to have a unisex accessible facility and must comply with the following:

- Contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels; and
- The circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with Table F2.4 (a) and Table F2.4 (b) must comply with the requirements of AS 1428.1.

Capable of complying subject to Access Consultant recommendations.

52. F2.5: Construction of Sanitary Compartments

Sanitary compartment facilities are required to have door and partitions that extend from floor to ceiling levels. In all other cases 1.8 metres above the floor level. Doors to a fully enclosed sanitary compartment must open outwards, or slid, or be readily removable from the outside unless there is a clear space of at least 1.2 metre between the closet pan and the nearest part of the doorway.

53. F3.1: Room Sizes

The ceiling heights within the Class 2 Residential parts of the building must be not less than 2.4 metre in habitable rooms and not less than 2.1 metres in corridors and bathrooms.

The ceiling height within the Class 6 Retail parts is required to be no less than 2.4 metres above the finished floor level, except for corridors and passageways, bathrooms, store rooms. The basement car park is required to have a floor to ceiling height of at least 2.1 metres, however this varies to AS2890.1 compliance for car-parking layouts.

54. F4.1: Provision of Natural Light

Details are to be provided demonstrating that all habitable rooms in the Class 2 Residential parts are provided with natural light complying with F4.2 and F4.3 for the Certification stage.

55. F4.5: Ventilation of Rooms

The building is required to be ventilated in accordance with the natural ventilation requirements under F4.6 or a Mechanical Ventilation system complying with AS 1668.1/2. Details and design certification are required to be provided from the Mechanical Consultant.

56. F4.11: Car parks

Every storey of the car park is required to be provided with a ventilation system complying with AS 1668.2. Details and design certification are required to be provided from the Mechanical Consultant.

57. F4.12: Kitchen Local Exhaust Ventilation

Where provisions are being made for commercial kitchens to future restaurant tenancies, kitchen exhaust hoods are required to comply with AS/NZS 1668.1 and AS 1668.2 where any cooking apparatus has a total power input exceeding 8kW, or a total gas power output exceeding 29MJ/h, or where the total power input to more than one apparatus exceeds 0.5 kW or 1.8 MJ for gas per m^2 of floor area of the room of the enclosure.

58. Part F5: Sound Transmission and Insulation

The floors between sole occupancy units, plant rooms and public corridors or parts with different classification are to have an airborne sound insulation rating of not less than 50 and an impact sound insulation rating of not less than 62.

The walls between sole occupancy units are to have an Rw + Ctr (airbourne) sound insulation rating of not less than 50. Walls separating sole occupancy units from sanitary compartments, public corridors, lift shafts, plant rooms are to have a sound reduction index Rw (airborne) of not less than 50.

Discontinuous construction is required where walls separate a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room (other than a kitchen) in an adjoining unit. Also, this applies between a sole occupancy unit and a plant room or lift shaft.

The door assemblies to the sole occupancy units separating public corridors are to have a weighted sound reduction index of not less than 30.

The sound insulation ratings to services that pass through sole occupancy units must be not less than 40 adjacent to habitable rooms and not less than 25 adjoining kitchens and non-habitable rooms.

3.7 SECTION J: ENERGY EFFICIENCY

59. Section J: Energy Efficiency

A report or details demonstrating that the proposed retail parts comply with Parts J1 – Building Fabric, J2 – External Glazing and J3 – Building Sealing will be required from a qualified consultant detailing either deemed-to-satisfy compliance or the provision of an overall building modelling report that details the buildings annual energy consumption.

Details and design certification are to be provided from the Mechanical and Electrical Consultants having regards to Parts J5 – Air Conditioning and Ventilation, J6 – Artificial Lighting and Power and J7 – Hot Water Supply and J8 – Access for Maintenance and facilities for monitoring to the building.

A BASIX Certificate will be required for the Class 2 Residential part of the building. In addition, the Class 2 part is required to comply with the NSW sub-section provisions of Section J – Energy efficiency.

4.0 CONCLUSION

This review contains an initial assessment of the proposed residential and retail development under the Deemed-to-Satisfy provisions of the National Construction Code (BCA) 2011, Volume One.

It is considered that the building can achieve an acceptable level of compliance with the current provisions of the BCA upon resolution of the compliance issues identified in this report by way of complying with the Deemed-to-Satisfy provisions and/or Alternative Solutions that satisfy the relevant Performance Requirements of the BCA.

Signed: 

Andrew Maxon

Date: 5 July 2012