

## **BUILDING CODE OF AUSTRALIA 2019 AMENDMENT 1 REPORT**

### **PROPOSED NEW LAHC RESIDENTIAL PROJECT**

#### **1 WARATAH AVENUE & 50 FROST STREET, ORANGE NSW 2800**

**THIS REPORT RELATES TO THE CLASS 1A SINGLE STOREY DWELLINGS  
(A SEPARATE REPORT HAS BEEN PROVIDED FOR THE CLASS 2 TWO STOREY RESIDENTIAL  
BUILDING)**

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### **DOCUMENT ACCEPTANCE**

	Name	Signed	Date
Verified By	Frank De Pasquale		1/11/21

### **REVISION HISTORY**

Revision No.	Prepared by	Description	Date
R01	Rhoebee Clemente	Final BCA 2019 Amdt 1 report	1/11/21



## 1.0 Introduction and Documentation

At the request of NSW Land and Housing Corporation, we offer comments and recommendations in respect to Building Code of Australia 2019 compliance for the proposed senior living development located at 1 Waratah Avenue and 50 Frost Street, Orange NSW 2800.

This report contains a review concerning the capability of the proposed design to meet Volume 2 of the Building Code of Australia 2019 Amdt 1 (BCA 2019 Amdt 1) requirements as applicable in NSW. Areas of the design are still being refined so that resolution will be possible prior to the issue of a Crown Design Verification Certificate (S6.28 CDVC) in accordance with S6.28 of the Environmental Planning and Assessment Act 1979 for the works.

This report does not address the main two storey residential building located at the front of the allotment (a separate report has been provided).

This report does not assess the impact of the Disability Discrimination Act (DDA) which is outside the scope of the BCA nor does it include compliance with Part D3 of the BCA. Any Access design amendments or additional information from a third party Access Consultant is to be addressed prior to the issue of a Crown Design Verification Certificate (S6.28 CDVC).

This report is for the exclusive use of the client and cannot be used for any other purpose without prior permission from Philip Chun BC NSW Pty Ltd. The report is valid only in its entire form. "Philip Chun accepts no responsibility for any loss suffered as a result of any reliance upon such assessment or report other than as being accurate at the date of issue of the report".

### Documentation available and assessed:

The drawings assessed are those issued by DTA Architects

Drawing No. / Revision	Titled	Dated
A2/P7	Block Analysis Plan	29/10/21
A3/P7	Site Analysis Plan	29/10/21
A4/P7	Demolition Plan	29/10/21
A5/P7	Development Data	29/10/21
A6/P7	Site Plan	29/10/21
A7/P7	Ground Floor Plan	29/10/21
A8/P7	First Floor Plan	29/10/21
A9/P7	Roof Plan	29/10/21
A10/P7	Elevations	29/10/21
A11/P7	Elevations	29/10/21
A12/P7	Elevations – Street View	29/10/21
A13/P7	Sections	29/10/21
A14/P7	Solar Access – View From Sun	29/10/21
A15/P7	Solar Access – View From Sun	29/10/21
A16/P7	Shadow Diagrams	29/10/21
A17/P7	Perspectives	29/10/21



## 2.0 Building Code of Australia Assessment

### Use and Class of Building

According to the Building Code of Australia the following definitions assist in the classification of the buildings and their various parts.

#### **A6.0 Determining a building classification**

- (1) The classification of a building or part of a building is determined by the purpose for which it is designed, constructed or adapted to be used.*
- (2) Each part of a building must be classified according to its purpose and comply with all the appropriate requirements for its classification*
- (3) A room that contains a mechanical, thermal or electrical facility or the like that serves the building must have the same classification as the major part or principal use of the building or fire compartment in which it is situated.*
- (4) Unless another classification is more suitable an occupiable outdoor area must have the same classification as the part of the building to which it is associated.*

#### **Explanatory information:**

- 1. Class 1 and 10 buildings are classified in accordance with this Part; and*
- 2. Class 2 to 9 buildings are classified in accordance with [Section A](#) of BCA, Volume One.*
- 3. Access requirements for people with a disability for certain Class 1b and Class 10a buildings, and certain Class 10b swimming pools, are contained in Volume One of the BCA. These requirements are based on the Disability (Access to Premises – Buildings) Standards which are available from the Australian Government Attorney-General's Department website at [www.ag.gov.au](http://www.ag.gov.au).*

#### **Classifications:**

**Class 1** one or more buildings which in association constitute—

**Class 1a** is one or more buildings, which together form a single dwelling including the following:

- (a) A detached house.**
- (b) One of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit.**

#### **Class 2 building**

- (1) A Class 2 building is a building containing two or more sole-occupancy units.**
- (2) Each sole-occupancy unit in a Class 2 building is a separate dwelling.**

**Refer to the separate report provided for Class 2 building.**

## 2.1 Structural Provisions

The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions, where—

- (a) the most critical action effect on a building or structure must be determined in accordance with 3.0.3 and the general design procedures contained in AS/NZS 1170.0; and**
- (b) the resistance of a building or structure is determined in accordance with 3.0.4.**

**Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**

## 2.2 Site Preparation

These provisions relate to general site preparation for footings, services, drainage and installation of termite management systems. It should be noted that other construction methods may be used to achieve the same results as specified in this Part provided they comply with the appropriate Performance Requirement.



- Where excavation and/or fill works are proposed as part of the site preparation, the works must comply with the requirements of Clause 3.1.1. Compliance with this part is dependent on Structural Engineer design and/or advice.
- Earth retaining structures are to comply with Clause 3.1.2 and AS 4678.
- Drainage is to be designed in and constructed in accordance with the requirements of Clause 3.1.3, AS/NZS3500.3.2. Compliance with this part is subject to hydraulic design and calculations noting each Council may have different requirements.

**Obtain a Structural and Hydraulic Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**

### 2.2.1 Termite Risk Management

Applies to primary building elements of a Class 1 and 10 building which are susceptible to termite attack. Methods of protection need comply with AS 3660.1.

Primary building element, for the purposes of Part 3.1.4, means a member of a building designed specifically to take part of the building loads and includes roof, ceiling, floor, stairway or ramp and wall framing members including bracing members designed for the specific purpose of acting as a brace to those members.

A termite management system must be installed in accordance with Table 3.1.4.1.

A durable notice must be permanently fixed to the building in a prominent location, such as in a meter box or the like, indicating—

- (i) the termite management system used; and
- (ii) the date of installation of the system; and
- (iii) where a chemical is used, its life expectancy as listed on the National Registration Authority label; and
- (iv) the installer's or manufacturer's recommendations for the scope and frequency of future inspections for termite activity.

Table 3.1.4.1 Acceptable termite management systems and components

Building element	Termite management system or component options
Concrete slab-on-ground: Slab perimeter or <i>external wall</i> perimeter	Slab edge exposure Sheet material Granular material Chemical
Concrete slab-on-ground: Penetrations/control joints/area beneath the slab (see Note)	Sheet material Granular material Chemical
Suspended floors	Sheet material Granular material Chemical
Attachments to buildings	Termite management system to the attachment Inspection zone between attachment and building

**Note to Table 3.1.4.1:** The entire area beneath the slab must be treated when the slab-on-ground is not designed and constructed in accordance with AS 2870 or AS 3600.

**A termite management system installation certificate will be required prior to issue of a Crown Occupation Verification Certificate (COVC).**

### 2.3 Footings and Slabs

- The footings or slab meets the performance requirements of the BCA if constructed in accordance with AS2870; and piled footings are designed in accordance with AS2159.
- The footing and slabs preparation is to comply with the requirements of BCA Clause 3.2.2 i.e. slab support, stepped footings, vapour barriers, edge barriers etc.
- The footings / slabs construction is to comply with the requirements of BCA Clause 3.2.5.

**Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**



### 2.3.1 Concrete and Reinforcing

Concrete must comply with the following:

- a) Concrete must be manufactured to comply with AS 3600; and—
  - (i) have a strength at 28 days of not less than 20 MPa (denoted as N20 grade); and
  - (ii) have a 20 mm maximum nominal aggregate size; and
  - (iii) have a nominal 100 mm slump.
- b) Water must not be added to the mix to increase the slump to a value in excess of that specified.
- c) Concrete must be placed, compacted and cured in accordance with good building practice.

Materials used for reinforcing steel must comply with AS 2870 and be—

- a) welded wire reinforcing fabric; or
- b) trench mesh; or
- c) steel reinforcing bars.

**Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**

### 2.3.2 Site Classification

The foundation where the footing is to be located must be classified in accordance with AS 2870:

Table 3.2.4.1 General definition of site classes

Class	Foundation
A	Most sand and rock <i>sites</i> with little or no ground movement from moisture changes
S	Slightly reactive clay <i>sites</i> with only slight ground movement from moisture changes
M	Moderately reactive clay or silt <i>sites</i> which can experience moderate ground movement from moisture changes
H	Highly reactive clay <i>sites</i> which can experience high ground movement from moisture changes
E	Extremely reactive clay <i>sites</i> which can experience extreme ground movement from moisture changes
A to P	Filled <i>sites</i> — see AS 2870
P	<i>Sites</i> which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive <i>sites</i> subject to abnormal moisture conditions or <i>sites</i> which cannot be classified otherwise

**Note to Table 3.2.4.1:** For classes M, H and E further division based on the depth of the expected movement is *required*. For deep-seated movements, characteristic of dry climates and corresponding to a design depth of suction change  $H_s$ , equal to or greater than 3 m, the classification shall be M-D, H-D or E-D as appropriate. For example, H-D represents a highly reactive *site* with deep moisture changes, and H represents a highly reactive *site* with shallow moisture changes.

**Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**

### 2.4 Masonry

Unreinforced and Reinforced Masonry – Performance Requirement P2.1.1 is satisfied for unreinforced and reinforced masonry if it is designed and constructed in accordance with on the following:

- a) AS3700
- b) AS4773 Parts 1 and 2

**Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.**

### 2.5 Framing

Timber Framing – Performance Requirement P2.1.1 is satisfied for a timber frame if it is designed and constructed in accordance with the following:



- (a) Design of timber structures: AS 1720.1.
- (b) Design of nailplated timber roof trusses: AS 1720.5.
- (c) Residential timber-framed construction – non-cyclonic areas: AS 1684.2.
- (d) Residential timber-framed construction – cyclonic areas: AS 1684.3.
- (e) Residential timber-framed construction – non-cyclonic areas (simplified): AS 1684.4.
- (f) Installation of particleboard flooring: AS 1860.2.

Steel Framing – Performance Requirement P2.1.1 is satisfied for steel framing if it is designed and constructed in accordance with one of the following manuals:

- a) Steel structures: AS 4100.
- b) Cold-formed steel structures: AS/NZS 4600.
- c) Residential and low-rise steel framing: NASH Standard.

Structural steel members – Performance Requirement P2.1.1 is satisfied for structural steel sections if they are designed and constructed in accordance with one of the following manuals:

- a) Steel structures: AS 4100.
- b) Cold-formed steel structures: AS/NZS 4600.

***Obtain a Structural Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.***

## **2.6 Roof and Wall Cladding**

Roof cladding – Performance Requirements P2.1.1 and P2.2.2 are satisfied for roof cladding if it complies with one of the following:

- a) Roofing tiles: AS 2049 and AS 2050.
- b) Terracotta, fibre-cement and timber slates and shingles: AS 4597.
- c) Metal roofing: AS 1562.1.
- d) Plastic sheet roofing: AS/NZS 4256 Parts 1, 2, 3 and 5; and AS/NZS 1562.3.
- e) Pliable membrane and underlay: AS/NZS 4200 Parts 1 and 2.

Gutters and downpipes – Performance Requirement P2.2.1 is satisfied for gutters and downpipes if they are designed and constructed in accordance with AS/NZS 3500.3 — Stormwater drainage.

Wall Cladding – Performance Requirements P2.1.1 and P2.2.2 are satisfied for metal wall cladding if it is designed and constructed in accordance with AS 1562.1.

***Obtain a Structural and Hydraulic Engineers design certificate/drawings/specification, specifying compliance with the above requirements. Hydraulic consultant to verify the stormwater drainage system. Details to be provided prior to issue of S6.28 CDVC.***

## **2.7 Glazing**

- a) Performance Requirements P2.1.1 and P2.2.2 are satisfied for glazing and windows if designed and constructed in accordance with AS 2047 for the following glazed assemblies in an external wall:
  - (i) Windows excluding those listed in (b).
  - (ii) Sliding and swinging glazed doors with a frame, including french and bi-fold doors with a frame.
  - (iii) Adjustable louvres.
  - (iv) Window walls with one piece framing.
- b) Performance Requirement P2.1.1 is satisfied for glazing if designed and constructed in accordance with AS 1288 for all glazed assemblies not covered by (a) and the following glazed assemblies:
  - (i) All glazed assemblies not in an external wall.
  - (ii) Hinged doors, including French doors and bi-fold doors.
  - (iii) Revolving doors.
  - (iv) Fixed louvres.
  - (v) Skylights, roof lights and windows in other than the vertical plane.



- (vi) Sliding doors without a frame.
- (vii) Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047.
- (viii) Second-hand windows, re-used windows, recycled windows and replacement windows.
- (ix) Heritage windows.
- (x) Glazing used in balustrades and sloping overhead glazing.

Glass in doors must be Grade A safety glazing material in accordance with Table 3.6.5 and Figure 3.6.1, except that—

- a) unframed doors, other than those incorporated in shower screens or bath enclosures, must be glazed with toughened safety glass with a minimum nominal thickness of 10 mm or laminated toughened safety glass with a minimum total thickness of 10 mm; and
- b) individual pieces of ordinary annealed glass incorporated in lead lights may be used, to a maximum area of 0.05 m<sup>2</sup> with a minimum nominal thickness of 3 mm; and
- c) for annealed and annealed decorated glass panels in doors—
  - (i) for 3 mm and 4 mm annealed glass, the maximum area must not be more than 0.1 m<sup>2</sup> with a maximum panel width of 125 mm; and
  - (ii) for 5 mm and 6 mm annealed glass, the maximum area must not be more than 0.26 m<sup>2</sup> with a maximum panel width of 300 mm; and
- d) for annealed glass in fully framed panels with a thickness of 10 mm or more, with or without bevelled edges, the maximum area must not be more than 0.5 m<sup>2</sup>; and
- e) doors in bathrooms, ensuites and spa rooms must be glazed in accordance with 3.6.4.5.

Bathroom, ensuite and spa room glazing

- a) All glazing in bathrooms, ensuites, spa rooms or the like, including shower doors, shower screens, bath enclosures, and associated windows, where the lowest sight line is less than 2.0 m above the highest abutting finished level of the floor, bottom of the bath, or shower base, must—
  - (i) for framed panels, be glazed with—
    - (A) Grade A safety glazing material in accordance with Table 3.6.5; or
    - (B) Grade B safety glazing material in accordance with Table 3.6.6 (see also Figure 3.6.3); or
  - (ii) for panels or doors with any edge exposed, be toughened safety glass in accordance with Table 3.6.5 with a minimum nominal thickness of 6 mm.
- b) Windows referred to in (a), may incorporate annealed glass panels of not less than 4 mm thickness, provided that they are not more than 0.1 m<sup>2</sup> in area.
- c) Ordinary annealed glass, including mirror, may be used provided a fixed vanity or bench with a height of not less than 760 mm, depth of not less than 300 mm and extending the full width of the glass or mirror is located in front of the glass or mirror.

***A glazing installation certificate is to be provided prior to issue of S6.28 COVC. Vision bands required to full height glazed doors / panels.***

## **2.8 Fire Safety**

### **2.8.1 External Walls of a Class 1 Building**

An external wall of a Class 1 building, and any openings in that wall, must comply with 3.7.2.4 if the wall is less than—

- a) 900 mm from an allotment boundary other than the boundary adjoining a road alignment or other public space; or
- b) 1.8 m from another building on the same allotment other than a Class 10 building associated with the Class 1 building or a detached part of the same Class 1 building.

***Current plans appear to comply. The external walls of the main building are greater than 900mm from any boundaries. The attached dwellings must be separated by a 60min FRL. Details to be provided at S6.28 CDVC.***





## 2.8.2 Construction of External Walls required to be Fire-Resisting

External walls (including gables) required to be fire-resisting (referred to in 3.7.2.2 or 3.7.2.5) must –

- (i) commence at the footings or ground slab, except where the external wall commences above a separating wall complying with 3.7.3.2 (see Figure 3.7.2.2b); and
- (ii) extend to—
  - (A) the underside of a non-combustible roof covering, except that a wall may terminate not more than 200 mm from the underside of a non-combustible roof covering, where the area between the external wall and underside of the roof covering is sealed with a non-combustible fascia, gutter or flashing; or
  - (B) the underside of a non-combustible eaves lining (See Figure 3.7.2.3); and
- (iii) be constructed in accordance with (b).

A wall required by (a) must—

- (i) have an FRL of not less than 60/60/60 when tested from the outside; or
- (ii) be of masonry-veneer construction in which the external masonry veneer is not less than 90 mm thick; or
- (iii) be of masonry construction not less than 90 mm thick.

***The attached dwellings must be separated by a 60min FRL. Details to be provided at S6.28 CDVC.***

## 2.8.3 Allowable encroachment

(a) An encroachment is any construction between—

- (i) the external wall of the building and the allotment boundary other than a boundary adjoining a road or other public space; or
- (ii) the external walls of two buildings on the same allotment; or
- (iii) the external wall of the building and the vertical projection of an adjoining building on the same allotment.

(b) For the purposes of (a), an encroachment relates to any external wall of—

- (i) a Class 10a building required to comply with 3.7.2.5; or
- (ii) a Class 1 building.

(c) Encroachments allowed within 900 mm of an allotment boundary or within 1.8 m of another building on the same allotment are—

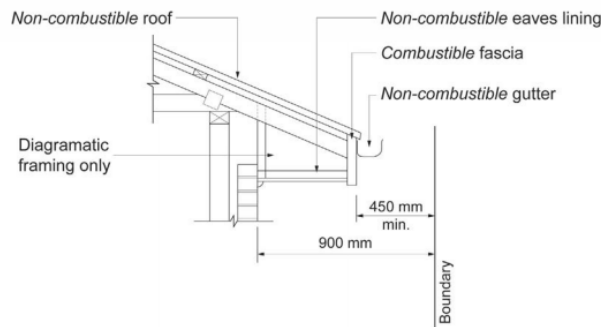
- (i) non-combustible fascias, gutters and downpipes; and
- (ii) light fittings, electricity or gas meters, aerials or antennas; and
- (iii) pergolas, sun blinds or water tanks (see Figure 3.7.2.9); and
- (iv) unroofed terraces, landings, steps and ramps, not more than 1 m in height.

(d) Encroachments allowed up to but not closer than 450 mm from an allotment boundary or up to but not closer than 900 mm from another building on the same allotment or associated encroachments of another building on the same allotment are—

- (i) combustible fascias, gutters and downpipes (see Figure 3.7.2.9); and
- (ii) eaves with non-combustible roof cladding and non-combustible lining; and
- (iii) flues, chimneys, pipes, domestic fuel tanks, cooling or heating appliances or other services.

(e) Encroachments allowed between an external wall of a building and the vertical projection of an adjoining building on the same allotment are non-combustible fascias, gutters and downpipes (see Figure 3.7.2.3(e))





**Eaves and roof cladding which are less than 900mm from the side boundaries are required to be non-combustible – proposed design complies.**

#### 2.8.4 Fire hazard properties

The fire hazard properties of materials used in a Class 1 building, including common floor or ceiling spaces with a Class 10 building, must comply with the following:

- a) Sarking-type materials used in the roof must have a flammability index not greater than 5.
- b) 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 hazard indices test data sheets required for assessment if sarking-type materials are to be used in the ceiling/roof system. Details to be provided prior to issue of S6.28 CDVC.**

#### 2.8.5 Separating Walls

(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 associated with the Class 1 building must—

(i) have either—

(A) an FRL of not less than 60/60/60; or

(B) be of masonry construction not less than 90 mm thick; and

(ii) commence at the footings or ground slab (see Figure 3.7.3.1), except for horizontal projections to which 3.7.3.5 applies (see Figure 3.7.3.4); and

(iii) extend—

(A) if the building has a non-combustible roof covering, to the underside of the roof covering (see Figure 3.7.3.1 and Figure 3.7.3.2); or

(B) if the building has a combustible roof covering, to not less than 450 mm above the roof covering (see Figure 3.7.3.1); and

(iv) comply with (b) to (e) and 3.7.3.3 as applicable.

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

(c) A separating wall complying with (a)(iii)(A)—

(i) must not be crossed by timber or other combustible building elements except for roof battens with dimensions of 75 x 50 mm or less, or roof sarking; and

(ii) must have any gap between the top of the wall and the underside of the roof covering packed with mineral fibre or other suitable fire-resisting material.

(d) Where a building has a masonry veneer external wall, any gap between the separating wall and the external masonry veneer must be—

(i) not more than 50 mm; and

(ii) packed with a mineral fibre or other suitable fire resistant material with the packing arranged to maintain any weatherproofing requirements of Part 3.3.4.

(e) Eaves, verandahs and similar spaces that are open to the roof space and are common to more than one Class 1 dwelling must be separated by a non-combustible vertical lining (see Figure 3.7.3.2 Diagram b).

**The attached dwellings must be separated by a 60min FRL. Details to be provided at S6.28 CDVC.**



## 2.8.6 Smoke Alarms

Smoke alarms must—

- a) be located in—
  - (i) Class 1a buildings in accordance with 3.7.5.3 and 3.7.5.5; and
  - (ii) Class 1b buildings in accordance with 3.7.5.4 and 3.7.5.5.
- b) comply with AS 3786, except that in a Class 10a private garage where the use of the area is likely to result in smoke alarms causing spurious signals, any other alarm deemed suitable in accordance with AS 1670.1 may be installed provided that smoke alarms complying AS 3786 are installed elsewhere in the Class 1 building; and
- c) be powered from the consumer mains source where a consumer mains source is supplied to the building; and
- d) be interconnected where there is more than one alarm.

In a Class 1a building, smoke alarms must be located in—

- a) any storey containing bedrooms, every corridor or hallway associated with a bedroom, or if there is no corridor or hallway, in an area between the bedrooms and the remainder of the building; and
- b) each other storey not containing bedrooms.

***Obtain an electrical design certificate/drawings/specification, specifying compliance with the above requirements. Details to be provided prior to issue of S6.28 CDVC.***



## 2.9 Health and Amenity

### 2.9.1 Wet Area and External Waterproofing

Building elements in wet areas within a building must—

- be waterproof or water resistant in accordance with Table 3.8.1.1; and
- comply with AS 3740.

Waterproofing membranes for external above ground use must comply with AS 4654 Parts 1 and 2.

Wet area means an area within a building supplied with water from a water supply system, which includes bathrooms, showers, laundries and sanitary compartments and excludes kitchens, bar areas, kitchenettes or domestic food and beverage preparation areas.

**Architectural specification to note - Details to be provided prior to issue of S6.28 CDVC.**

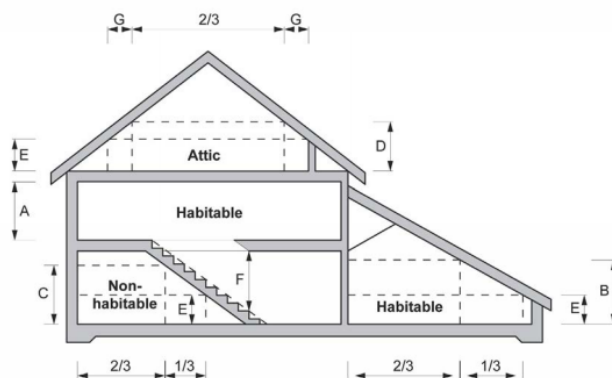
### 2.9.2 Room Heights

Heights of rooms and other spaces (see Figure 3.8.2.1) must be not less than—

- in a habitable room excluding a kitchen — 2.4 m; and
- in a kitchen — 2.1 m; and
- in a corridor, passageway or the like — 2.1 m; and
- in a bathroom, shower room, laundry, sanitary compartment, airlock, pantry, storeroom, garage, car parking area or the like — 2.1 m; and
- in a room or space with a sloping ceiling or projections below the ceiling line within—
  - a habitable room—
    - in an attic — a height of not less than 2.2 m for at least two-thirds of the floor area of the room or space; and
    - in other rooms — a height of not less than 2.4 m over two-thirds of the floor area of the room or space; and
  - a non-habitable room — a height of not less than 2.1 m for at least two-thirds of the floor area of the room or space,and when calculating the floor area of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and
- in a stairway, ramp, landing, or the like — 2.0 m measured vertically above the nosing line of stairway treads or the floor surface of a ramp, landing or the like

Figure 3.8.2.1

Measurement of heights of rooms and other spaces



**Current plans appear to comply.**



### 2.9.3 Required facilities

A Class 1 building must be provided with—

- (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.

(b) If any of the facilities in (a) are detached from the main building, they must be set aside for the exclusive use of the occupants of the building.

The door to a fully enclosed sanitary compartment must—

- a) open outwards; or
- b) slide; or
- c) be readily removable from the outside of the compartment,

Unless there is a clear space of at least 1.2 m, measured in accordance with Figure 3.8.3.3, between the closet pan within the sanitary compartment and the doorway.

***Current plans comply. Details to be provided prior to issue of S6.28 CDVC.***

### 2.9.4 Light, Ventilation and Acoustics

Natural lighting must be provided to all habitable rooms, in accordance with the following:

- a) Natural lighting must be provided by—
  - (i) windows, excluding roof lights that—
    - A. have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the floor area of the room; and
    - B. are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like
- b) A window required to provide natural light that faces a boundary of an adjoining allotment must not be less than a horizontal distance of 900 mm from that boundary.
- c) Natural light to a room may come through one or more glazed panels or openings from an adjoining room (including an enclosed verandah) if it complies with Clause 3.8.4.2 (c).

Sanitary compartments, bathrooms, shower rooms, airlocks and laundries must be provided with artificial lighting if natural light in accordance with the relevant provisions of 3.8.4.2 is not available—

- a) at a rate of not less than one light fitting per 16 m<sup>2</sup> of floor area; or
- b) in accordance with AS/NZS 1680.0.

Ventilation must be provided to a habitable room, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose by any of the following means:

- a) Openings, windows, doors or other devices which can be opened—
  - (i) with a ventilating area not less than 5% of the floor area of the room required to be ventilated; and
  - (ii) open to—
    - (A) a suitably sized court, or space open to the sky; or
    - (B) an open verandah, carport, or the like; or
    - (C) an adjoining room in accordance with (b)
- b) Natural ventilation to a room may come through a window, opening, door or other device from an adjoining room (including an enclosed verandah) if—
  - (i) the room to be ventilated or the adjoining room is not a sanitary compartment; and
  - (ii) the window, opening, door or other device has a ventilating area of not less than 5% of the floor area of the room to be ventilated; and
  - (iii) the adjoining room has a window, opening, door or other device with a ventilating area of not less than 5% of the combined floor areas of both rooms; and



- (iv) the ventilating areas specified may be reduced as appropriate if direct natural ventilation is provided from another source.
- c) An exhaust fan or other means of mechanical ventilation may be used to ventilate a sanitary compartment, laundry, kitchen or bathroom, or where mechanical ventilation is provided in accordance with 3.8.5.3(b), provided contaminated air exhausts comply with 3.8.7.3.

#### Location of sanitary compartments

Sanitary compartments must not open directly into a kitchen or pantry unless—

- a) access is by an airlock, hallway or other room, (see Figure 3.8.5.2); or
- b) the sanitary compartment is provided with an exhaust fan or other means of mechanical exhaust ventilation.

**Compliance readily achievable. Electrical and Mechanical consultants to provide details prior to issue of S6.28 CDVC.**

## 2.10 Safe Movement and Egress

### 2.10.1 Stair Construction

#### Stairway

- (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
  - (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.
- (b) In the case of a stairway serving only non-habitable rooms, such as attics, storerooms and the like that are not used on a regular or daily basis—
  - (i) the going (G), riser (R) and slope relationship quantity ( $2R + G$ ) in accordance with Table 3.9.1.1 may be substituted with those in Table 3.9.1.2; and
  - (ii) need not comply with 3.9.1.2(a)(iv).
- c) In the case of a stairway with winders—
  - (i) a maximum of 3 consecutive winders in lieu of a quarter landing in a flight and a maximum of 6 consecutive winders in lieu of a half landing in a flight; and
  - (ii) the going (G) of all winders in lieu of a quarter or half landing may vary from the going of the straight treads within the same flight provided that the going (G) of such winders is constant.
- (d) The point of measurement of the going (G) in the slope relationship quantity ( $2R + G$ ) for tapered treads and treads in spiral stairways as described in Table 3.9.1.1 (see Figure 3.9.1.1a to Figure 3.9.1.1c) must be—
  - (i) for tapered treads, other than treads in a spiral stairway—
    - (A) not more than 1 m in width, the middle of the unobstructed width of the stairway (see Figure 3.9.1.1b); and
    - (B) more than 1 m in width, 400 mm from the unobstructed width of each side of the stairway (see Figure 3.9.1.1c); and
  - (ii) for treads in spiral stairways, the point seven tenths of the unobstructed width from the face of the centre pole or support towards the handrail side (see Figure 3.9.1.2a and Figure 3.9.1.2b).



Landings must—

- a) be not less than 750 mm long and where this involves a change in direction, the length is measured 500 mm from the inside edge of the landing (see Figure 3.9.1.3a); and
- b) have a gradient not steeper than 1:50; and
- c) be provided where the sill of a threshold of a doorway opens onto a stairway or ramp that provides a change in floor level or floor to ground level greater than 3 risers or 570 mm (see Figure 3.9.1.3b); and
- d) extend across the full width of a doorway; and
- e) in the case of a stairway serving only non-habitable rooms, such as attics, storerooms and the like that are not used on a regular or daily basis, the requirements of (a) may be substituted with a minimum length of landing being not less than 600 mm long.

Table 3.9.1.3 Slip-resistance classification

Application	Dry surface conditions	Wet surface conditions
Ramp not steeper than 1:8	P4 or R10	P5 or R12
Tread surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

***There does not appear to be any stairs proposed hence, not applicable.***

## 2.10.2 Handrails, Barriers and Protection of Openable Windows

Handrails, barriers and protection of openable windows must comply with the requirements of Part 3.9.2.

***Not applicable.***

## 2.11 Energy Efficiency

The proposed building must comply with the requirements of BASIX (see NSW Variations in Volume 2 of the BCA), hence an assessment will need to be carried out for the design to validate compliance.

***A BASIX certificate is to accompany the Development Application or REF to ensure compliance. A copy of BASIX certificate is to be provided prior to issue of a S6.28 CDVC.***

## 3.0 Conclusion

We have assessed the drawings with respect to the Building Code of Australia 2019 Amdt 1 (Volume 2). We are confident that the design is generally capable of meeting the Deemed-to-Satisfy and Performance Requirements of the Building Code of Australia 2019 Amdt 1 (Volume 2). Areas of the design are still being developed, which will be addressed prior to issue of S6.28 CDVC.