



BCA CAPABILITY REPORT
for
Alterations and Additions to the Existing
Dwelling
At
45 Carefree Road,
North Narrabeen. NSW

Prepared for: Mr and Mrs Warren

Prepared by: Rodger Dowsett.

Graduate Dip. Building Surveying and Assessment UTS.

Masters Deg. Applied Science-Fire Safety Design UWS.

Masters Deg. Building Surveying UWS.

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E: rodger@nationalbca.com.au

Mob: 0456 007 095

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1.0 Executive Summary.

This report has been prepared to identify, at an early stage the extent of compliance achieved by architectural documentation against the provisions of the Building Code of Australia (BCA 2019), the Australian Standards adopted by the BCA together with the requirements of the state's building legislation both in relation to the technical and administrative provisions

The development proposal is for the erection of alterations and additions to the existing dwelling that stands on land known as 45 Carefree Road, North Narrabeen.

The report analyses the proposed development to assist in the design process and that of the consent authority in its assessment of a development application. The report acknowledges that the development, before proceeding to the built form not only requires development consent but also the issue of a construction certificate (CC).

Therefore, prior to the issue of a construction certificate the certifying authority is to be satisfied that the development complies not only with the terms of any consent granted but also the relevant provisions of the BCA, the provisions of the Environmental Planning and Assessment Regulation, 2000 together with the contents of this report.

2.0 Report Summary.

2.1 Location and Use

The development site is located at 45 Carefree Road, North Narrabeen in Lot 25 in DP 11547. The land of lot 25 has a level difference of approx. 10m when assessed between the street edge of Carefree Road (the highest elevation) and the rear boundary line of the allotment which is the lowest elevation of the site forming an embankment, the height formation of which is less than the allotment width as surveyed at 15m.

The site now supports an existing part one storey part two storey building that stands upon the lower reaches of the allotment together with access construction to enable occupants of the dwelling to connect with the public road.

The buildings current use is that of a single occupancy dwelling house.

2.2 Description of the development.

The proposed development involves the following building work: -

- Demolition of the deck construction that stands to the east of the existing dwelling;
- The construction of terraced four level addition that on completion will bound and stand above the existing dwelling to increase its external dimensions and configuration as well as its cubic content;
- The erection on the building line of appurtenant carport structure for the accommodation of vehicles that belong the occupants of the dwelling, as altered, and, facilities for waste reception, and
- A swimming pool within the rear yard area of the site.

The report is to form part of a development application submission to the local authority (Northern Beaches Council) for consent to use the land in the manner that is proposed. The report also serves to indicate that the building design either complies with the relevant provisions of the Building Code of Australia (BCA) or the design is capable of compliance either through a performance-based solution (alternative solution) or by strict adherence to the deemed to satisfy provisions (DtS). For the most part the likely building solution is that of deemed compliance.

Further, the level of compliance with the BCA is of a kind that is not likely to render the development as being inconsistent with any consent given to the extent, that the certifying authority (The Council or an Accredited Certifier) is able to comply with clause 145(1)(a) of the Environmental Planning and Assessment Regulation, 2000, for “new” building work and, in addition satisfy the obligations under clause 143 (3) of the same regulation should the development, if approved in its submitted form, proceed to a Construction Certificate.

The provisions of clause 143(3) of the EP & A Act Regulation are relevant as the building work involves the alteration/addition of an existing building.

2.3 Basis of the report and material relied upon.

This report has relied on the following material:

1. Architectural plans prepared by Warren Design as detailed under Annexure A to this report;
2. The National Construction Code Series i.e. the 2019 Edition of the Building Code of Australia, Volume 2, NSW State variations (BCA) and *Definitions* of the BCA including but not limited to: -
 - (a) Professional Engineer;
 - (b) Siteworks
3. The Environmental Planning and Assessment Act, 1979;

4. The Environmental Planning and Assessment Regulation, 2000;
5. Survey Report dated 6th June 2016, and
6. Site inspection on the 15th July, 2019.

2.4 Building Description.

The following table (Table1) outlines the basic information as to the buildings classification and related information that assists in determining the buildings compliance with the BCA. The following table (Table2) examines the building in relation to the relevant provisions of the BCA.

The existing building at 45 Carefree Road is a part one storey part two storey dwelling of timber frame construction, clad with lightweight materials with pitched tiled roof. Apart from the removal of the side deck the dwelling itself is to be retained.

The addition to the existing building is characterised by 4 levels; level 1 of which is equivalent to street level, whereas level 4 is the at the lowest level. The design features an attic loft (level 1a) which is best described as an upper area containing habitable rooms within part of the roof space of level 1 and accessible from that level.

2.5 BCA Principles.

The following table analyses the aspects of the BCA that determines the relevant provisions applicable to the erection of a substantial alterations (new building work) to an existing building.

Table 1.

BCA Determination	BCA Part	Comment
Classification	A6	Dwelling: Class 1a classification. Carport: Class 10a classification. Swimming pool: Class 10b classification
Number of storeys		Dwelling-4 storeys. Carport-1 storey

3.0 Building Code of Australia Assessment.

3.1 Building Structure-Acceptable Construction Provisions.

The below table analyses the relevant provisions of the BCA as they relate to the proposed development.

Table 2.

BCA Part	BCA Compliance Pathway	Comments
Part 3.1 Site preparation		
3.1	Site preparation	Site classification and embankment slope ratio to be determined by structural engineer prior to the issue of the construction certificate (CC)
3.1.1	Earthworks	Retained earthwork to be the subject of structural (professional) engineers' details prior to CC issue.
3.1.2	Earth retaining walls	NA
3.1.3	Drainage	Site drainage including surface water drainage, sub-soil drainage and stormwater drainage to be prepared by a hydraulics (professional) engineer prior to the CC issue. Design drainage plans to also consider the requirements of the Consent Authority.

3.1.4	Termite risk management	Compliance with AS 3660.1-2014, Termite Management- new building work to be documented in the architect's specification once the composition of all of the primary building elements of the new building work are determined. Existing construction will require assessment to determine its susceptibility to termite attack. Refer to Table 3.
Part 3.2 Footings and Slabs		
3.2.2	Preparation	As above
3.2.3	Concrete and reinforcing	Concrete controls to be documented in the design notes of the design structural engineer and in the architect's specification.
3.2.4	Site classification	To be determined by the design structural engineer or another suitable person who has site classification expertise, i.e. geotechnical engineer.
3.2.5	Footing and slab construction	Refer to structural engineers' details at CC issue. Concrete construction to comply with AS 3600-2018.
Part 3.3 Masonry		
3.3.1	Unreinforced masonry	Masonry construction to comply with AS 3700-2018.
3.3.2	Reinforced masonry	As above
3.3.3	Masonry accessories	As above
3.3.4	Weatherproofing of masonry	As above
3.3.5	Masonry veneer	The location of damp proofing courses, cavity construction, flashings, lintels, articulation

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		joints to be documented in the architect's specification.
3.3.6	Isolated masonry piers	Compliance standard for isolated masonry piers is AS 3700-2018
Part 3.4 Framing		
3.4.0	Framing	
3.4.1	Subfloor ventilation	Sub floor ventilation required to level 4.
3.4.2	Steel framing	Design standard is AS 4100-1988. Refer to design structural engineers' details at CC issue.
3.4.3	Timber framing	Design standards are AS 1684.2-2010 and AS1720.1-2010
3.4.4	Structural framing	Refer to design structural engineers' details.
Part 3.5 Roof and wall cladding		
3.5	Roof cladding, gutters, and downpipes and wall cladding	
3.5.1	Roof sheeting	Metal roofing to comply with AS 1562.1-2018. The provisions of this part in relation to mechanical fixing of roof sheeting, support spacings, insulation, flashings/sarking and installation methods. Glazed roofing elements to comply with AS 1288-2006 Sarking standard is AS 4200.1-2017. The above to be documented in the architect's specification of the CC process.
3.5.2	Roof tiles and shingles	NA
3.5.3	Gutters and downpipes	Compliance standard is AS 3500.3-2018.

3.5.4	Timber and composite wall cladding	<p>The design provides for the external walls to be infilled with marine grade plywood. The architect specification will need to take into account the following: -</p> <ul style="list-style-type: none"> • Compliance with AS 2269.0-2012. • Termite Management; • Structural support (AS1684) • Construction techniques and installation procedures including sheet profiling/laying, sheet jointing and fixing, insulation and the applied finishes.
3.5.5	Metal wall cladding	NA
Part 3.6 Glazing		
3.6	Glazing	<p>Compliance standard for windows other than those in external walls, glazed doors, louvres is AS 2047-2014.</p> <p>Note: 1. High wind areas refer to BCA part 3.0;</p> <p>2. Structural engineer to determine design wind speed; i.e. N1, N2 or N3;</p> <p>3. Other glazed assemblies i.e. external windows, barriers, roof lights the compliance standard is AS 1288-2006; &</p> <p>4. Glazing used in bathrooms, shower screens and the like is determined according to the framed or frameless construction;</p> <p>5. Human impact safety requirements for glazed doors, panels, bathroom glazing etc to be determined at CC stage.</p>

		The above to be documented at the CC stage.
Part 3.7 Fire safety		
3.7.1	Fire properties for materials and construction	NA
3.7.2	Fire separation of external walls	NA
3.7.3	Fire protection of separating walls and floors	NA
3.7.4	Fire separation of garage top dwellings	NA
3.7.5	Smoke alarms and evacuation lighting	<p>Smoke alarms (SA) are required throughout the building on each storey. SA's must be: -</p> <ul style="list-style-type: none"> • Complaint with AS 3786-2014; and • Be interconnected with each other; and • Have battery back-up and consumer mains as the primary energy source, (hardwired) and, • Located on each storey and documented/located on the plans of the CC.
Part 3.8 Health and Amenity		
3.8.1	Wet areas and external waterproofing	Wet area waterproofing to comply with AS 3786-2014 and BCA Table 3.8.1.1 and documented in the CC plans and architect's specification.
3.8.2	Room heights	Building complies.
3.8.3	Facilities	To be documented on the plans of the CC.
3.8.4	Light	Building complies.
3.8.5	Ventilation	Building complies. Note: May require reassessment on compliance

		with Part 3.9.2 re: window opening limitations.
3.8.6	Sound insulation	NA.
3.8.7	Condensation management	Pliable membranes to comply with AS 4200 parts 1 & 2-2017. Flow rates for exhaust systems installed in the kitchen, laundry, bathroom or WC compartment must have a rate of 25L/s for bathroom and WC, for a laundry or kitchen the flowrate is 40 L/s, Exhaust systems must be discharged directly to the outside air. Documented in the architect's specification of the CC process.
Part 3.9 Safe Movement and Access		
3.9.1	Stairway and ramp construction	<p>Stairway construction both spiral and non-spiral stair types: -</p> <ul style="list-style-type: none"> • Treads and risers to meet the geometrical specifications of BCA Table 3. 9.1.1; • have constant goings and risers throughout each flight • not exceed 18 risers per flight; • Open stair risers are restricted to not allow a 125mm sphere to pass through the opening; and • Have solid treads and slip resistance to the stair treads/landings to BCA Table 3.9.1.3. as tested to AS 4586-2013.

		The above to be documented on the plans of the CC.
3.9.2	Barriers and handrails	<ul style="list-style-type: none"> Barriers (balustrades) are required where there is a fall of greater than 1m from a trafficable surface i.e. balcony, hallway, stairway, deck verandah or the like to the surface beneath. <p>Barrier heights are >1m and their design is for assessment at the CC stage.</p> <ul style="list-style-type: none"> Window Restrictions. <p>Window opening to bedrooms where the floor below the window is 2m or more above the surface beneath then the window opening must be restricted or screened to not permit a 125mm sphere to pass through the window opening or screen utilising child resistant devices.</p> <p>Windows to rooms other than bedrooms must be provided with protection of the kind described above if the floor below the window is more than 4m above the surface beneath.</p> <p>The above to be documented on the plans of the CC.</p> <ul style="list-style-type: none"> Handrails <p>Stairways within and external to the building require handrail installations on at least one side of the stairway flight.</p>
3.9.3	*****	
Part 3.10 Ancillary Provisions and Additional		

Construction Requirements		
3.10.1	Swimming pools	Refer to NSW variation which requires the barrier or child proof construction of the swimming pool enclosure to comply with the Swimming Pools Act 1992 and the Swimming Pools Regulation 2018.
3.10.2	Earthquake areas	Design structural engineers' detail to comply with AS 1170.4-2007.
3.10.3	Flood hazard areas	NA
3.10.4	Construction in alpine areas	NA
3.10.5	Construction in bushfire prone areas	NA
3.10.6	Attachment of decks and balconies to external walls of buildings	Refer to the details of the design structural engineer.
3.10.7	Boilers, pressure vessels, heating appliances, fireplaces, chimneys and flues	Solid -fuel burning appliances to comply with AS2918-2018. Open fire place construction to be documented on the plans on the CC.
Part 3.11 Structural Design Manuals		Refer on design structural engineer.
3.11	*****	
Part 3.12 Energy Efficiency		
3.12	Energy efficiency	BASIX is applicable in NSW as well as NSW parts 2.6 Building Fabric and 3.12 Thermal Insulation and Glazing.

3.2 Other Matters.

As the proposed building work constitutes an alteration/addition to an existing building the certifying authority is obligated to consider ahead of the issue of a compliance certificate (CC) the provisions of clause 143(3) of the EP& A Act Regulation 2000. The criteria of the clause are based upon the building work when complete, will not reduce the “fire protection and structural capacity” of the existing building. Fire protection and structural capacity is defined as follows: -

(a) Structural strength and load-bearing capacity of the building, and

(b) The measures to protect persons using the building and to facilitate their egress in the event of fire, and

(c) The measures to restrict the spread of fire from the building to other nearby buildings.

The building additions are of a kind that they: -

1. Do not affect the buildings structural elements.

However, profession engineer’s certification is required to ensure the existing building is structural sound and, is capable of sustaining the loads likely to arise from the additions proposed including the necessary siteworks.

2. The building on completion will stand at a greater distance than 900mm from the boundary lines of allotment.

However, the existing dwelling should be retrofitted with smoke alarms that;

- (a) Comply with the BCA and Australian Standard, AS 3786-2014; and
- (b) Are interconnected with the smoke alarms of the substantive additions.

4.0 Work Specification.

The following table outlines the various aspects of the BCA that are relevant to the proposal.

Table 3.

Building element	E P & A Act Reg. 2000		BCA provision-requirement
New building work of the additions and swimming pool	Clause 145(1)(b) of the Regulations		The provisions of BCA volume 2 are applicable to the new building work of the dwelling additions, the details of which are outlined in Table 2 of this report.
Existing building but not including the deck which is to be removed		Clause 143(3) of the Regulations	<ol style="list-style-type: none"> 1. Structural engineers' certification to a standard required by BCA Part A5.2 that; - The existing dwelling/retaining walls are capable of sustaining the additional loads of the addition given its substantive nature and extent of siteworks; 2. The provision of smoke alarms to a standard required by BCA Part 3.7.5, and 3. The introduction of termite management procedures.

5.0 Conclusion.

The building as designed and detailed in the architectural drawings at Annexure A of this report is capable of compliance with the provisions of the BCA, Volume 2, 2019 Edition.

The level of compliance is to an extent that it is anticipated the design, as proposed will not require undue modification to the building or alter its external appearance.

The matters relevant to compliance with the Environmental Planning and Assessment Act Regulation, 2000 as listed in table 3 serve to indicate the building is capable of complying with the relevant provisions of the Building Code of Australia and, when complete, attain a level of compliance required by the said regulation.

However, the documentation of the construction certificate i.e. the plans and architect's specification will nonetheless require further assessment following the development applications determination for the purpose of responding to consent matters that are prerequisites to the issue of a construction certificate together with those matters listed in tables 2 and 3 of this report.

Author.

Rodger Dowsett. MAIBS.

6.0 Annexures.

Annexure A

Drawing Description	Prepared By	Date
Roof plan /Site plan	Warren Design	1/2/19
Loft plan 1a	✓	✓
Plan level 1	✓	✓
Plan level 2	✓	✓
Plan level 3	✓	✓
Existing house and ground floor level 4	✓	✓
Section a. a	✓	✓
East elevation	✓	✓
North elevation	✓	✓
South Elevation	✓	✓