BUILDING CODE OF AUSTRALIA REPORT

TOWNHOUSE DEVELOPMENT

2-6 MARTIN STREET ROSELANDS

PREPARED FOR MR DA MING CHEN

17 AUGUST 2022

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EXECUTIVE SUMMARY

This report has been prepared to identify the extent of compliance achieved by the assessment of the architectural documentation for the proposed development against the relevant provisions of the National Construction Code, Building Code of Australia 2019, Amendment 1 (BCA) and its adopted standards.

The proposed development consists of the demolition of existing improvements at No. 2 Martin Street and construction of a new multi-dwelling housing building incorporating four (4) dwellings; and alterations and additions to the development approved at Nos. 4-6 Martin Street to accommodate No. 2 Martin Street and the proposed four (4) additional dwellings;

This report will provide a BCA analysis to assist in the process of design development and to assist the consent authority in the determination of the Development Application relating to the works.

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 (Development Certification and Fire Safety) Regulation 2021.

REPORT DETAILS

PROPOSED DEVELOPMENT

The proposed development consists of the demolition of existing improvements at No. 2 Martin Street and construction of a new multi-dwelling housing building incorporating four (4) dwellings; and alterations and additions to the development approved at Nos. 4-6 Martin Street to accommodate No. 2 Martin Street and the proposed four (4) additional dwellings;

LOCATION

The subject development is located at located at 2-6 Martin Street Roselands.

The site is within the jurisdiction of Canterbury Bankstown Council for the purposes of development approvals

REFERENCED DOCUMENTS

The following documents have been reviewed, referenced and/or relied upon in the preparation of this report.

- National Construction Code, Building Code of Australia 2019, Amendment 1 (BCA) Volume 2
- Architectural Plans as prepared BKA Architecture (Appendix 1)
- Environmental Planning and Assessment Act 1979
- Environmental Planning & Assessment Regulation 2021.
- Environmental Planning & Assessment (Development Certification and Fire Safety) Regulation 2021.

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. However the existing features of an existing building need not to comply with the BCA unless an upgrade is required by other clauses of the legislation

The version of the BCA applicable to the development, is the version that in place at the time of the application of the Construction Certificate.

REPORT PURPOSE

This report has been prepared to identify aspects of the proposed design that require further consideration and to identify aspects of the design that may be altered subsequent to the issue of a Development Consent

This report has been prepared on the basis of an assessment of compliance only and should not be construed as being design advice. Further detailed assessment and design documentation will need to be provided prior to the issue of a Construction Certificate

EXCLUSIONS AND LIMITATIONS

Except as mentioned in the report, the limitations and exclusions of this report are as follows -

- Structural adequacy;
- Fire resistance of primary structural elements;
- Design basis or operating capability of the installed electrical, fire, hydraulic or mechanical services;
- Compliance with the *Disability Discrimination Act 1992;*
- BCA Access Requirements including AS1428.1-2009 Design for Access & Mobility Part 1 – General requirements for access – New building work),
- Local Government Act and Regulations;
- Performance Solution Reports;
- Occupational Health & Safety Act and Regulations;
- Work Health and Safety requirements;
- Requirements of any standards that are not identified within this report

BUILDING CODE OF AUSTRALIA 2022

The National Construction Code, Building Code of Australia (BCA) 2022 is due for release and implementation on 01 September 2022.

The finalised version of BCA 2022 will be released late-2022. In accordance with the Environmental Planning and Assessment Regulation 2021, the BCA edition applicable to a development is determined based on the date of application for a Construction Certificate. Construction Certificate applications made after 01 September 2022 shall be subject to the provisions of the BCA 2022.

Additionally, the BCA will have a new structure and format as part of the ABCB's Improved BCA useability initiative, delivering a more user-friendly and digitally-contemporary code. The structure and formatting of our design reports will be amended to align with these provisions at the relevant time.

BUILDING CODE OF AUSTRALIA ASSESSMENT

BUILDING DESCRIPTION

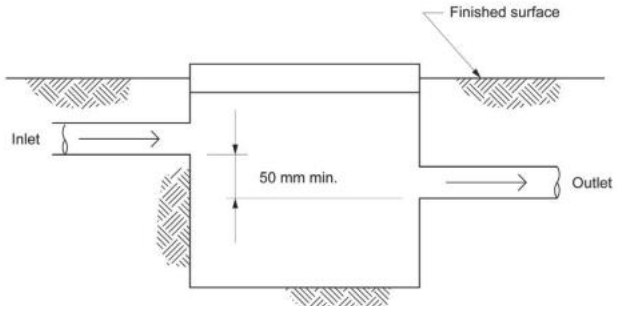
Use/Classification	Class 1a – Detached and attached dwelling houses. Class 10a: Private garage
Rise in Storeys	The development will have a rise of two (2) storey
Floor Area	There are no specific floor area limitations for these buildings
Volume	There are no specific volume limitations for these buildings
Effective Height	The building is not required to be assessed for effective height under BCA Volume 2
Type of Construction (BCA)	The building is not required to be assessed for a type of construction under BCA Volume 2
Climate zone	The building is not required to be assessed for effective height under BCA Volume 2. The building is to be subject to BASIX for energy efficiency measures.

BCA PART 3.1 – SITE PREPARATION

STORMWATER – All roof areas will be provided with gutters and downpipes complying with the requirements of Part 3.5.2 of the BCA – _Housing Provisions. A stormwater drainage system complying with AS 3500.3.2 is to be provided to convey roof waters from the downpipes to the legal point of discharge. Cover to the stormwater system drains will be as required by BCA clause 3.1.2.5.

SURFACE WATER - is to be directed away from the footings of the building by suitable sub soil drainage to the retain wall sections and where appropriate include silt traps as part of the drainage design as per figure 3.1.3.4 (see below)

Figure 3.1.3.4 Construction of silt pits



TERMITE RISK MANAGEMENT – _To comply with the termite risk management provisions contained within Part 3.1.3 of the BCA – _Housing Provisions the Primary Building Elements within the building will be:

Either –

(i) Be constructed of one, or a combination of, the following materials:
Steel, concrete, masonry, fibre reinforced cement; or
Naturally termite resistant timber (AS 3660.1 – Appendix A); or
Preservative treated timber (AS 3660.1 – Appendix B); or

(ii) A termite barrier will be installed in the building in accordance with AS 3660.1 and a durable notice installed in the meter box as required.

BCA PART 3.2 – FOOTINGS AND SLABS

FOOTINGS/SLABS - The footing/slab are to be constructed to the requirements of AS 2870-2011 (Residential slabs and footings) and Part 3.2 of the BCA – Housing Provisions or to engineering principals.

VAPOUR BARRIERS - A vapour barrier to the slab on ground is not required to be provided with a vapour barrier, however it is recommended that a barrier be provided under the as follows:

(a) Materials A damp-proofing membrane must be—
(i) 0.2 mm nominal thickness polyethylene film; and
(ii) high impact resistant, determined in accordance with criteria specified in clause 5.3.3.2I of AS 2870; and
(iii) be branded continuously "AS 2870 Concrete underlay, 0.2 mm High impact resistance".

(b) Installation A damp-proofing membrane must be installed as follows—
(i) lap not less than 200 mm at all joints; and
(ii) tape or seal with a close fitting sleeve around all service penetrations; and
(iii) fully seal where punctured (unless for service penetrations) with additional polyethylene film and tape.

I The damp-proofing membrane must be placed beneath the slab so that the bottom surface of the slab is entirely underlaid and extends under edge beams to finish at ground level in accordance with Figure 3.2.2.3 (also see Figure 3.3.4.9 for single skin masonry details).

Note: A range of polyethylene films can be used, including black film and orange film, provided they satisfy the requirements for high impact resistance in accordance with the criteria specified in clause 5.3.3.2I of AS 2870.

BCA PART 3.3 – MASONRY

The masonry parts of the building is to be designed and constructed in accordance with AS 3700-2018 (Masonry Structures) and Part 3.3.1 of the BCA – Housing Provisions.

BCA PART 3.4 – FRAMING

The timber framing is to be designed and constructed in accordance with AS 1684.2-2010 – _National Timber Framing Code. Where trusses are proposed for the roof construction the design is to be in compliance with AS 1720.5-2015.

BCA PART 3.5 – ROOF AND WALL CLADDING

ROOF CLADDING – All roof cladding will comply with Part 3.5.1 of the BCA and be constructed in accordance with AS 1562.1 – Sheet roof and wall cladding design.

GUTTERS AND DOWNPIPES – eave gutters are to be installed with a minimum 1:500 fall and supported at maximum 1.2m centres and design to not permit any overflow from gutters to enter

the building. Downpipes are to be spaced a maximum of 12m apartment and sized to accommodate the ARI rainfall of 200mm/h.

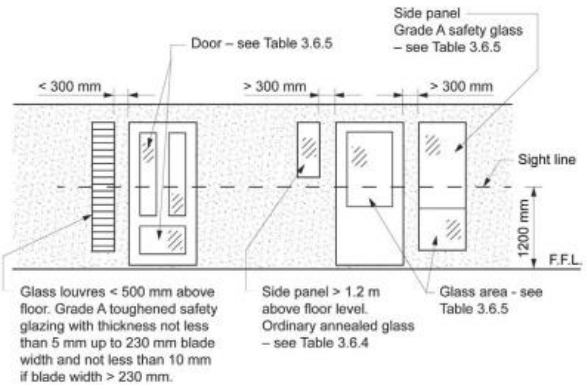
WALL CLADDING – Wall cladding will be designed and installed to comply with Part 3.5.3 of the BCA or the specific manufacturers installation manuals relating to the product selected.

BCA PART 3.6 – GLAZING

Glazing and windows is to comply with this section of the BCA and AS 2047-2014 and AS 1288-2006 generally throughout the building.

Glazing within the shower cubicles where less than 2m above the floor of the shower base is to be grade A safety glass to AS 1288

Figure 3.6.1 Identification of glazing requirements for doors and side panels



BCA PART 3.7 – FIRE SAFETY

The fire hazard properties of materials used in a Class 1 building must comply with the following:

(a) Sarking-type materials used in the roof must have a flammability index not greater than 5

(i) Flexible ductwork used for the transfer of products initiating from a heat source that contains a flame must comply with the fire hazard properties set out in AS 4254.1

FIRE SEPARATION – the building are to have a separating wall that complies as follows:

(a) A separating wall between Class 1 buildings, or a wall that separates a Class 1 building from a Class 10a building which is not appurtenant to that Class 1 building must have an FRL of not less than 60/60/60 and—

(i) commence at the footings or ground slab (see Figure 3.7.1.10); and

(ii) extend—

(A) if the building has a non-combustible roof covering, to the underside of the roof covering (see Figure 3.7.1.10); or

(B) if the building has a combustible roof covering, to not less than 450 mm above the roof covering (see Figure 3.7.1.10).

(i) A separating wall of lightweight construction must be tested in accordance with Specification C1.8 of the BCA Volume One.

SMOKE ALARMS - The buildings are to be provided with smoke alarms that are located and installed in accordance with Part 3.7.5.2 of the BCA and are to comply with AS 3786 and to be connected to the consumer mains power.

BCA PART 3.8 – HEALTH AND AMENITY

WATER PROOFING – Internal wet areas are to be waterproofed in accordance with this section and AS 3740-2010 in general. It is noted that the use of timber flooring will require the bathrooms to be fully tanked with a waterproofing system similar to a liquid membrane complying with AS 4858.

ROOM HEIGHTS – the minimum ceiling height for habitable rooms is 2400mm and for non habitable rooms such as bathrooms and within the kitchen parts being 2100mm, plans indicate compliance in that regard.

FACILITIES – the following is required to be provided to each building

(i)a kitchen sink and facilities for the preparation and cooking of food; and
(ii)a bath or shower; and
(iii)clothes washing facilities, comprising at least one washtub and space in the same room for a washing machine; and
(iv) a closet pan; and
(v)a washbasin.

LIGHT – there is to be a minimum of 10% of the floor area of the room provided as natural light through windows, the plan generally detail compliance in this regard. The bathrooms may be provided with artificial lighting with a single light fitting.

VENTILATION – ventilation may be provided via natural or artificial means. Where utilizing natural ventilation the unobstructed opening is to be not less than 5% of the room being ventilated. The bathrooms are to be provided with mechanical exhaust and may not utilize borrowed ventilation.

SOUND INSULATION – The separating wall between Class 1a buidlings are to achieve a minimum rating of Rw + Ctr of 50 and are to include discontinuous construction as a minimum to the ground and first floor.

CONDENSATION MANAGEMENT - The minimum flow rate for the bathroom exhaust system is to be 25L/s and are to discharge to atmosphere and not the roof void unless the void is ventilated as per clause 3.8.7.4

BCA PART 3.9 – SAFE MOVEMENT AND ACCESS

STAIRWAY AND RAMPS CONSTRUCTION – all stairs and ramps, including landings are to comply with part 3.9.1.

(a) A stairway must be designed to take loading forces in accordance with AS/NZS 1170.1 and must have—

(i) not more than 18 and not less than 2 *risers* in each *flight*; and

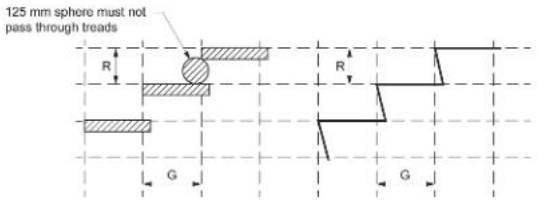
(ii) *Goings* (G), *risers* (R) and a slope relationship quantity (2R + G) in accordance with Table 3.9.1.1, except as permitted by (b) and (c); and

Table 3.9.1.1 Riser and going dimensions (mm)

Stair type	Riser (R) (see Figure 3.9.1.4 below)		Going (G) (see Figure 3.9.1.4 below)		Slope relationship (2R+G)	
	Max	Min	Max	Min	Max	Min
Stairs (other than spiral)	190	115	355	240	700	550
Spiral	220	140	370	210	680	590

Note to Table 3.9.1.1: *Riser* and *going* dimensions must be measured in accordance with Figure 3.9.1.4.

Figure 3.9.1.4 Riser and going dimensions—Measurement



(iii) constant *goings* and *risers* throughout each *flight*, except as permitted by (c) and (d), and the dimensions of *goings* (G) and *risers* (R) in accordance with (a), (b) and (c) are considered constant if the variation between—

(A) adjacent *risers*, or between adjacent *goings*, is no greater than 5 mm; and

(B) the largest and smallest *riser* within a *flight*, or the largest and smallest *going* within a *flight*, does not exceed 10 mm; and

(iv) *risers* which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and

(v) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 storeys.

BARRIERS AND HANDRAILS – All barriers that prevent falls, including protection of openable windows and handrails are to comply with part 3.9.2.1

Figure 3.9.2.3 Barrier construction

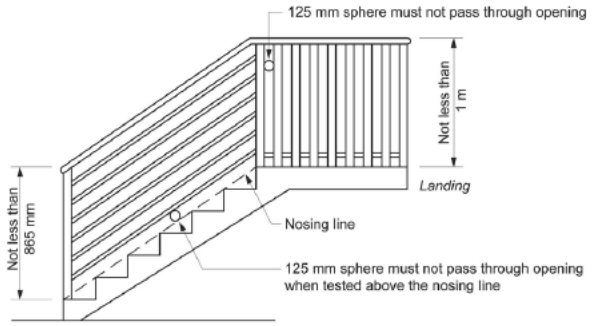


Figure 3.9.2.5 Protection of openable windows—bedrooms

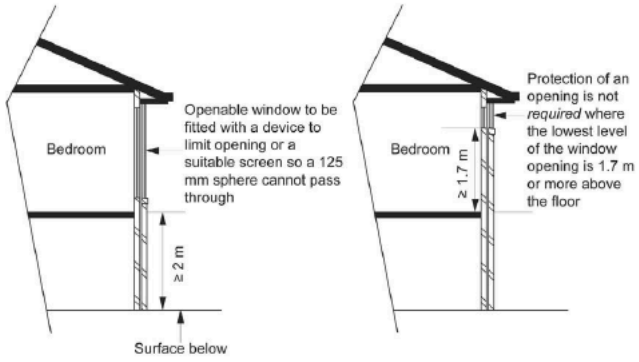
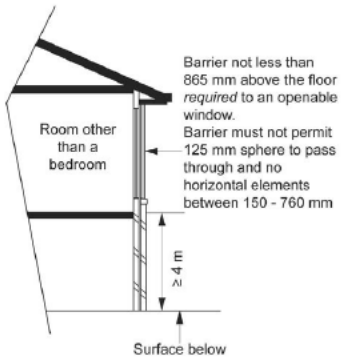


Figure 3.9.2.6 Protection of openable windows - rooms other than bedrooms



BCA PART 3.10 – ADDITIONAL CONSTRUCTION REQUIREMENTS

If the site is in a high wind, earthquake or flood hazard area this part will apply. If relevant these areas will be identified in the development application process.

BCA PART 3.11 – STRUCTURAL DESIGN MANUALS

Relevant details and engineers design certification is required to comply with this part.

BCA PART 3.12 – ENERGY EFFICIENCY

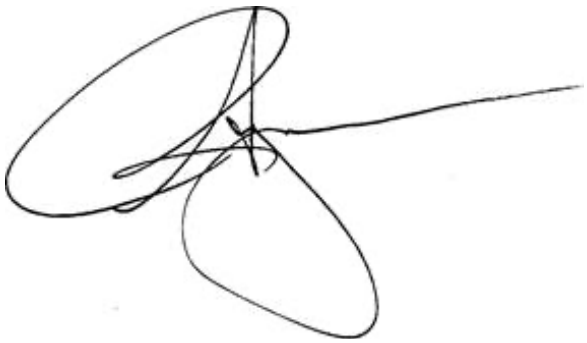
This building is subject to BASIX and a certificate is required to be submitted with the development application.

Relevant details of compliance with the BASIX certificate and design certification is required.

CONCLUSION

It is the opinion of this office that, on satisfaction of the above recommendation, the proposed building is capable of achieving compliance with the requirements of the National Construction Code, Building Code of Australia 2019, Amendment 1 (BCA) Volume 2, and relevant adopted standards without undue modification to the design or appearance of the building.

Whilst the above recommendation have been made as a means of achieving compliance with the various provisions of BCA Performance Requirements their acceptability has not been verified at this time. It will be necessary for the design and the construction documentation to be reviewed by prior to the issue of an Construction Certificate.



ALEKS STOJCEVIC
DIRECTOR

DESIGN RIGHT CONSULTING PTY LTD 17 August 2022.

APPENDIX A – DOCUMENTATION

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

Drawing List		
ID	**Layout Name**	**Scale**
DA-000	Cover Page	
DA-010	Site Analysis Plan & Demolition Plan	1:100
DA-100	Ground Floor Plan	1:100
DA-101	First Floor Plan	1:100
DA-102	Roof Plan	1:100
DA-200	South & East Elevation	1:50
DA-201	North & West Elevations	
DA-210	Section A-A	
DA-220	Material Finishes	
DA-300	GFA Calculation	1:200
DA-301	Landscaped / Deep Soil Area	1:200
DA-310	Solar Study	
DA-311	Solar Study	
DA-320	Shadow Diagram	
DA-321	Shadow Diagram	
DA-400	Adaptable Unit Plan	