18 March 2016

Our Reference: **J13-040/A**

benchmark
BUILDING CERTIFIERS

Anglican Retirement Villages
C/- Morgan Moore & Associates
Level 2, 4-10 Bridge Street
PYMBLE NSW 2073

RE: Building Code of Australia Report – "Part 3.7 Fire Safety"
PTY: "ARV Warriewood Brook" – Stage 4 – Updated Report

Dear Martin,

I refer to the revised Part 3.7 (Fire Safety) Building Code of Australia Report requested by you for the existing independent living unit development at the abovementioned property, incorporating the completed Stage 4 component of the development.

Please contact the undersigned should you wish to discuss any aspect of the report.

Yours faithfully,

Anthony Krilich
Benchmark Building Certifiers

Encl.

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BUILDING CERTIFIERS

BUILDING CODE OF AUSTRALIA COMPLIANCE REPORT

PREPARED FOR:

"Anglican Retirement Villages"

BY

Benchmark Building Certifiers

REGARDING

ARV Warriewood Brook – Stage 4
(Independent Living Units)

18 March 2016

Reference No.: J13-040/A

- BUILDING APPROVALS
- BASIX / SECTION J ENERGY RATINGS
- BUILDING / FIRE SAFETY CONSULTANTS
- TOWN PLANNING
- ACCREDITED CERTIFIERS
- PRINCIPAL CERTIFYING AUTHORITY

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Version	Date	Description
A	14/03/16	Draft report for client review (original plans) Prepared by AK — Checked by RV Anthony Krilich (MAIBS) — Robert Valades (MAIBS)
B	18/03/16	Final report (revised design) Prepared by AK — Checked by RV Anthony Krilich (MAIBS) — Robert Valades (MAIBS)

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PART 1

BASIS OF ASSESSMENT

1.0 BASIS OF ASSESSMENT

1.1 General/Background

This report relates to the suitability of the completed development with regard to the relevant provisions of Part 3.7 (Fire Safety) of *BCA2015 (refer to Part 1.4 below)*.

Benchmark Building Certifiers prepared a Part 3.7 (Fire Safety) of the Building Code of Australia Report for the development in August 2013 for the intended ILU's within Stages 4 to 6 of 'ARV Warriewood Brook' (Report J13-040 dated 22 August 2013).

Development consent was granted by Pittwater Council on the 20 February 2014 via Development Application No. N0267/13. The development consent was also subsequently modified on the 15 April 2015 (Application N0267/13/S96/1).

A construction certificate incorporating the works associated with Stage 4 was issued by Brendan Bennett of City Plan Services Pty Ltd (BPB0027 – A1 accredited certifier) on the 26 March 2015. A subsequent construction certificate was issued on the 21 May 2015 for the Section 96 approval component of the development.

An interim occupation certificate for the development within Stage 4 was issued on the 20 January 2016.

1.2 Purpose of this Report

The purpose of this report is to assess the independent living unit buildings (dwelling houses) for compliance with the provisions of Part 3.7 (Fire Safety) of the Building Code of Australia (Volume Two) for the completed works within Stage 4 only and in particular, the changes made to the plans within Stage 4. This report will be used as part of a Section 149B Building Certificate application requested by Pittwater Council for the completed development.

The report will assess the compliance of all completed dwelling houses with respect to final plans for the development. The report will make recommendations on compliance with the relevant provisions of *BCA2015*.

1.3 Exclusions

This report should not be construed to infer that an assessment of compliance with the following has been undertaken:

- All other parts of *BCA2015* other than Part 3.7.

1.4 Building Code of Australia

This Report is based on the Deemed-to-Satisfy provisions of the *National Construction Code Series – Volume 2 – Building Code of Australia 2015 (Class 1 and Class 10 Buildings)* incorporating Amendments and the New South Wales variations, where applicable. Where referenced in this report, the *Building Code of Australia* will be noted as *BCA2015*.

The report will identify any non-compliance with the Performance Requirements of *BCA2015*.

Note: The original construction certificate application was assessed under the provisions of BCA2014 and the subsequent construction certificate was assessed under the provisions of BCA2015.

For clarity, BCA2015 is used as the referenced document within this report, and is also the current edition of the Code.

1.5 Building Descriptions

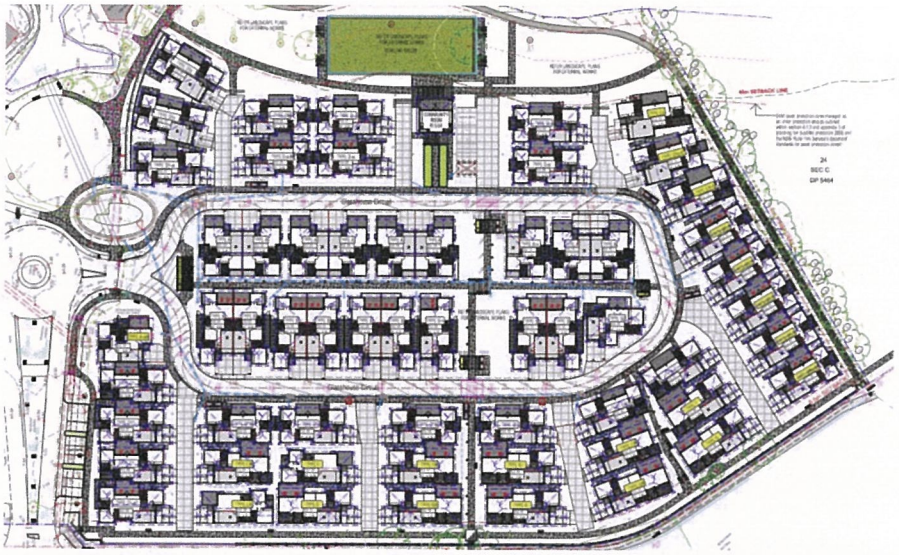
The proposed independent living units are predominately Class 1a dwellings, which have the following general construction descriptions:

Roof:	Colorbond or tiled roof (sarked)
External Walls:	Combination of brick veneer and lightweight claddings
Separating Walls:	230 cavity brick walls (for attached dwellings only)
Floors:	On ground concrete slab floor

1.6 Documents Relied Upon

The following document / plan references have been relied upon for of this report:

Description	Dwg/Report No.	Issue/Date
▪ *Architectural plans prepared by 'environa studio'*	*731*	*25 February 2016*
▪ *Fire engineering report prepared by 'BCA Innovations'*	*F15-055*	*13 January 2016*
▪ *Bushfire construction certification comment prepared by 'Building Code & Bushfire Hazard Solutions'*	*130164b*	*30 October 2014*
▪ *Construction certificate issued by 'Brendan Bennett for City Plan Services Pty Ltd'*	*CC142440/1*	*25 March 2015*
▪ *Construction certificate issued by 'Brendan Bennett for City Plan Services Pty Ltd'*	*CC142440/2*	*21 May 2015*
▪ *Interim occupation certificate issued by 'Brendan Bennett for City Plan Services Pty Ltd'*	*IOC142440*	*20 January 2016*



Above/Below – Site plan for Stages 4 and 5 and stage distinction.

1.7 Location

The property is located on the northern side of Macpherson Street in Warriewood (Pittwater Council).

The property description is Lots 3, 4 & 5 in DP 1161389, and has the street address of 6-10 Macpherson Street.

The DA however applied to Lots 1 to 5, for street numbers 6-14 Macpherson Street).

An aerial view of the site is shown:

PART 2

EXECUTIVE SUMMARY

A revised *BCA2015* assessment is provided for in Part 3 of this report.

This report has found that the completed development within Stage 4 has complied with the provisions of *BCA2015*.

Further details within Part 3 should be referred to for an explanation of specific requirements and Parts that applied for the development.

PART 3

BCA 2015 – VOLUME TWO
CLASS 1 & CLASS 10 BUILDINGS

3.0 BUILDING CODE OF AUSTRALIA – VOLUME TWO

3.1 BCA Part 1.3 – Building Classification

BCA2015 classifies Class 1 and 10 buildings as follows:

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

(a) **Class 1a** — a single dwelling being—
(i) a detached house; or
(ii) 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.

(B) **Class 10a** — a non-habitable building being a *private garage*, carport, shed, or the like.

In addition: A private garage is defined by the BCA as:
(a) any garage associated with a Class 1 building; or
(b) any separate single storey garage associated with another building where such garage is capable of accommodating not more than 3 vehicles.

The independent living unit dwellings and associated carports and garages are **Class 1a and 10a buildings**.

3.2 Deemed-to-Satisfy Compliance Issues – Part 3.7

There are two pathways to achieve compliance with the Performance Requirements of *BCA2015*. The Performance Requirements can be achieved by either satisfying the Deemed-to-Satisfy Provisions of *BCA2015* or by formulating Alternative Solutions, or a combination of the two.

BCA2015 lists the criteria and requirements for undertaking Alternative Solutions. A performance assessment, properly documented and supported by technical evidence, is required to support any Alternative Solution designated to satisfy the Performance Requirements of *BCA2015*.

The proposed development has been assessed against the Deemed-to-Satisfy Provisions of Part 3.7 of *BCA2015*. In certain instances, compliance with the Performance Requirements is also addressed.

Stage 4 incorporated the use of an Alternative Solution. The 'Fire Engineering Report' prepared by "BCA Innovations" (Report No. F15-055 dated 13 January 2016) addressed non Deemed-to-Satisfy compliance with Parts 3.7.1.3(b) and 3.7.1.5(b) of *BCA2015* as relating to the windows openings requiring protection. This matter is further specifically addressed within this report.

3.3 Modifications Made to Plans

The following is a summary of the modifications made to the Stage 4 plans from the original BCA report undertaken by Benchmark Building Certifiers (Report J13-040 dated 22 August 2013).

The summary identifies the modifications made to the plans and these effects on Part 3.7 – Fire Safety of *BCA2015*:

Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
A	**15, 16, 18, 19, 20, 21, 22 & 23**	**COMMENTS:** • *Decking size increase – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Recess gutter line change – No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
A-s	**17**	**COMMENTS:** • *Decking size increase – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
B	**24, 25, 26, 27, 28, 29, 31, & 32**	**COMMENTS:** • *Internal storage changes (robe added) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Polycarbonate roof lights over alfresco changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Refer to Part 3.7.1.5 of the report for Alternative Solution applied to ILU 27, 28 and 29.*	**Modification to plans are compliant with Part 3.7**
B-s	**30**	**COMMENTS:** • *Internal storage changes (robe added) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Polycarbonate roof light over alfresco changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Refer to Part 3.7.1.5 of the report for Alternative Solution applied to this ILU.*	**Modification to plans are compliant with Part 3.7**
Ca	**10**	**COMMENTS:** • *Removal of roof lights over deck - No effect on Part 3.7.* • *Window size changes, – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**

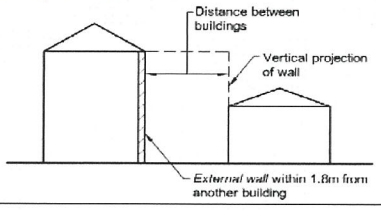
Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
CR-ft	**12**	**COMMENTS:** • *Removal of roof lights over deck - No effect on Part 3.7.* • *Window size changes, – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
D1a-ft	**11**	**COMMENTS:** • *Removal of skylights over deck - No effect on Part 3.7.* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Eave reduction to garage roof gable end (gable overhang) – No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
D1a	**2 & 3**	**COMMENTS:** • *Removal of skylights over deck - No effect on Part 3.7.* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Eave reduction to garage roof gable end (gable overhang) – No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Refer to Part 3.7.1.5 of the report for Alternative Solution applied to these ILU's.*	**Modification to plans are compliant with Part 3.7**
D1-w	**1**	**COMMENTS:** • *Removal of skylights over deck - No effect on Part 3.7.* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
D-w	**6 & 8**	**COMMENTS:** • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**

Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
D-wR	**4**	**COMMENTS:** • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
D	**7 & 9**	**COMMENTS:** • *Removal of roof lights over deck - No effect on Part 3.7.* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
DR	**5**	**COMMENTS:** • *Removal of roof lights over deck - No effect on Part 3.7.* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
DR-ft	**13 & 14**	**COMMENTS:** • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Bedroom 3/Study floor plan minor increase in floor area 0 No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
S2	**33**	**COMMENTS:** • *Pitched gable end roofing over Alfresco – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**

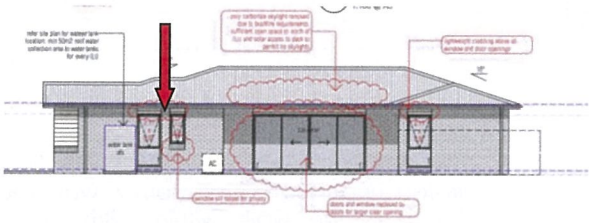
3.4 BCA Part 3.7 – Fire Safety Assessment

The *BCA2015* assessment below is based on the completed development for Stage 4.

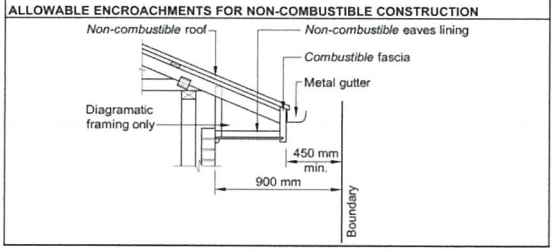
BCA Part	Title	Assessment and Comment	Status
3.7.1.2	**General concession – non-combustible materials**	**BCA DESCRIPTION:** The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required in *BCA2015*— (a) plasterboard; and (b) perforated gypsum lath with a normal paper finish; and (c) fibrous-plaster sheet; and (d) fibre-reinforced cement sheeting; and (e) pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thick and where the Spread-of-Flame Index of the product is not more than 0; and (f) bonded laminated materials where— (i) each laminate is non-combustible; and (ii) each adhesive layer is not more than 1 mm thick; and (iii) the total thickness of adhesive layers is not more than 2mm; and (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the laminated material as a whole does not exceed 0 and 3 respectively. **COMMENTS:** *Final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred and the Principal Certifying Authority has also issued an interim occupation certificate for project.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**
3.7.1.3/ 3.7.1.4	**External Walls of Class 1 Buildings / Measure-ment of distances**	**BCA DESCRIPTION:** An external wall of a Class 1 building, and any openings in that wall, must comply with 3.7.1.5 if the wall is less than— (a) **900mm from an allotment boundary** other than the boundary adjoining a road alignment or other public space; or (b) **1.8m from another building on the same allotment** other than an appurtenant Class 10 building or a detached part of the same Class 1 building. Distances under *BCA2015* are measured as follows: (a) The distance from any point on an external wall of a building to an allotment boundary or another building is the distance to that point measured along a line at right angles from the allotment boundary or external wall of the other building which intersects that point without being obstructed by a wall complying with 3.7.1.5. (b) Where a wall within a specified distance is required to be constructed in a certain manner, only that part of the wall (including any openings) within the specified distance need be constructed in that manner. (c) Where the distance measured is between buildings of different heights, the distance must be taken from the external wall with the highest elevation measured at right angles to a point that intersects a vertical projection above the adjacent wall (see Figure 3.7.1.2b – below).	**Noted for assessment purposes**

BCA Part	Title	Assessment and Comment	Status
3.7.1.3 & 3.7.1.4	**External Walls of Class 1 Buildings / Measure-ment of distances** *(cont)*	Figure 3.7.1.2b MEASUREMENT OF DISTANCE — BUILDINGS OF DIFFERENT HEIGHTS Class 1 buildings on same allotment  --- **COMMENTS:** ***Dwelling separation distances:*** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All dwelling separation distances are therefore considered to comply with BCA2015.* *Compliance with this Part of BCA2015 should therefore have been achieved (refer to Part 3.7.1.5 for lightweight cladding compliance above windows required to be protected).* ***Allotment Boundaries Lot 3, 4 & 5 in DP1161389:*** ▪ *The location of the inter-allotment boundaries of Lots 3, 4 and 5 in relation to the ILU's of Stage 4 are unlikely to pose any fire risk, and BCA2015 compliance with ILU separation distances is more critical for compliance than these 'paper' boundaries. Distances to 'external' allotment boundaries (those facing neighbouring lots not part of the development) are complied with. This matter has also been highlighted by Council in the omission of any conditions of consent requiring consolidation of the allotments of land into one allotment. The Performance Requirement under BCA2015 is therefore considered to be satisfied.*	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.5	**Construction of external walls**	**BCA DESCRIPTION:** a) External walls (including gables) required to be fire-resisting must extend to the underside of a non-combustible roof covering or non-combustible eaves lining and 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 90mm thick; or (iii) be of masonry construction not less than 90mm thick. b) Openings in external walls required to be fire-resisting must be protected by— (i) non-openable fire windows or other construction with an FRL of not less than –/60/–; or (ii) self-closing solid core doors not less than 35mm thick. (c) Sub-floor vents, roof vents, weepholes, control joints, construction joints and penetrations for pipes, conduits and the like need not comply with (b). (d) Concessions for non-habitable room windows. Despite the requirements in (b), in a non-habitable room, a window that faces the boundary of an adjoining allotment may be not less than 600 mm from that boundary or, where the window faces another building on the same allotment, not less than 1200 mm from that building provided that— (i) in a bathroom, laundry or toilet, the opening has an area of not more than 1.2 m^2; or (ii) in a room other than referred to in (i), the opening has an area of not more than 0.54 m^2 and— (A) the window is steel-framed, there are no opening sashes and it is glazed in wired glass; or (B) the opening is enclosed with translucent hollow glass blocks. --- **COMMENTS:** ▪ *This clause must be read in-conjunction with Clause 3.7.1.3. As stated under 3.7.1.3 previously, walls required to be fire-resisting (such as the walls within 1.8m of other dwellings) required compliance with the provisions of this clause.* ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All dwelling separation distances are therefore considered to comply with BCA2015 as these would have been determined at construction certificate and occupation certificate stage.* *Compliance with this Part of BCA2015 should therefore have been achieved (refer to Part 3.7.1.5 for lightweight cladding compliance above windows required to be protected).*	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.5	**Construction of external walls**	▪ *The occupation certificate application has incorporated an Alternative Solution assessment for the development for the following deemed-to-satisfy non-compliances:* - *Window openings between ILU02 and ILU 03 (1540mm separation).* - *Window openings between ILU27 and ILU 28 (1780mm separation).* - *Window openings between ILU29 and ILU 30 (1425mm separation).* *The Fire Engineering Report was prepared by "BCA Innovations" (Report No. F15-055 dated 13 January 2016) and required the following construction requirements for BCA21015 compliance:* - *'Crimsafe heat attenuation screens on W4 Bed 1 opening in ILU02.* - *'Crimsafe heat attenuation screens on W4 Bed 1 opening in ILU29.* - *No changes to window openings of ILU27 and 28.* *The certifying authority has accepted this Alternative Solution for compliance with BCA2015. The Alternative Solution also incorporated protection of the lightweight cladding portions above windows. This is represented in the photograph and plan extract below (note that the Ensuite window has also been protected):*  	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.6	**Class 10a buildings**	**BCA DESCRIPTION:** (a) Where a Class 10a building is located between a Class 1 building and the allotment boundary, other than the boundary adjoining a road alignment or other public space, the Class 1 building must be protected by one of the following methods shown in Figure 3.7.1.4. (b) Where a Class 10a building is located between a Class 1 building to which it is appurtenant and another building on the same allotment, the Class 1 building must be protected by one of the methods shown in Figure 3.7.1.5. (c) Where two or more Class 10a buildings on the same allotment are appurtenant to different Class 1 buildings, the Class 10a buildings must be separated in accordance with one of the methods shown in Figure 3.7.1.6. (d) A carport is exempt from (a), (b) and (c) if— (i)it has two or more sides open and not less than one third of its perimeter open and, for the purposes of this clause, a side is considered to be open if the roof covering adjacent to that side is not less than 500 mm from another building or allotment boundary; and (ii) it has a polycarbonate or non-combustible roof covering and any ceiling lining and wall cladding, including gables, is also non-combustible (see Figure 3.7.1.7); and (iii) it does not provide direct vertical support to any part of the Class 1 building; and (iv) in the case where it has a common roof structure with the Class 1 building and the carport does not have a ceiling (see Figure 3.7.1.8), the opening between the top of the wall of the Class 1 building and the underside of the roof covering is infilled with— (A) a non-combustible material; or (B)construction clad with non-combustible material on the carport side. e) Class 10a buildings must not significantly increase the risk of spread of fire between Class 2 to 9 buildings. Figure 3.7.1.5 PROTECTION OF CLASS 1 BUILDINGS — CLASS 10a BETWEEN CLASS 1 AND OTHER BUILDINGS ON ALLOTMENT Legend: Wall with a FRL of 60/60/60 — Other Class of building on allotment a. 1.8 m from other building on allotment The Class 10a building is not less than 1.8 m from the other building. 1 10a Not less than 1.8 m b. *External wall* to Class 10a building with FRL An *external wall* of the Class 10a building which is less than 1.8 m from the other building complies with 3.7.1.5. 1 10a Less than 1.8 m --- **COMMENTS:** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses and attached Class 10a components (for example, carports and decks) by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All separation distances for Class 10a parts are therefore considered to comply with BCA2015 as these would have been determined at construction certificate and occupation certificate stage.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.7	**Allowable encroach-ments**	**BCA DESCRIPTION:** (a) An encroachment is any construction between the external wall of the building and the allotment boundary other than a boundary adjoining a road or other public space, or the external walls of two buildings on the same allotment and relates to any external wall of— (i) a Class 10a building required to comply with 3.7.1.5; or (ii) a Class 1 building. (b) The encroachments allowed within 900 mm of an allotment boundary or within 1.8 m of another building on the same allotment are— (i) fascias, gutters and downpipes; 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; and (iv) light fittings, electricity or gas meters, aerials or antennas; and (v) pergolas, sun blinds or water tanks; and (vi) unroofed terraces, landings, steps and ramps, not more than 1 m in height. (c) Encroachments listed in (b)(i), if combustible, (b)(ii) and (b)(iii) must not be built within 450 mm of an allotment boundary nor be built within 900 mm of the external wall or associated encroachments of another building on the same allotment. (see Figure 3.7.1.9). Figure 3.7.1.9 ALLOWABLE ENCROACHMENTS FOR NON-COMBUSTIBLE CONSTRUCTION  --- **COMMENTS:** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All separation distances and the allowable encroachments under this Part are therefore considered to comply with BCA2015 as these would have been determined at construction certificate and occupation certificate stage.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.8	**Separating walls**	**BCA DESCRIPTION:** (a) A wall that separates Class 1 dwellings, or 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; and (ii) extend- (A) if the building has a non-combustible roofing covering, to the underside of the roof covering; or (B) if the building has a combustible roof covering, to not less than 450mm above the roof covering (b) A separating wall of lightweight construction must be tested in accordance with Specification C1.8 of the BCA Volume One. (c) A separating wall complying with (a)(ii)(A)— (i) must not be crossed by timber or other combustible building elements except for roof battens with dimensions of 75x50mm 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 50mm; 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 3.7.1.11 Diagram b). (f) Any service opening, other than those listed in (g), (h) and (i), in a masonry separating wall must have construction with an FRL of not less than -/60/60. (g) If an electrical wire or cable penetrates a separating wall— (i) the service and building element at the penetration must be identical with a prototype assembly which has been tested in accordance with AS 4072.1 and AS 1530.4 and achieved an FRL of not less than -/60/60; or (ii) the service must be installed so that— (A) the opening is neatly formed, cut or drilled and no closer than 50mm to any other service; and (B) the opening is no larger in cross-section than— (aa) 2000mm^2 if only a single cable is accommodated and the gap between the cable and the wall is no wider than 15 mm; or (bb) 500mm^2 in any other case; and (C) any gap between the service and the wall is packed with mineral fibre or other suitable fire resistant material. (h) If an electrical switch, outlet, socket or the like is accommodated in a separating wall— (i) the service and building element at the penetration must be identical with a prototype assembly which has been tested in accordance with AS 4072.1 and AS 1530.4 and achieved an FRL of not less than -/60/60; or (ii) the service must be installed so that— (A) the opening or recess must not— (aa) be located opposite any point within 300mm horizontally or 600mm vertically of any opening or recess on the opposite side of the wall; or (bb) extend beyond half the thickness of the wall; and (B) any gap between the service and the wall is packed with mineral fibre or other suitable fire resistant material. (i) Other than where a tested system is used in accordance with (h)(i), if an electrical switch, socket, outlet or the like is accommodated in a hollow separating wall (such as a stud wall, masonry cavity wall or a wall of hollow blockwork), the cavity immediately behind the service must be framed and packed with mineral fibre or other suitable fire resistant material (see Figure 3.7.1.11 Diagram c).	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.8	**Separating walls (cont)**	**COMMENTS:** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All separating wall construction between ILU's under this Part are therefore considered to comply with BCA2015, as these would have been determined at construction certificate and occupation certificate stage.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**
3.7.1.9	**Fire hazard properties**	**BCA DESCRIPTION:** 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 Parts 1 & 2. --- **COMMENTS:** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All fire hazard properties under this Part are therefore considered to comply with BCA2015 as the required fire hazard properties would have been determined at construction certificate and occupation certificate stage.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**

BCA Part	Title	Assessment and Comment	
3.7.1.10	**Roof lights**	**BCA DESCRIPTION:** Combustible roof lights, skylights or the like installed in a roof or part of a roof required to have a non-combustible covering must— (a) have an aggregate area not more than 20% of the roof or part of the roof; and (b) be not less than— (i) 900 mm from: (A) the allotment boundary other than the boundary adjoining a road alignment or other public space; and (B) the vertical projection of a separating wall extending to the underside of the roof covering; and (ii) 1.8 m from any roof light or the like in another building on the allotment other than an appurtenant building or a detached part of the same building. (See Figure 3.7.1.12). --- ***COMMENTS:*** ▪ *Construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred, and the Principal Certifying Authority has also issued an interim occupation certificate for project. All roof light separation distances under this Part is therefore considered to comply with BCA2015 as these would have been determined at construction certificate and occupation certificate stage. The roof light separation distances (for example, on the Type B ILU's) are shown as being compliant with this Part.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**
3.7.2	**Smoke Alarms**	**BCA DESCRIPTION:** Smoke alarms must be- (a) located in- (i) Class 1a buildings in accordance with 3.7.2.3; and (ii) Class 1b buildings in accordance with 3.7.2.4 and 3.7.2.5; and (b) comply with AS 3786; and (c) connected to the consumer mains power where consumer power is supplied to the building; and (d) interconnected when there is more than one alarm. --- ***COMMENTS:*** *Certificates of installation have been provided confirming compliance with the installation of smoke alarms and Part 3.7.2 to the Principal Certifying Authority, as part of the application for an interim occupation certificate for project.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**

BCA Part	Title	Assessment and Comment	Status
3.7.3	**Heating Appliances**	***COMMENTS:*** *Heating appliances including solid fuel burning appliances, boilers or pressure vessels, or open fire places/chimneys have not been constructed with the development.*	**Not applicable**
3.7.4 NSW Variation	**Bushfire Areas**	***COMMENTS:*** *Condition B25 of DAN0267/13 required compliance with BAL12.5 construction under "AS3959-2009 – Construction of buildings in bushfire-prone areas". Condition C20 required confirmation of how the development was to comply with this condition.* *The construction certificate approved details prepared by an FPA accredited bushfire consultant (report by Wayne Tucker of "Building Code & Bushfire Hazard Solution" Ref 130164b) and specific BAL12.5 construction requirements prepared by "Environa Studio" (Dwg No. 921). These details confirmed compliance with Part 3.7.4 at construction certificate stage.* *The bushfire report specifically addressed concerns with the use of polycarbonate roof sheeting and compliance with BAL12.5 construction. Amendments to suit were therefore made to achieve compliance with BCA2015 (for example, glazed roof lights instead of combustible polycarbonate roofing, or the removal of roof lights).* *Final certification of the 'as-built' dwelling houses by the Principal Certifying Authority has occurred and the Principal Certifying Authority has also issued an interim occupation certificate for project.* *Compliance with this Part of BCA2015 should therefore have been achieved.*	**Considered to comply**
3.7.5	**Alpine areas**	***COMMENTS:*** *The provisions of this part are not applicable.*	**Not applicable**

PART 4

CONCLUSION AND VERIFICATION

This assessment identified the amendments to the plans and compliance with Part 3.7 (Fire Safety) of the *Building Code of Australia 2015 – Volume Two (Class 1 and Class 10 Buildings)*.

It is the opinion of the author the development has been built to comply with the provisions of the Part 3.7 of *BCA2015* for use as a multiple dwelling house Class 1a and Class 10a residential development.

Author:

Anthony Krilich
Benchmark Building Certifiers
Accredited Certifier Grade 2 (BPB0216)

Verified:

Robert Valades
Benchmark Building Certifiers
Accredited Certifier Grade 1 (BPB0419)

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18 March 2016

Our Reference: **J13-040/B**

benchmark
BUILDING CERTIFIERS

Anglican Retirement Villages
C/- Morgan Moore & Associates
Level 2, 4-10 Bridge Street
PYMBLE NSW 2073

RE: Building Code of Australia Report – "Part 3.7 Fire Safety"
PTY: "ARV Warriewood Brook" – Stage 5 – Updated Report

Dear Sir,

I refer to the revised Part 3.7 (Fire Safety) Building Code of Australia Report requested by you for the proposed independent living unit development, which is to be submitted to Council or the Certifier for the abovementioned property, incorporating Stage 5 of the development.

Please contact the undersigned should you wish to discuss any aspect of the report.

Yours faithfully,

Anthony Krilich
Benchmark Building Certifiers

Encl.

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benchmark
BUILDING CERTIFIERS

BUILDING CODE OF AUSTRALIA COMPLIANCE REPORT

PREPARED FOR:

"Anglican Retirement Villages"

BY

Benchmark Building Certifiers

REGARDING

ARV Warriewood Brook – Stage 5
(Independent Living Units)

14 March 2016

Reference No.: J13-040/B

- BUILDING APPROVALS
- BASIX / SECTION J ENERGY RATINGS
- BUILDING / FIRE SAFETY CONSULTANTS
- TOWN PLANNING
- ACCREDITED CERTIFIERS
- PRINCIPAL CERTIFYING AUTHORITY

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Version	Date	Description
A	16/03/16	Draft report for client review Prepared by AK — Anthony Krilich (MAIBS) Checked by RV — Robert Valades (MAIBS)
B	18/03/16	Final report Prepared by AK — Anthony Krilich (MAIBS) Checked by RV — Robert Valades (MAIBS)

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PART 1

BASIS OF ASSESSMENT

1.0 BASIS OF ASSESSMENT

1.1 General/Background

This report relates to the suitability of the proposed development with regard to the relevant provisions of Part 3.7 (Fire Safety) of *BCA2015 (refer to Part 1.4 below)*.

Benchmark Building Certifiers prepared a Part 3.7 (Fire Safety) of the Building Code of Australia report for the development in August 2013 for the intended ILU's within Stages 4 to 6 of 'ARV Warriewood Brook' (Report J13-040 dated 22 August 2013).

Development consent was granted by Pittwater Council on the 20 February 2014 via Development Application No. N0267/13. The development consent was also subsequently modified on the 15 April 2015 (Application N0267/13/S96/1).

A construction certificate incorporating the works associated with Stage 5 was issued by Brendan Bennett of City Plan Services Pty Ltd (BPB0027 – A1 accredited certifier) on the 26 March 2015. A subsequent construction certificate was issued on the 21 May 2015 for the Section 96 approval component of the development.

Works within Stage 5 are currently under construction.

1.2 Purpose of this Report

The purpose of this report is to assess the independent living unit buildings (dwelling houses) for compliance with the provisions of Part 3.7 (Fire Safety) of the Building Code of Australia (Volume Two) for the proposed works within Stage 5 only and in particular, the changes made to the plans within Stage 5. This report will be used as part of a Section 96 modification application.

The report will assess the compliance of all proposed dwelling houses with respect to the latest Section 96 plans for the development. The report will make recommendations on compliance with the relevant provisions of *BCA2015*.

1.3 Exclusions

This report should not be construed to infer that an assessment of compliance with the following has been undertaken:

- All other parts of *BCA2015* other than Part 3.7.
- Stage 4 of the development.

1.4 Building Code of Australia

This Report is based on the deemed-to-satisfy provisions of the *National Construction Code Series – Volume 2 – Building Code of Australia 2015 (Class 1 and Class 10 Buildings)* incorporating Amendments and the New South Wales variations, where applicable. Where referenced in this report, the *Building Code of Australia* will be noted as *BCA2015*.

The report will identify any non-compliance with the Performance Requirements of *BCA2015*.

Note: The original construction certificate application was assessed under the provisions of BCA2014 and the subsequent construction certificate was assessed under the provisions of BCA2015.

For clarity, BCA2015 is used as the referenced document within this report, and is also the current edition of the Code.

1.5 Building Descriptions

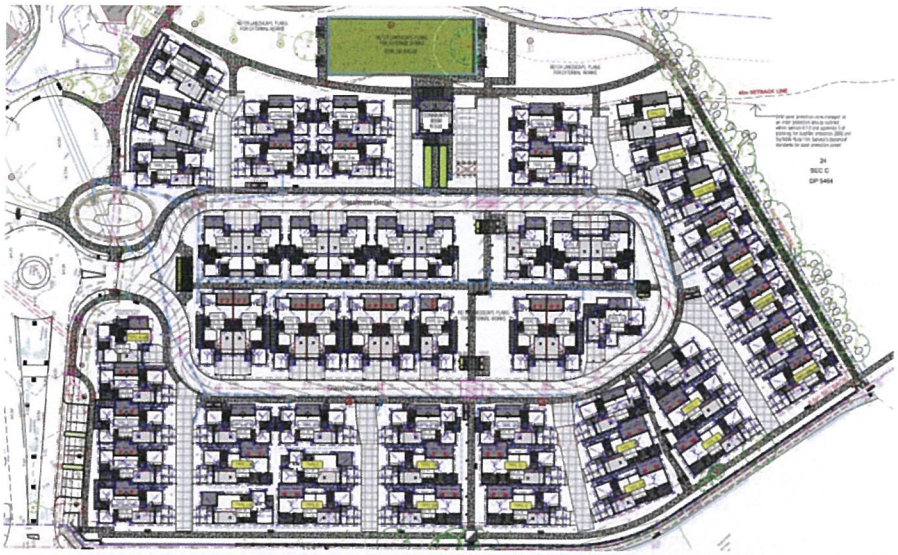
The proposed independent living units are predominately Class 1a dwellings, which have the following general construction descriptions:

Roof:	Colorbond or tiled roof (sarked)
External Walls:	Combination of brick veneer and lightweight claddings
Separating Walls:	230 cavity brick walls (for attached dwellings only)
Floors:	On ground concrete slab floor

1.6 Documents Relied Upon

The following document / plan references have been relied upon for of this report:

Description	Dwg/Report No.	Issue/Date
▪ *Architectural plans prepared by 'environa studio'*	*731*	*25 February 2016*
▪ *Bushfire construction certification comment prepared by 'Building Code & Bushfire Hazard Solutions'*	*130164b*	*30 October 2014*
▪ *Construction certificate issued by 'Brendan Bennett for City Plan Services Pty Ltd'*	*CC142440/1*	*25 March 2015*
▪ *Construction certificate issued by 'Brendan Bennett for City Plan Services Pty Ltd'*	*CC142440/2*	*21 May 2015*



Above/Below – Site plan for Stages 4 and 5 and stage distinction.

1.7 Location

The property is located on the northern side of Macpherson Street in Warriewood (Pittwater Council).

The property description is Lots 3, 4 & 5 in DP 1161389, and has the street address of 6-10 Macpherson Street.

The DA however applied to Lots 1 to 5, for street numbers 6-14 Macpherson Street).

An aerial view of the site is shown:

PART 2

EXECUTIVE SUMMARY

A revised *BCA2015* assessment is provided for in Part 3 of this report.

This report has found that the proposed development for Stage 5 will comply with the provisions of *BCA2015*.

Further details within Part 3 should be referred to for an explanation of specific requirements and Parts that applied for the development.

PART 3

BCA 2015 – VOLUME TWO
CLASS 1 & CLASS 10 BUILDINGS

3.0 BUILDING CODE OF AUSTRALIA – VOLUME TWO

3.1 BCA Part 1.3 – Building Classification

BCA2015 classifies Class 1 and 10 buildings as follows:

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

(a) **Class 1a** — a single dwelling being—
(i) a detached house; or
(ii) 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.

(B) **Class 10a** — a non-habitable building being a *private garage*, carport, shed, or the like.

In addition: A private garage is defined by the BCA as:
(a) any garage associated with a Class 1 building; or
(b) any separate single storey garage associated with another building where such garage is capable of accommodating not more than 3 vehicles.

The independent living unit dwellings and associated carports and garages are **Class 1a and 10a buildings**.

3.2 Deemed-to-Satisfy Compliance Issues – Part 3.7

There are two pathways to achieve compliance with the Performance Requirements of *BCA2015*. The Performance Requirements can be achieved by either satisfying the Deemed-to-Satisfy Provisions of *BCA2015* or by formulating Alternative Solutions, or a combination of the two.

BCA2015 lists the criteria and requirements for undertaking Alternative Solutions. A performance assessment, properly documented and supported by technical evidence, is required to support any Alternative Solution designated to satisfy the Performance Requirements of *BCA2015*.

The proposed development has been assessed against the Deemed-to-Satisfy Provisions of Part 3.7 of *BCA2015*.

3.3 Modifications Made to Plans

The following is a summary of the modifications made to the Stage 5 plans from the original BCA report undertaken by Benchmark Building Certifiers (Report J13-040 dated 22 August 2013).

The summary identifies the modifications made to the plans and these effects on Part 3.7 – Fire Safety of *BCA2015*:

Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
Gi	**44**	**COMMENTS:** • *New house design.* • *All new separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
GR	**42 & 48**	**COMMENTS:** • *New house design.* • *All new separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
G	**39, 45 & 51**	**COMMENTS:** • *New house design.* • *Separation distance to ILU 55 (from ILU51) to be confirmed at construction certificate stage (including eave separation and W10 opening protection).* • *All other separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
ER	**54**	**COMMENTS:** • *New house design.* • *Separation distance to ILU 51 to be confirmed at construction certificate stage (including eave separation).* • *All other separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
E	**50**	**COMMENTS:** • *New house design.* • *All new separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
FR	**41, 47 & 53**	**COMMENTS:** • *New house design.* • *All new separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**
E	**38**	**COMMENTS:** • *New house design.* • *All new separation distances between ILU's are at 1.8m minimum and comply with Part 3.7.1.* • *Otherwise, new house designs have no effect on Part 3.7.*	**Modification to plans are compliant with Part 3.7**

Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
DR-ft	**34 &35**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Bedroom 3/Study floor plan minor increase in floor area – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
DRw-ft	**36**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Bedroom 3/Study floor plan minor increase in floor area – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
C	**37**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof lights over deck removed – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**

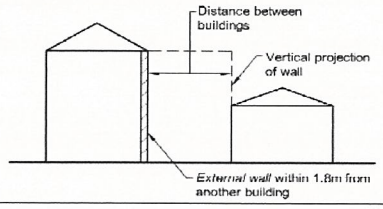
Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
CR	**40**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof lights over deck removed – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
C	**56 & 58**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
D	**43 & 49**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof lights over deck removed – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Bedroom 3/Study floor plan minor increase in floor area – No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**

Type	ILU Number	Comments on changes / Effect on Part 3.7	Status
DR	**46 & 52**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof lights over deck removed – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Bedroom 3/Study floor plan minor increase in floor area – No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
D1	**57**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
D1-w	**59**	**COMMENTS:** • *Amended house design.* • *Polycarbonate roof light over deck changed to glazed (glass) skylights – Amendment required for compliance with Part 3.7.4 (Bushfire Areas).* • *Window size changes, including removal and relocation of windows – No effect on Part 3.7.* • *Larger sliding door added to Living/Dining instead of window and door– No effect on Part 3.7.* • *Internal storage change (Store) – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *Minor internal wall changes (for adaptability).* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**
A	**55**	**COMMENTS:** • *Amended house design.* • *Alfresco deck increase – No effect on Part 3.7.* • *Porch 600mm masonry wall added – No effect on Part 3.7.* • *Lightweight cladding installed above windows and door openings– No effect on Part 3.7.* • *All separation distances between the existing ILU's are at 1.8m minimum and comply with Part 3.7.1.*	**Modification to plans are compliant with Part 3.7**

3.4 BCA Part 3.7 – Fire Safety Assessment

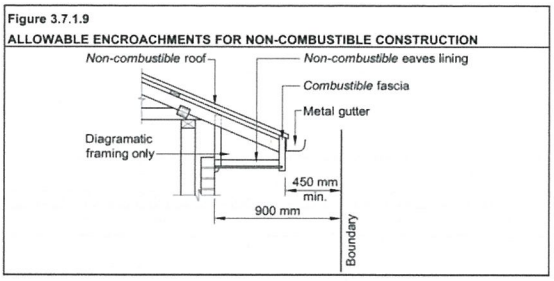
The *BCA2015* assessment below is based on the amended development for Stage 5.

BCA Part	Title	Assessment and Comment	Status
3.7.1.2	**General concession – non-combustible materials**	**BCA DESCRIPTION:** The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required in *BCA2015*— (a) plasterboard; and (b) perforated gypsum lath with a normal paper finish; and (c) fibrous-plaster sheet; and (d) fibre-reinforced cement sheeting; and (e) pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thick and where the Spread-of-Flame Index of the product is not more than 0; and (f) bonded laminated materials where— (i) each laminate is non-combustible; and (ii) each adhesive layer is not more than 1 mm thick; and (iii) the total thickness of adhesive layers is not more than 2mm; and (iv) the Spread-of-Flame Index and the Smoke-Developed Index of the laminated material as a whole does not exceed 0 and 3 respectively. **COMMENTS:** *The provisions of this clause are to be noted for determination of non-combustible materials, as required by other clauses of BCA2015.* *Compliance to be determined with the amended construction certificate application and should be able to be achieved.*	**Considered to comply**
3.7.1.3/ 3.7.1.4	**External Walls of Class 1 Buildings / Measure-ment of distances**	**BCA DESCRIPTION:** An external wall of a Class 1 building, and any openings in that wall, must comply with 3.7.1.5 if the wall is less than— (a) **900mm from an allotment boundary** other than the boundary adjoining a road alignment or other public space; or (b) **1.8m from another building on the same allotment** other than an appurtenant Class 10 building or a detached part of the same Class 1 building. Distances under *BCA2015* are measured as follows: (a) The distance from any point on an external wall of a building to an allotment boundary or another building is the distance to that point measured along a line at right angles from the allotment boundary or external wall of the other building which intersects that point without being obstructed by a wall complying with 3.7.1.5. (b) Where a wall within a specified distance is required to be constructed in a certain manner, only that part of the wall (including any openings) within the specified distance need be constructed in that manner. (c) Where the distance measured is between buildings of different heights, the distance must be taken from the external wall with the highest elevation measured at right angles to a point that intersects a vertical projection above the adjacent wall (see Figure 3.7.1.2b – below).	**Noted for assessment purposes**

BCA Part	Title	Assessment and Comment	Status
3.7.1.3 & 3.7.1.4	**External Walls of Class 1 Buildings / Measure-ment of distances** (*cont*)	Figure 3.7.1.2b MEASUREMENT OF DISTANCE — BUILDINGS OF DIFFERENT HEIGHTS Class 1 buildings on same allotment  --- **COMMENTS:** ***Dwelling separation distances:*** ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur.* *All dwelling separation distances are generally at a minimum of 1.8m and comply with the provisions of BCA2015.* *Separation distances between ILU 54 and 51 to be confirmed for compliance at construction certificate stage.* ***Allotment Boundaries Lot 3, 4 & 5 in DP1161389:*** ▪ *The location of the inter-allotment boundaries of Lots 3, 4 and 5 in relation to the ILU's of Stage 5 are unlikely to pose any fire risk, and BCA2015 compliance with ILU separation distances is more critical for compliance than these 'paper' boundaries. Distances to 'external' allotment boundaries (those facing neighbouring lots not part of the development) are complied with. This matter has also been highlighted by Council in the omission of any conditions of consent requiring consolidation of the allotments of land into one allotment. The Performance Requirement under BCA2015 is therefore considered to be satisfied.*	**To comply at construction certificate stage**

BCA Part	Title	Assessment and Comment	Status
3.7.1.5	**Construction of external walls**	**BCA DESCRIPTION:** a) External walls (including gables) required to be fire-resisting must extend to the underside of a non-combustible roof covering or non-combustible eaves lining and 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 90mm thick; or (iii) be of masonry construction not less than 90mm thick. b) Openings in external walls required to be fire-resisting must be protected by— (i) non-openable fire windows or other construction with an FRL of not less than –/60/–; or (ii) self-closing solid core doors not less than 35mm thick. (c) Sub-floor vents, roof vents, weepholes, control joints, construction joints and penetrations for pipes, conduits and the like need not comply with (b). (d) Concessions for non-habitable room windows. Despite the requirements in (b), in a non-habitable room, a window that faces the boundary of an adjoining allotment may be not less than 600 mm from that boundary or, where the window faces another building on the same allotment, not less than 1200 mm from that building provided that— (i) in a bathroom, laundry or toilet, the opening has an area of not more than 1.2 m^2; or (ii) in a room other than referred to in (i), the opening has an area of not more than 0.54 m^2 and— (A) the window is steel-framed, there are no opening sashes and it is glazed in wired glass; or (B) the opening is enclosed with translucent hollow glass blocks. --- **COMMENTS:** ▪ *This clause must be read in-conjunction with Clause 3.7.1.3. As stated under 3.7.1.3 previously, walls required to be fire-resisting (such as the walls within 1.8m of other dwellings) required compliance with the provisions of this clause.* ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur. All dwelling separation distances will therefore comply with BCA2015.* *Separation distances between ILU 54 and 51 to be confirmed for compliance along with the opening protection of W10 of ILU 51 at construction certificate stage.*	**To comply at construction certificate stage**

BCA Part	Title	Assessment and Comment	Status
3.7.1.6	**Class 10a buildings**	**BCA DESCRIPTION:** (a) Where a Class 10a building is located between a Class 1 building and the allotment boundary, other than the boundary adjoining a road alignment or other public space, the Class 1 building must be protected by one of the following methods shown in Figure 3.7.1.4. (b) Where a Class 10a building is located between a Class 1 building to which it is appurtenant and another building on the same allotment, the Class 1 building must be protected by one of the methods shown in Figure 3.7.1.5. (c) Where two or more Class 10a buildings on the same allotment are appurtenant to different Class 1 buildings, the Class 10a buildings must be separated in accordance with one of the methods shown in Figure 3.7.1.6. (d) A carport is exempt from (a), (b) and (c) if— (i)it has two or more sides open and not less than one third of its perimeter open and, for the purposes of this clause, a side is considered to be open if the roof covering adjacent to that side is not less than 500 mm from another building or allotment boundary; and (ii) it has a polycarbonate or non-combustible roof covering and any ceiling lining and wall cladding, including gables, is also non-combustible (see Figure 3.7.1.7); and (iii) it does not provide direct vertical support to any part of the Class 1 building; and (iv) in the case where it has a common roof structure with the Class 1 building and the carport does not have a ceiling (see Figure 3.7.1.8), the opening between the top of the wall of the Class 1 building and the underside of the roof covering is infilled with— (A) a non-combustible material; or (B)construction clad with non-combustible material on the carport side. e) Class 10a buildings must not significantly increase the risk of spread of fire between Class 2 to 9 buildings. Figure 3.7.1.5 PROTECTION OF CLASS 1 BUILDINGS — CLASS 10a BETWEEN CLASS 1 AND OTHER BUILDINGS ON ALLOTMENT Legend: Wall with a FRL of 60/60/60 — Other Class of building on allotment a. 1.8 m from other building on allotment The Class 10a building is not less than 1.8 m from the other building. 1 10a Not less than 1.8 m b. *External wall* to Class 10a building with FRL An *external wall* of the Class 10a building which is less than 1.8 m from the other building complies with 3.7.1.5. 1 10a Less than 1.8 m --- **COMMENTS:** ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur. All dwelling separation distances, including 10a portions of the buildings, will therefore comply with BCA2015.*	**To comply at construction certificate stage**

BCA Part	Title	Assessment and Comment	Status
3.7.1.7	**Allowable encroach-ments**	**BCA DESCRIPTION:** (a) An encroachment is any construction between the external wall of the building and the allotment boundary other than a boundary adjoining a road or other public space, or the external walls of two buildings on the same allotment and relates to any external wall of— (i) a Class 10a building required to comply with 3.7.1.5; or (ii) a Class 1 building. (b) The encroachments allowed within 900 mm of an allotment boundary or within 1.8 m of another building on the same allotment are— (i) fascias, gutters and downpipes; 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; and (iv) light fittings, electricity or gas meters, aerials or antennas; and (v) pergolas, sun blinds or water tanks; and (vi) unroofed terraces, landings, steps and ramps, not more than 1 m in height. (c) Encroachments listed in (b)(i), if combustible, (b)(ii) and (b)(iii) must not be built within 450 mm of an allotment boundary nor be built within 900 mm of the external wall or associated encroachments of another building on the same allotment. (see Figure 3.7.1.9). Figure 3.7.1.9 ALLOWABLE ENCROACHMENTS FOR NON-COMBUSTIBLE CONSTRUCTION  --- **COMMENTS:** ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur. All dwelling separation distances, including allowable encroachments such as eaves, gutters and decks will therefore comply with BCA2015.*	**To comply at construction certificate stage**

BCA Part	Title	Assessment and Comment	Status
3.7.1.8	**Separating walls**	**BCA DESCRIPTION:** (a) A wall that separates Class 1 dwellings, or 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; and (ii) extend- (A) if the building has a non-combustible roofing covering, to the underside of the roof covering; or (B) if the building has a combustible roof covering, to not less than 450mm above the roof covering (b) A separating wall of lightweight construction must be tested in accordance with Specification C1.8 of the BCA Volume One. (c) A separating wall complying with (a)(ii)(A)— (i) must not be crossed by timber or other combustible building elements except for roof battens with dimensions of 75x50mm 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 50mm; 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 3.7.1.11 Diagram b). (f) Any service opening, other than those listed in (g), (h) and (i), in a masonry separating wall must have construction with an FRL of not less than -/60/60. (g) If an electrical wire or cable penetrates a separating wall— (i) the service and building element at the penetration must be identical with a prototype assembly which has been tested in accordance with AS 4072.1 and AS 1530.4 and achieved an FRL of not less than -/60/60; or (ii) the service must be installed so that— (A) the opening is neatly formed, cut or drilled and no closer than 50mm to any other service; and (B) the opening is no larger in cross-section than— (aa) 2000mm^2 if only a single cable is accommodated and the gap between the cable and the wall is no wider than 15 mm; or (bb) 500mm^2 in any other case; and (C) any gap between the service and the wall is packed with mineral fibre or other suitable fire resistant material. (h) If an electrical switch, outlet, socket or the like is accommodated in a separating wall— (i) the service and building element at the penetration must be identical with a prototype assembly which has been tested in accordance with AS 4072.1 and AS 1530.4 and achieved an FRL of not less than -/60/60; or (ii) the service must be installed so that— (A) the opening or recess must not— (aa) be located opposite any point within 300mm horizontally or 600mm vertically of any opening or recess on the opposite side of the wall; or (bb) extend beyond half the thickness of the wall; and (B) any gap between the service and the wall is packed with mineral fibre or other suitable fire resistant material. (i) Other than where a tested system is used in accordance with (h)(i), if an electrical switch, socket, outlet or the like is accommodated in a hollow separating wall (such as a stud wall, masonry cavity wall or a wall of hollow blockwork), the cavity immediately behind the service must be framed and packed with mineral fibre or other suitable fire resistant material (see Figure 3.7.1.11 Diagram c). ***COMMENTS:*** ▪ *No ILU's in Stage 5 have separating wall construction. The provisions of this clause are therefore not applicable.*	**Not applicable**

BCA Part	Title	Assessment and Comment	Status
3.7.1.9	**Fire hazard properties**	**BCA DESCRIPTION:** 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 Parts 1 & 2. --- **COMMENTS:** ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur. All fire hazard properties under this Part will therefore comply with BCA2015.*	**To comply at construction certificate stage**
3.7.1.10	**Roof lights**	**BCA DESCRIPTION:** Combustible roof lights, skylights or the like installed in a roof or part of a roof required to have a non-combustible covering must— (a) have an aggregate area not more than 20% of the roof or part of the roof; and (b) be not less than— (i) 900 mm from: (A) the allotment boundary other than the boundary adjoining a road alignment or other public space; and (B) the vertical projection of a separating wall extending to the underside of the roof covering; and (ii) 1.8 m from any roof light or the like in another building on the allotment other than an appurtenant building or a detached part of the same building. (See Figure 3.7.1.12). --- **COMMENTS:** ▪ *All roof light separation distances and sizes are compliant with BCA2015 (no attached dwellings within Stage 5). Compliance with this Part of BCA2015 is therefore achieved.*	**Complies**
3.7.2	**Smoke Alarms**	**BCA DESCRIPTION:** Smoke alarms must be- (a) located in- (i) Class 1a buildings in accordance with 3.7.2.3; and (ii) Class 1b buildings in accordance with 3.7.2.4 and 3.7.2.5; and (b) comply with AS 3786; and (c) connected to the consumer mains power where consumer power is supplied to the building; and (d) interconnected when there is more than one alarm. --- **COMMENTS:** ▪ *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will occur. All smoke alarm locations, smoke alarm installation and certification will comply with BCA2015.*	**To comply at construction certificate stage**

BCA Part	Title	Assessment and Comment	Status
3.7.3	**Heating Appliances**	***COMMENTS:*** *Heating appliances including solid fuel burning appliances, boilers or pressure vessels, or open fire places/chimneys have not been constructed with the development.*	**Not applicable**
3.7.4 NSW Variation	**Bushfire Areas**	***COMMENTS:*** *Condition B25 of DAN0267/13 requires compliance with BAL12.5 construction under "AS3959-2009 – Construction of buildings in bushfire-prone areas". Condition C20 required confirmation of how the development was to comply with this condition.* *The construction certificate approved details prepared by an FPA accredited bushfire consultant (report by Wayne Tucker of "Building Code & Bushfire Hazard Solution" Ref 130164b) and specific BAL12.5 construction requirements prepared by "Environa Studio" (Dwg No. 921). These details confirm compliance with Part 3.7.4.* *The bushfire report specifically addressed concerns with the use of polycarbonate roof sheeting and compliance with BAL12.5 construction. Amendments to suit were therefore made to achieve compliance with BCA2015 (for example, glazed roof lights instead of polycarbonate material, or the removal of roof lights).* *Amended construction certificate certification and final certification of the 'as-built' dwelling houses by the Principal Certifying Authority will also occur.* *Compliance with this Part of BCA2015 will therefore be achieved.*	**To comply at construction certificate stage**
3.7.5	**Alpine areas**	***COMMENTS:*** *The provisions of this part are not applicable.*	**Not applicable**

PART 4

CONCLUSION AND VERIFICATION

This assessment identified the amendments to the plans and compliance with Part 3.7 (Fire Safety) of the *Building Code of Australia 2015 – Volume Two (Class 1 and Class 10 Buildings)*.

It is the opinion of the author that subject to compliance with the report, the development will comply with the provisions of Part 3.7 of *BCA2015* for use as a multiple dwelling house Class 1a and Class 10a residential development, forming the Stage 5 part of the development.

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