



BUILDING CODE OF AUSTRALIA ASSESSMENT REPORT

Proposed Roche Facility 20 Reconciliation Drive Greystanes

Dated: **7 December 2012**

Prepared for: **Dexus**

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MANAGING COMPLIANCE

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Date	Revision Number	No. of pages	Issue or Description of Amendment	Checked By	Approved By	Date Approved
15.11.2012	A	13	BCA Assessment	Geoff Pearce	-	-
07.12.2012	B	12	Final	Geoff Pearce	Stephen Natilli	07.12.2012



Executive Summary

As Accredited Certifiers, we have reviewed architectural design documents prepared by Nettleton Tribe Architects (refer appendix A) for compliance with the Building Code of Australia 2012.

The assessment of the design documentation has revealed that the following areas are required to be assessed against the relevant performance requirements of the BCA. The submission for Construction certificate will need to include verification from a suitably accredited fire engineer: -

DTS Clause	Items to be addressed as part of Design Development	Performance Requirement
C2.4	Perimeter vehicle access is provided to the facility on three sides with the northern elevation provided with pedestrian access only. As per the requirements of Clause C2.3 and C2.4 of the BCA, the access to the North elevation of the site, will be required to be addressed in accordance with Performance Requirement CP9 of the BCA, and included within the Fire Engineered Solution for the development.	CP9
D1.4 and D1.5	A maximum distance of 80m to an exit and 100m between alternative exits has been identified. Therefore as part of the Fire Engineered Solution for the development, the above will be required to be assessed in accordance with Performance Requirement DP4 and EP2.2 of the BCA.	DP4 and EP2.2
C2.3 and Table E2.2	Smoke Hazard management system serving the development will be required to be assessed as part of the fire engineered solution in accordance with performance requirement CP9 and EP2.2 of the BCA.	CP9 and EP2.2
E4.5	If illuminated exit signage is proposed to be mounted greater than 2.7m from the FFL, then this will be required to be included within the Fire Engineered Solution for the development in accordance with Performance Requirement EP4.2 of the BCA.	EP4.2

The fire engineered solution relating Performance Requirements CP9 and EP2.2 will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

Assessed By

Stephen Natilli
Director



1.0 Introduction

The proposed development comprises of a new Warehouse facility. The Warehouse will incorporate coolroom and freezer facilities as well as appurtenant office and parking facilities.

The development is served by external on grade carparking provided to the perimeter of the development.

The subject development is located on 20 Reconciliation Drive, Greystanes.

1.1 Current Legislation

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Certifying authority for the Construction Certificate. This assessment has been undertaken against the provisions of BCA 2012.

Summary of Construction Determination: -

Roche Facility	
Classification	5 & 7b
Number of Storeys Contained	1
Rise In Storeys	1
Type of Construction	C
Effective Height (m)	<12.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m²)	Assumed Population
Office Space	5	215m ²	20*
Warehouse	7b	12,578 m ²	40*
	Total	12,793m²	

Notes:

1. The above populations have been estimated based on the size and use of the development. Please note that if these numbers are incorrect, please provide accurate population numbers to allow for further assessment and comment.
2. In addition, the population estimates have been based on the number of carparking spaces provided to the development.



3.0 Structural Provisions

Any new structural works are to comply with the applicable requirements of AS/NZS 1170.1. Please note that with the adoption of BCA2012, AS1170.2-2011 is applicable to the development.

Glazing is to comply with AS1288, and AS2047.

Prior to the issue of the Construction Certificate structural certification is required to be provided.

4.0 Fire Resistance

The building will be required to be designed and constructed in accordance with Table 5 & 5.9 of Specification C1.1 of the Building Code of Australia 2012.

The building is required to be Type C Construction.

The subject building has been considered as a large isolated building, and therefore the following provisions will apply:

- Automatic sprinkler protection to AS2118.1 and BCA specifications E1.5 throughout the building, Note the brief currently calls up AS 2118.1-2006 which will require an alternate solution to EP1.4 or the current referenced standard of AS 2118.1-1999 may be used.
- Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter. Currently access is only provided to 3 sides in lieu of 4 and shall need to be verified by a fire safety engineer and comments sought from the FRNSW.

Please note as part of the Fire Engineered Solution for the development, the non-continuous perimeter vehicular access trail to the North East corner of the site will be required to be addressed as part of the Fire Engineered Solution in accordance with Performance Requirement CP9 of the BCA.

- Smoke exhaust or smoke and heat vents required throughout the development.

The performance of the smoke hazard management system serving the development will be required to be assessed as part of the fire engineered solution for the development in accordance with performance requirement CP9 and EP2.2 of the BCA.

4.4 Passive Fire Protection

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Hydrant Pump rooms,
- Sprinkler Pump Rooms,

To be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

4.4 Fire Hazard Properties

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification C1.10 Building Code of Australia.

5.0 Egress

The egress provisions from the proposed building are provided via perimeter egress doors discharging to the perimeter road/open space. Other detailing issues that will need to be addressed include:

- Door Hardware
- Exit door operation
- Stair construction
- Handrail and balustrade construction



5.1 Exit Travel Distances

Owing to the size and configuration of the development, the locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits would not be satisfied.

Based on the floor layout and racking configuration, a maximum distance of 80m to an exit and 100m between alternative exits has been identified.

Therefore as part of the Fire Engineered Solution for the development, the above item are required to be verified in accordance with Performance Requirement DP4 and EP2.2 of the BCA.

5.4 Balustrading and Handrail

Balustrading to a height of 1000mm with a maximum opening of 125mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm.

Where it is possible to fall more than 4m to the finished floor, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

Handrails are to be provided to each side of the stair, where the stair exceeds a width of 2m. Where an egress stair exceeds 2m in width, an additional handrail is required to ensure that the egress width of 2m is accounted.

The main public stairs and ramps should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

Intermediate rails located between 665mm and 7500mm should be provided within Class 9b Primary Schools.

5.5 Access for Persons with a Disability

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2012. Parts of the building required to be accessible shall comply with the requirements of AS1428.1-2009.

The design would generally comply with the prescriptive provisions of the BCA with additional ongoing review being undertaken as to door widths, circulation, etc. Further details are to be provided or access to these areas is to be assessed by an access consultant.

Where the main public entrance is via a ramp, tactile indicators shall be provided in accordance with AS 1428.4 at the top and bottom. Parking shall be provided for people with disabilities in accordance with in accordance with Clause D3.5 of the BCA. Facilities services and features of the building accessible to people with disabilities shall be identified by signage complying with Clause D3.6 of the BCA.



6.0 Fire Services & Equipment

The following fire services will need to be provided throughout the building:

- An automatic sprinkler system in accordance with the relevant provision of clause E1.5 of the BCA and AS 2118.1-1999,
- Fire hydrants in accordance with clause E1.3 of the BCA and AS 2419.1-2005,
- Fire hose reels in accordance with clause E1.4 of the BCA and AS 2441-2005,
- Portable Fire Extinguishers in accordance with Clause E1.6 of the BCA and AS 2444-2001,
- Emergency lighting, exit signage and directional exit signage is required throughout the building in accordance with Part E of the BCA and AS/NZS 2293.1-2005.

Please note that if illuminated exit signage is proposed to be mounted greater than 2.7m from the FFL, then this will be required to be included within the Fire Engineered Solution for the development in accordance with Performance Requirement EP4.2 of the BCA.

A fire Control centre shall be provided in accordance with Clause E1.8 of the BCA.

6.1 Fire Hydrants

A system of Fire Hydrants will be required to be provided to BCA Clause E1.3 and AS 2419.1-2005.

We will reply upon design certificate from a Hydraulic Consultant, at the Construction Certificate stage.

A booster assembly is required to be provided as part of the fire hydrant requirements. The booster is required to be located within site of the building's main entry. If remote from the building at the main vehicle entry or with sight of the main entry of the building within 20m of a hardstand area.

6.2 Fire Hose Reels

A Fire Hose Reel System is required to be provided to the development in accordance with BCA Clause E1.4 and AS2441. To be located within 4m of exits and provide coverage within the building based on a 36m hose length.

6.3 Automatic Sprinkler Protection

An Automatic Fire Suppression System will be required to be provided throughout the development in accordance with Specification E1.5 and AS2118.1-1999. An Occupant Warning System that is triggered upon activation of the sprinkler system should be provided in accordance with BCA Specification E1.5.

7.0 Ventilation and Smoke Hazard Management

Smoke hazard management shall be provided throughout the building by means of the following systems:

- Automatic Smoke Exhaust System performance will be rationalised as part of the Fire Engineered Solution for the development, in accordance with Performance requirement CP9 and EP2.2 of the BCA.
- Automatic Smoke Detection and Alarm System in accordance with the requirements of BCA Spec E2.2a and AS 1670.1-2004

A fire indicator panel is required as part of the fire system serving the development. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

Throughout the development the provision of natural or mechanical ventilation is required to all habitable rooms in accordance with F4.5 Building Code of Australia and AS 1668 and AS/NZS 3666.1.



9.0 Sanitary Facilities

The sanitary & other facilities within the development would generally consist of: -

Class	Occupant Number	Pop	Proposed		
			WC	Urinals	Basins
5 & 7b	Male	30	2	1	2
	Female	30	2	NA	2
	Unisex Facility	1	1	NA	1
	Total	61	5	1	5

Please note the Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

10.0 Energy Efficiency

The proposed development shall comply with Part J of the BCA. To achieve compliance, there are two options available:

- The building can comply with the deemed-to-satisfy provisions of the BCA, relating to the following areas:
 - Building Fabric
 - Glazing
 - Building Sealing
 - Air Conditioning & Ventilation Systems
 - Artificial Lighting & Power
 - Hot Water Supply
- The building can be verified against a reference building as per Verification Method JV3. This requires that the proposed building and its services be shown to have an annual energy consumption of equal or less than the reference building which has been modelled as per the requirements of Part J of the BCA.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

Access for maintenance is to be provided to the building in accordance with the requirements of BCA Part J8.

The proposed site will be located in a **Climate Zone 6**.

Due to special nature of the building some energy provisions may not be appropriate.



Appendix A - Design Documentation

The following documentation was used in the assessment and preparation of this report: -

Drawing No.	Title	Date	Drawn By	Revision
4096_SK021	Site Plan	November 2012	Nettleton Tribe	A



Appendix B - Draft Fire Safety Schedule

Essential Fire Safety Measures	Standard of Performance
1. Automatic Fail Safe Devices	BCA Clause D2.19 & D2.21
2. Automatic Fire Detection and Alarm System	BCA Spec. E2.2a & AS 1670 – 2004
3. Automatic Fire Suppression System	BCA Spec. E1.5 & AS 2118.1 – 1999,
4. Building Occupant Warning System activated by the Sprinkler System	BCA Spec. E1.5 & AS 1670 – 2004
5. Emergency Lighting	BCA Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005
6. Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS/NZS 2293.1 – 2005
7. Fire Control Centre	BCA Spec. E1.8
8. Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
9. Fire Hydrant System	Clause E1.3 & AS 2419.1 – 2005
10. Fire Seals	BCA Clause C3.15 & AS 1530.4 – 1997
11. Mechanical Air Handling System	BCA Clause E2.2, AS/NZS 1668.1 – 1998 & AS 1668.2 – 1991
12. Paths of Travel	EP&A Reg 2000 Clause 186
13. Perimeter Vehicular Access	BCA Clause C2.4
14. Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
15. Smoke Hazard Management System	BCA Part E2 & AS/NZS 1668.1 – 1998
16. Warning and Operational Signs	Section 183 of the EP & A Regulations 2000, AS 1905.1 – 2005, BCA Clause D2.23



Appendix C - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2011:

Table 5 TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	Class of building—FRL: (in minutes)			
	<i>Structural adequacy/ Integrity/ Insulation</i>			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	-/-/-	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
EXTERNAL COLUMN not incorporated in an <i>external wall</i> , where the distance from any <i>fire-source feature</i> to which it is exposed is—				
Less than 1.5 m	90/-/-	90/-/-	90/-/-	90/-/-
1.5 to less than 3 m	-/-/-	60/-/-	60/-/-	60/-/-
3 m or more	-/-/-	-/-/-	-/-/-	-/-/-
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS-				
Bounding <i>public corridors</i> , public lobbies and the like—	60 / 60/ 60	-/-/-	-/-/-	-/-/-
Between or bounding <i>sole-occupancy units</i> —	60/ 60/ 60	-/-/-	-/-/-	-/-/-
Bounding a stair if <i>required</i> to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	-/-/-	-/-/-	-/-/-	-/-/-



Table 5.2 REQUIREMENTS FOR CARPARKS

Building element		FRL (not less than) <i>Structural adequacy/ Integrity/ Insulation</i>
		ESA/M (not greater than)
Wall		
(a)	<i>external wall</i>	
	(i) less than 1.5 m from a <i>fire-source feature</i> to which it is exposed:	
	<i>Loadbearing</i>	60/60/60
	<i>Non-loadbearing</i>	-/60/60
	(ii) 1.5 m or more from a <i>fire-source feature</i> to which it is exposed	-/-/-
(b)	<i>internal wall</i>	-/-/-
(c)	<i>fire wall</i>	
	(i) from the direction used as a <i>carpark</i>	60/60/60
	(ii) from the direction not used as a <i>carpark</i>	90/90/90
Column		
(a)	steel column less than 1.5 m from a <i>fire-source feature</i>	60/-/- or 26 m ² /tonne
(b)	any other column less than 1.5 m from a <i>fire-source feature</i>	60/-/-
(c)	any other column not covered by (a) or (b)	-/-/-
Beam		
(a)	less than 1.5 m from a <i>fire-source feature</i>	
	(i) steel floor beam in continuous contact with a concrete floor slab	60/-/- or 30 m ² /tonne
	(ii) any other beam	60/-/-
(b)	1.5 m or more from a <i>fire-source feature</i>	-/-/-
Roof, floor slab and vehicle ramp		-/-/-
Note: ESA/M means the ratio of exposed surface area to mass per unit length.		

