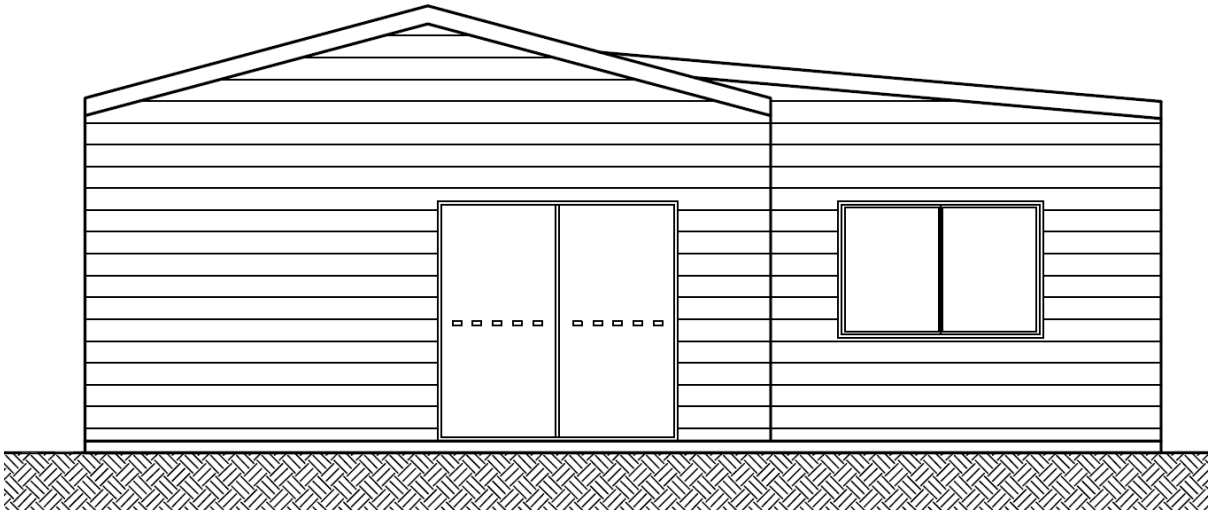
BUILDING CODE OF AUSTRALIA (BCA) ASSESSMENT FOR

Shed to Dwelling conversion (10a to 1a)

at 75 Queen Street, Clarence Town, NSW 2321 (Lot: 123 / DP: 708082)



Prepared by Perception Planning Pty Ltd on behalf of Sue Terry

27/10/2022

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EXECUTIVE SUMMARY

The following items should be noted, however do not constitute a full and comprehensive BCA assessment of the building/s;

The subject of this BCA review is based largely on the subject of the proposal and where applicable, their relationship with the current facilities. The previous uses and approvals largely suit the current use and the facilities, are generally prepared for such a use.

Any previous uses or approvals if noted within this report, have been used to determined what has been approved and works that may have been subject to the current use of the premises. These are noted where known however, there exists limitations on what can be extracted by the information sourced from previous files, if available.

The key matters for BCA consideration and potential works, upgrades or similar are referenced below. No major works are considered to be required, and many areas of non-compliance simply require construction documentation (installation certificate, etc.) to verify compliance.

i. As the development is a conversion from an approved class 10a shed structure to a 1a dwelling structure, it is assumed that several parts of the NCC 2019 are deemed compliant under the previous approval of the structure's use.

ii. While no obvious termite activity was observed on site, the timber building elements of the building attracts the requirement for a termite management system, where those primary building elements are considered at risk of termite attack. For timber elements, this is where the timbers used are neither a naturally termite resistant hardwood nor a treated termite resistant timber.

    Refer to Section 3.1.4 for further information.

iii. The existing smoke alarms are required to be relocated in accordance with 3.7.5.

    Refer to Section 3.7.5 for further information

iv. Confirmation of compliance of the newly constructed wet areas with AS 3740 is required. This can be achieved through the provision of a wet area certificate or similar from the installer of the wet area flashing or a plumber.

    Refer to Section 3.8.1 for further information

TERMS & ABBREVIATIONS

AS	Australian Standard
BCA	Building Code of Australia
BTA	Bushfire threat assessment. A review of the bushfire threat against the NSW Planning for Bushfire Protection document
DTS	Deemed to satisfy (prescriptive provisions of the BCA)
Fire Source Feature	the far side of a boundary of a **road**; the rear or side boundary of an allotment or the external wall of another building on the same allotment.
FRL	Fire Resistance Level
NCC	National Construction Code
Smoke-Developed Index	means the index number for smoke as determined by AS/NZS 1530.3.
Spread-of-Flame Index	means the index number for spread of flame as determined by AS/NZS 1530.3.
Waterproof	Does not allow moisture to penetrate through it *(when tested in accordance with AS4858)*
Water Resistant	Restricts moisture movement and will not degrade under conditions of moisture.

LIST OF FIGURES AND TABLES

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1.0 INTRODUCTION

This report is an assessment of the proposed use and associated plans (for the original dwelling house and it is a review of the structure to determine areas of non-compliance. It is understood that this building has been operating as a detached dwelling in excess of 20 years.

A review of the building structure has been performed to determine how the proposal generally complies with the (NCC/BCA) Building Code of Australia 2019.

The building and its current and proposed uses are considered; with the proposed use being assessed against the Deemed-to-Satisfy (DTS) Provisions of the BCA as applicable. The sections of the BCA addressed are generally limited to the items required to be addressed by this class of building and is based off a review of the architectural plans and a non-intrusive site inspection.

- ***Plans prepared by ARC Drafting Services; noted as Job No. 0822, Sheets 1, 2, 3, 4 and dated July 2022.***
- ***Smoke alarm compliance certification prepared by Merchant Excavation and Electrical; dated 23rd September 2022***
- ***Engineering certification prepared by Paul Clarke and associates Pty. Ltd.; dated 07th October 2022***
- ***Termite management system certification prepared by Revolution Pest Management; dated 23rd September 2022***
- ***Sewer, Stormwater, and Water supply certification prepared by Up the Creek Plumbing and Gas.***
- ***Wet area compliance certification prepared by Christian Taylor Waterproofing Pty Ltd; dated 20th September 2022***

The assessment predominately relates to the BCA/NCC 2019 *(Amd 1)* and NSW Environmental Planning and Assessment legislation current at the time. The assessment relates specifically to the building/s (the subject of this report) and therefore should not be construed to apply to any other building.

The assessment is based on a non-intrusive site inspection with review of the structure and the abovementioned architectural plans including any associated proposal documentation only and no intrusive or destructive inspections have taken place to determine any existing construction parameters.

Cooper Ashton
Project Planner

1.1 SITE DETAILS AND ANALYSIS

The site is located at 1294 Summer HIll Rd, Summer Hill, NSW 2421; and is legally identified as Lot: 50 DP: 37294 (the site) (FIGURE 1). The site has a total area of approximately 528 m² and is accessible directly from Morris St. The site is zoned R2: Low Density Residential. The subject site contains an existing dwelling, and ancillary carport, and a detached pergola. The site has reticulated water and sewer available.

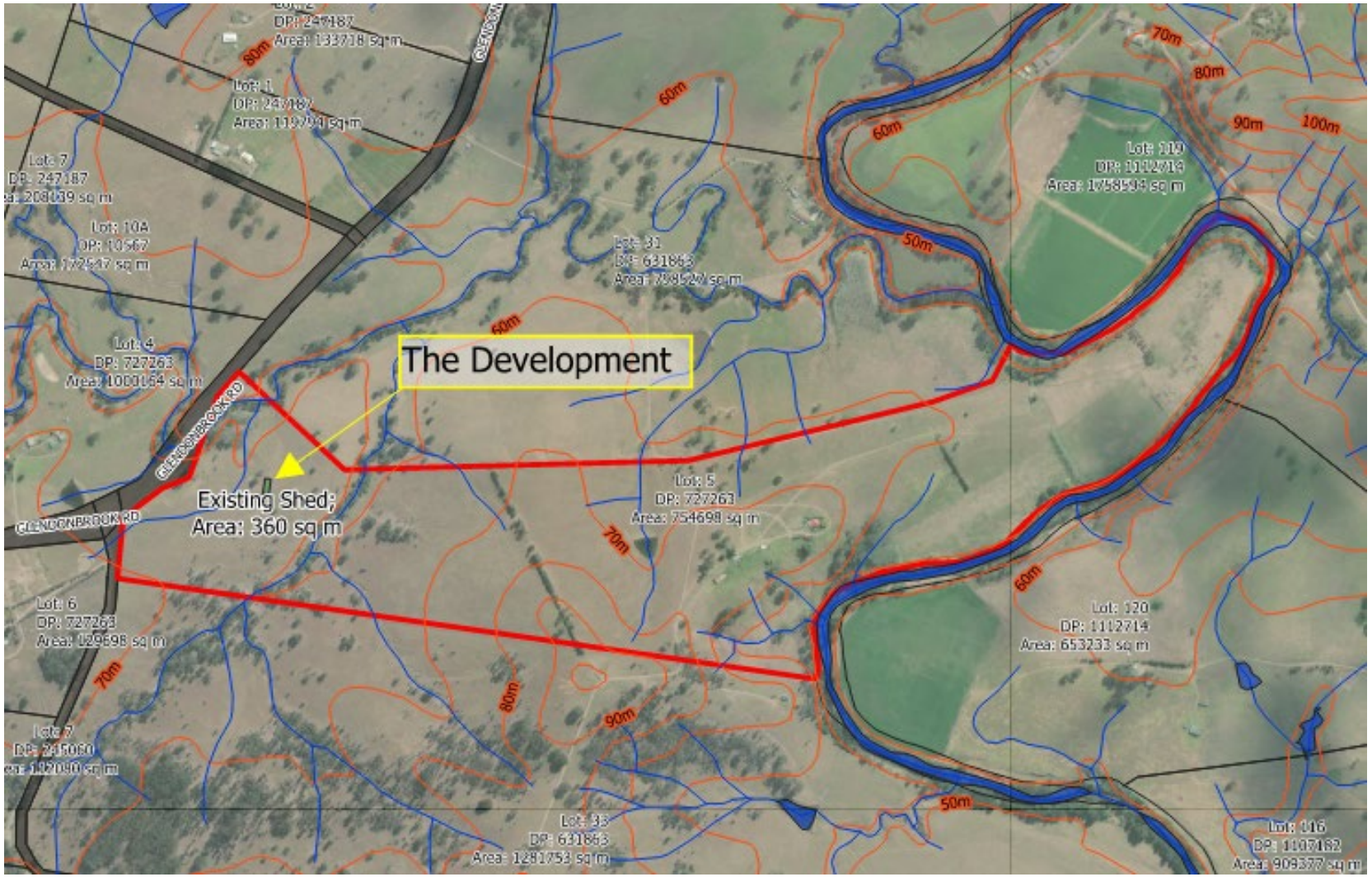
1.2 PROPERTY ZONING

The site of the proposed development is zoned R2: Low Density Residential

1.3 DESCRIPTION OF BUILDING

Location:	1294 Summer HIll Rd, Summer Hill, NSW 2421
Use of Building:	Dwelling house
NCC/ BCA Use Classification:	Class 1a [A6.1 (1)(a)]
Rise in Storeys:	N/A (1)
Type of Construction:	N/A
Effective Height:	N/A (Under 25m)
Floor Area/s:	Dwelling part – 186m²
Known previous uses:	Shed

FIGURE 1 – Locality Map



Source: Perception Planning Site Plan – J003136

2.0 NCC/BCA ASSESSMENT

The following table provides an assessment of the building against the relevant parts of the (NCC/BCA) Building Code of Australia 2019 Amendment 1;

The table uses a colour coding system to allow for easy identification of clauses where works may be required:

Works Required	Confirmation required
Assumed compliance	Note only
Complies	N/A – Not Applicable

Table 1 – NCC/BCA Assessment

BCA Clause	Description	Assessment Comments	
Section 1- Governing Requirements			
Part A6 Building classification			
A6.1	Building Classification	Class 1a- Dwelling	Note
Section 3- Acceptable Construction			
Part 3.0 Structural provisions			
3.0.2	Resistance to actions	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.	*Complies; See associated engineer's structural report*
3.03	Determination of individual actions	The magnitude of individual actions must be determined in accordance with the following: Permanent actions; imposed actions, wind *(snow and)* earthquake actions; the actions considered must include, the nature of the action, the nature of the building, the importance level *(Table 3.03a defines this structure as important level 2)* The determination should be assessed against AS1170.1, AS1170.2, AS1170.3, AS1170.4, AS4055 as appropriate and include but not	*Complies; See associated engineer's structural report*

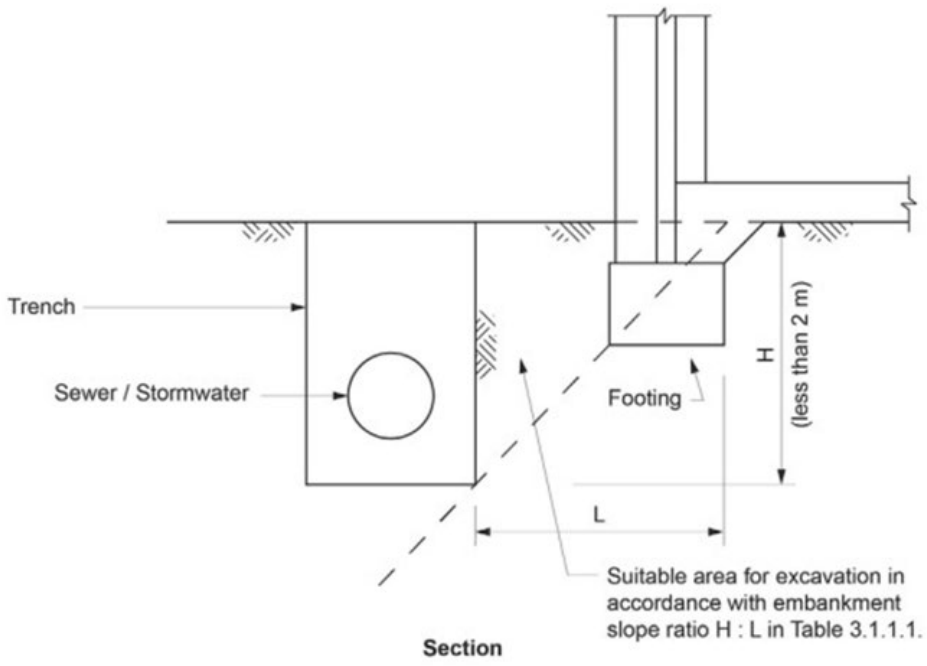
		limited to- Liquid pressure action and ground water action; and rainwater action (including ponding action); and earth pressure action; and differential movement; and time dependent effects (including creep and shrinkage); and thermal effects; and ground movement caused by swelling, shrinkage or freezing of the subsoil; and landslip or subsidence; and siteworks associated with the building or structure; and construction activity actions.	
3.04	Determination of structural resistance of materials and forms of construction	The following requirements, or any combination of them, must be used to determine the structural resistance of materials and forms of construction as appropriate: Part 3.1, Part 3.2 (or AS3600) *(AS5216 as required)*, Part 3.3, Part 3.4 *(AS2327, AS1664.1, AS1664.2 as required)*, Part 3.5, Part 3.6, Part 3.9 *(AS1170.1 as required)*, Part 3.10 *(AS4505 as required)*	*Complies; See associated engineer's structural report*
3.05	Structural software	Structural software used on computer aided design of a building must comply with this clause and use criteria based of the DTS provisions of the Housing provisions volume of the NCC.	*Complies; See associated engineer's structural report*
Part 3.1 Site Preparation			
3.1.1.1	Unretained bulk earthworks- site cut	No site works governed by this clause	*N/A*
3.1.1.2	Un-retained bulk earthworks- fill	No site works governed by this clause	*N/A*
Part 3.1.2 Earth retaining structures			
3.1.2.0	Acceptable construction manual *(for earth retaining structures)*	Any proposed earth retaining structures (retaining walls or the like) must be designed and constructed in accordance with AS 4678.	*N/A*
Part 3.1.3 Drainage			
3.1.3.0	Application	Performance Requirement P2.2.1 is satisfied for drainage if it is designed and constructed in accordance with AS 3500.3. ***Note 1:*** *Drainage appears in good condition* *Refer to Figure 1 below for drainage.*	*Note; Class 10a Structures required to comply* *Complies; See associated certification report*

Figure 1 – Existing stormwater drainage

3.1.3.1		Limitations on the parameters of AS3500.3 is 5min duration of rainfall intensity of 255mm/hr *(in a 1 in 20 event) determined in accordance with NCC Volume 2 Table 3.5.3.1a-h)* *Newcastle- 226mm/hr*	*Note; Class 10a Structures required to comply* *Assumed Compliance*
3.1.3.2	Drainage requirements	Drainage systems must be installed as follows- (a) in areas adjoining and under buildings- surface water drainage in accordance with 3.1.3.3; and (b) where site conditions exist that create a need for subsoil water to be diverted away from footings, basements, retaining walls etc- sub-soil drainage in accordance with 3.1.3.4; and	*Note; Class 10a Structures required to comply* *Assumed compliance*

		(c) where underground drainage from roof areas is required or permitted- underground stormwater drainage in accordance with 3.1.3.5; and (d) excavation for drains adjacent to existing footings must be within the area described in Figure 3.1.3.1 as being safe for excavation.	

Figure 3.1.3.1 Excavation for drains adjacent to footings



Note to Figure 3.1.3.1: Any excavation below the area defined as being safe for excavation will need additional protection measures to be determined by appropriately qualified persons.

3.1.3.3	Surface water drainage	Surface water must be diverted away from Class 1 buildings as follows: (a) Slab-on-ground- finished ground level adjacent to buildings: the external finished surface surrounding the slab must be drained to move surface water away from the building and graded to give a slope of not less than- (i) 25 mm over the first 1 m from the building in low rainfall intensity areas for surfaces that are reasonably impermeable (such as concrete or clay paving); or (ii) 50 mm over the first 1 m from the building in any other case.	*Complies*

		(b) Slab-on-ground- finished slab heights: the height of the slab-on-ground above external finished surfaces must be not less than- (i) 100 mm above the finished ground level in low rainfall intensity areas or sandy, well-drained areas; or (ii) 50 mm above impermeable (paved or concreted areas) that slope away from the building in accordance with(a); or (iii) 150 mm in any other case.	
3.1.3.4	Subsoil drainage	Where a subsoil drainage system is installed to divert subsurface water away from the area beneath a building, the subsoil drain must- (a) be graded with a uniform fall of not less than 1:300; and (b) discharge into an external silt pit or sump with- (i) the level of discharge from the silt pit or sump into an impervious drainage line not less than 50 mm below the invert level of the inlet; and (ii) provision for cleaning and maintenance.	*Note*
3.1.3.5	Stormwater drainage	Where a stormwater drainage system is installed, it must comply with the following: (a) The position and manner of discharge of the stormwater drainage system must be to the satisfaction of the appropriate authority *Dungog Shire Council)*. (b) The stormwater drainage system must be designed so that any overflow during heavy rain periods is prevented from flowing back into the building (c) The cover to *(90mm Class 6 UPVC)* stormwater drains installed underground must be not less than- - under soil- 100mm - under paved or concrete areas- 50mm - under areas subject to light vehicle traffic- reinforced concrete- 50mm; paved- 100mm	*Note; Class 10a Structures required to comply* *Assumed compliance*

Part 3.1.4 Termite risk management			
3.1.4.2	Requirements of termite management systems	The requirements of 3.1.4.2 apply where a class 1 or 10 building is constructed in an area where termites are known to present a potential risk of attack and its primary building element is considered susceptible to termite attack. A primary building element consisting entirely of, or a combination of, any of the following materials is considered not subject to termite attack: (i) Steel, aluminium or other metals. (ii) Concrete. (iii) Masonry. (iv) Fibre-reinforced cement. (v) Timber — naturally termite resistant in accordance with Appendix C of AS 3660.1. (vi) Timber — preservative treated in accordance with Appendix D of AS 3660.1. ***Note 1:*** *No obvious termite activity was observed on site.*	***Note:*** *this site would be considered subject to termite attack and must comply with the provisions of this clause* *Confirmation of termite management system installation is required.*
3.1.4.3	Termite management systems	Where a termite management system is required it must be selected appropriate to the table on the following page, comply with AS3660.1 or be tested in accordance with AS3660.3 Section 5, have a durable notice installed (in accordance with the following clause) and where a chemical treatment is used, the chemical must be included on the appropriate authorities' pesticides register.	*Note; Structure is a conversion from a 10a shed structure to a 1a Structure* *Termite management system required.* *Read in conjunction with 3.1.4.2*

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 *external wall* 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.

3.1.4.4	Durable notice	If a termite management system is implemented due to the above clause, it is required that appropriate notices be presented in a prominent location, such as meter box, informing of the method of termite protection.	*Confirmation of installation of durable notice required. Read in conjunction with 3.1.4.2.*
Part 3.2 Footings and slabs			
3.2.0 (NSW)	Application	Performance Requirements P2.1.1 and P2.2.3 are satisfied for footings and slabs if they are installed in accordance with one of the following- (a) The footing or slab is constructed in accordance with AS 2870, except that for the purposes of Clause 5.3.3.1 of AS 2870 a damp-proofing membrane is required to be provided. (b) Piled footings are designed in accordance with AS 2159.	*Note*
3.2.1	Application	The concrete slab is in place. No further concrete works are proposed as part of this application. ***Note:*** *Class 10a Structures are not required to comply with P2.2.3 – Rising Damp in particular cases where compliance is not necessary.* *It is considered that compliance with P2.2.3 was necessary for the 10a structure, and evidence of a vapour barrier was observed on site. Note that while evidence of a vapour barrier was observed, full coverage is unable to be determined through non-destructive testing.*	*Note; Class 10a Structures required to comply* *Assumed compliance of existing works*

Part 3.3- Masonry			
Part 3.3 Unreinforced Masonry; Reinforced Masonry; Masonry Accessories; Masonry accessories; Masonry veneer; Isolated masonry piers N/A – No Masonry present			
Part 3.4- Framing			
Part 3.4.1 Sub-floor ventilation			
3.4.1.2	Sub-floor ventilation	N/A – slab on ground	*N/A*
Part 3.4.2 Steel Framing			
3.4.2.1	Application	Any steel framing must comply with AS4600 or the 'NASH' standard and the frame material requires to have a yield stress of not less than 250MPa.	*N/A No steel framing evident*
Part 3.4.3 Timber Framing			
3.4.3.0	Application	The performance requirements for timber framing are satisfied if it is designed and constructed in accordance with one of the following standards: - AS 1720.1 - AS 1684.2 or AS1684.4	*Complies; See associated engineer's structural report*
Part 3.4.4 Structural steel members			
3.4.4	Application	Performance Requirement P2.1.1 is satisfied for structural steel sections if they are designed and constructed in accordance with one of the following: (a) Steel structures: AS 4100. (b) Cold-formed steel structures: AS/NZS 4600. **Note**: for this construction manual, the building must not have a design wind speed of greater than N3; the first dimension of steel sections is installed vertically; all loads are equally distributed *(unless otherwise note or allowed for);* has no specific earthquake requirements in reference to AS1170.4 the member is not subject to snow loads.	*N/A – No Structural steel members evident*

Part 3.5- Roof and wall cladding			
Part 3.5.1 Sheet Roofing			
3.5.1.0	Acceptable construction manuals	Metal roofing must comply with AS 1562.1 Plastic sheet roofing must comply with AS 1562.3	*Complies; See associated engineer's structural report*
Part 3.5.2 Roof tiles and shingles			
3.5.2.0	Acceptable construction manuals	Performance Requirements P2.1.1 and P2.2.2 are satisfied for roof cladding if it complies with one or a combination of the following: - Roof tiling AS2050 - Terracotta, fibre cement and timber slates and shingles AS4597	*N/A Sheet metal roof*
Part 3.5.3 Gutters and downpipes			
3.5.3.1	Application	Performance requirement P2.2.1 is satisfied for gutters and downpipes provided the roof drainage system is connected to a stormwater drainage system that complies with part 3.1.3 and AS3500.3 ***Note 1:*** *Overflows during heavy rain should be diverted away from the building.*	*Note; Class 10a Structures required to comply* *Assumed Compliance*
3.5.3.5	Downpipes- size and installation	Downpipes must not serve more than 12m of gutter length for each downpipe and must be located as close as possible to valley gutters *(where installed).* ***Note 1:*** *Gutters and downpipes appear to be in serviceable condition and are unchanged from the original garage approval.*	*Note; Class 10a Structures required to comply* *Assumed compliance*
Part 3.5.4 Timber and Composite Wall Cladding			
3.5.4.1	Application	Compliance with this acceptable construction practice satisfies Performance Requirements P2.1.1 and P2.2.2 for wall cladding provided- (a) It is installed in accordance with- (i) 3.5.4.2 for timber cladding, including weatherboards and profiled boards; and (ii) 3.5.4.3 for fibre-cement and hardboard wall cladding boards; and	*Note; Class 10a structures are required to comply, with the exception of weatherproofing requirements (P2.2.2)*

		(iii) 3.5.4.4 for fibre-cement, hardboard and plywood sheet wall cladding; and (b) fibre-cement sheet eaves where provided, are installed in accordance with 3.5.4.5; and (c) openings and penetrations in cladding are flashed in accordance with 3.5.4.6; and (d) the bottom surface of the cladding terminates in accordance with 3.5.4.7; and (e) parapets, where provided, are flashed in accordance with 3.5.4.8.	*Confirmation of the installation of flashing is required from the supplier/installer is required for compliance.*
3.5.4.3	Wall Cladding Boards	Wall cladding boards must- (a) for 7.5 mm (minimum) thick fibre-cement - comply with AS/NZS 2908.2 or ISO 8336; and (b) for 9.5 mm (minimum) thick hardboard - comply with AS/NZS 1859.4 for exterior grade; and (c) be fixed in accordance with Tables 3.5.4.2a and b with (i) one fixing provided at each stud or equivalent framing member for wall cladding boards not more than 130 mm wide; and (ii) two fixings provided at each stud or equivalent framing member for wall cladding boards greater than 130 mm wide; and (iii) fixings located along the studs at not more than 100 mm centres; and (iv) fixings located so that they do not penetrate the tip or thinner edge of the board beneath; and (d) have a lap not less than- (i) for 7.5 mm (minimum) thick fibre-cement-25mm; or (ii) for 9.5 mm (minimum) thick hardboard-20 mm	*Note; Class 10a structures are required to comply, with the exception of weatherproofing requirements (P2.2.2)* *Confirmation of the installation of flashing is required from the supplier/installer is required for compliance.*

Table 3.5.4.2b Fixing requirements—Minimum 9.5 mm thick hardboard wall cladding boards

Design wind speed	Maximum stud spacing (mm)	Minimum nominal stud fixings
N1 — N3	600	Timber: 2.8 GC Steel: (8-18) S

3.5.4.4	Sheet Wall Cladding	(a) Fibre-cement sheet wall cladding must- (i) comply with AS/NZS 2908.2 or ISO 8336; and (ii) be fixed in accordance with Table 3.5.4.3.	*Note*

Table 3.5.4.4 Stud and fixing spacings for 9.5 mm thick hardboard sheet wall cladding

Design wind speed	Maximum stud spacing (mm)	Maximum nail spacing within 1.2 m of the external corners of the building (mm) Note 1	Maximum nail spacing elsewhere (mm) Note 1
N1	600	Body: 300 Edges: 150	Body: 300 Edges: 150
N2	600	Body: 300 Edges: 150	Body: 300 Edges: 150
N3	600	Body: 300 Edges: 150	Body: 300 Edges: 150

Notes to Table 3.5.4.4:

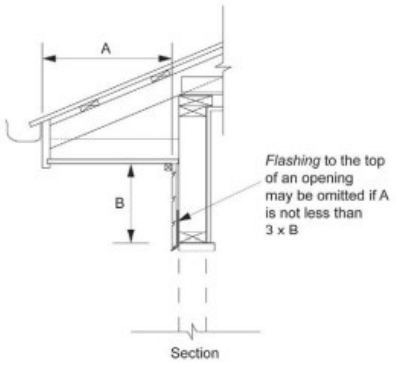
1. Maximum nail spacing using 2.8 mm galvanised clouts or flat head nails.
2. Fixings must be positioned a minimum of 12 mm from the edge of the sheet and not less than 50 mm from the edge of all corners.
3. Fasteners must penetrate not less than 30 mm into the timber frame.
4. Wall cladding may be fixed through timber or metal battens attached to the wall frame in accordance with AS 1684.2, AS 1684.3, AS 1684.4 or NASH standard as appropriate (see fixing requirements for roof battens) so long as the minimum penetration into the wall frame is achieved.

(c) Structural plywood wall cladding must—

(i) comply with AS/NZS 2269.0; and

(ii) be fixed in accordance with Table 3.5.4.5.

3.5.4.5	Eaves and soffit linings	Where provided, external fibre-cement sheets and linings used as eaves and soffit linings must- (a) comply with AS/NZS 2908.2 or ISO 8336; and (b) be fixed in accordance with Table 3.5.4.6 and Figure 3.5.4.4 using- (i) 2.8 × 30 mm fibre-cement nails; or (ii) No. 8 wafer head screws (for 4.5 mm and 6 mm sheets only); or (iii) No. 8 self-embedding head screws (for 6 mm sheets only).	*Note*
3.5.4.6	Flashings to wall openings	Openings in external wall cladding exposed to the weather must be flashed with materials complying with AS/NZS 2904 and in accordance with the following: (a) Flashings must be provided to bottom, tops and sides of openings, except as permitted by (d), and must be installed so that the flashing- (i) extends not less than 110 mm beyond the reveals on each side of the opening where practicable; and (ii) is attached to the window and wall framing; and (iii) at the top and bottom of the opening, drains to the outside face of the wall or cladding.	*Note; Class 10a structures are required to comply, with the exception of weatherproofing requirements (P2.2.2)*

		(b) Joins in the flashing must- (i) overlap by not less than 75 mm in the direction of flow; and (ii) be securely fastened at intervals of not more than 40 mm; and (iii) have sealant installed between laps. (c) The method of flashing must be suitable for the framing and cladding used and any reveal for the window or door system or any architrave or finishing trims that may be installed. (d) The top of an opening need not be flashed where it is adequately protected by an eave of a width more than 3 times the height of the cladding above the opening (See Figure 3.5.4.5). (e) Flashings must be securely fixed at least 25 mm under the cladding and extend over the ends and edges of the framing of the opening. **Figure 3.5.4.5 Weather protection of openings**  	*Confirmation of the installation of flashing is required from the supplier/installer is required for compliance.*
Part 3.5.5 Metal wall cladding			
3.5.5.0	Metal wall cladding	Performance Requirements P2.1.1 and P2.2.2 are satisfied for a metal wall cladding if it is designed and constructed in accordance with AS 1562.1.	*N/A – No metal wall cladding*
Part 3.6- Glazing			
3.6.0	Application	(a) Performance Requirements 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).	*Complies*

		(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 Requirements are satisfied for glazing if designed and constructed in accordance with AS 1288 for all glazed assemblies not covered above (a) and the following glazed assemblies: (i) All glazed assemblies not in an external wall. (ii) Revolving doors. (iii) Fixed louvres. (iv) Skylights, roof lights and non-vertical windows (v) Sliding and swinging doors without a frame. (vi) Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047. (vii) Second-hand windows, re-used windows and recycled windows. (viii) Heritage windows. (ix) Glazing used in balustrades and sloping overhead glazing ***Note:*** *Window installations observed on site were confirmed to be AS 2047 compliant.*	
Part 3.7- Fire Safety			
Part 3.7.1 Fire properties for materials and construction			
3.7.1.1	General concession- non-combustible materials	The following materials, though combustible or containing combustible fibres, may be used wherever a non-combustible material is required in the Housing Provisions: (a) Plasterboard. (b) Perforated gypsum lath with a normal paper finish. (c) Fibrous-plaster sheet. (d) Fibre-reinforced cement sheeting.	*Note*

		(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. (f) Sarking-type materials that do not exceed 1 mm in thickness and have a flammability index not greater than 5. (g) Bonded laminated materials where- (i) each lamina, including any core, is non-combustible; and (ii) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (iii) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively.	
3.7.1.2	Fire hazard properties	The fire hazard properties of materials used in a Class 1 building, including floor or ceiling spaces common 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.	*Flammability index of sarking requires confirmation from supplier/installer/manufacturer*
Part 3.7.2 Fire Separation of external walls			
3.7.2.2	External walls of class 1 buildings	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	*Complies*

		Note: *Walls to the south west, North east and south east are all in excess of 900mm from the boundary.*	
3.7.2.4	Construction of external walls	(a) External walls (including gables) required to be fire-resisting (referred to in 3.7.2.2 or 3.7.2.5) must- (b) (i) commence at the footings or ground slab, except where the external wall commences above a separating wall complying with 3.7.3.2; 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; and (iii) be constructed in accordance with (b). (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. (c) Openings in external walls required to be fire-resisting (referred to in 3.7.2.2 or 3.7.2.5) 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 35 mm thick. (d) The requirements of (c) do not apply to a window in a non-habitable room that is located adjacent to and not less than 600 mm from the boundary of an adjoining allotment or 1200 mm from another building on the same allotment provided that- (i) in a bathroom, laundry or toilet, the opening has an area of not more than 1.2 m2; or	*N/A*

		(ii) in a room other than one referred to in (i), the opening has an area of not more than 0.54 m2 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. (e) Subfloor vents, roof vents, weepholes, control joints, construction joints and penetrations for pipes, conduits and the like need not comply with (c).	
3.7.2.5	Class 10a Buildings	N/A	*Note*
3.7.2.7	Allowable encroachments	(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	*Note*

		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)).	

Figure 3.7.2.9 Allowable encroachments for non-combustible construction

Diagram a Combustible fascia up to but not closer than 450 mm to an allotment boundary

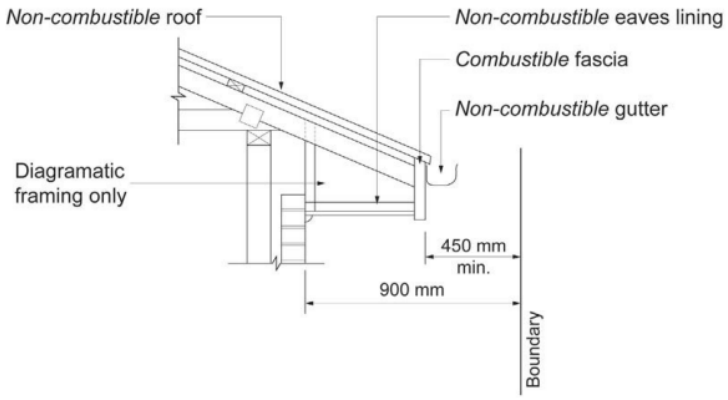


Diagram b Non-combustible fascia and gutter within 900 mm of an allotment boundary

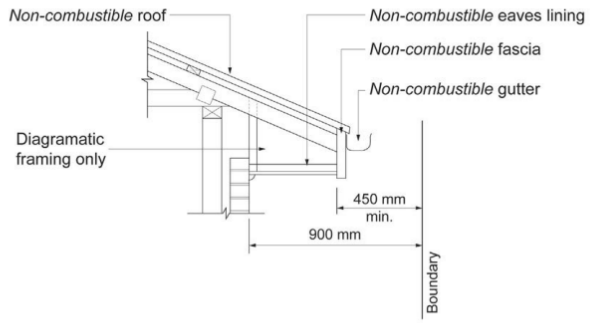
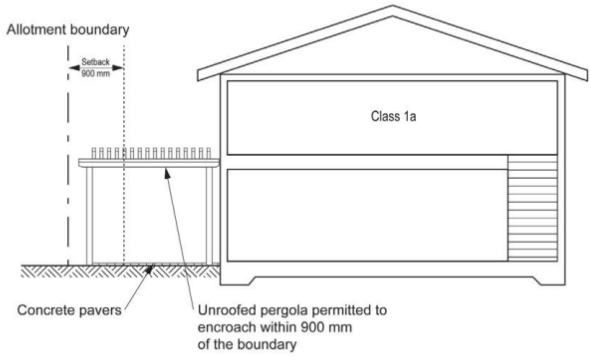


Diagram c Unroofed pergola within 900 mm of an allotment boundary



Part 3.7.3 Fire protection of separating walls and floors			
Part 3.7.3 is not applicable to this structure.			
Part 3.7.4 Fire separation of garage top dwellings			
Part 3.7.4 is not applicable to this structure.			
Part 3.7.5 Smoke Alarms and evacuation lighting			
3.7.5.2	Smoke alarms requirements	Smoke alarms must be installed in a class 1a and must comply with AS3786 and be hard wired and interconnected	*Complies*

(NSW) 3.7.5.2	Requirements for smoke alarms	(a) Smoke alarms must- (i) be located in (A) Class 1a buildings, excluding any non-associated Class 10a private garages, subject to (b), in accordance with 3.7.5.3 and 3.7.5.5; and (B) Class 1b buildings in accordance with 3.7.5.4 and 3.7.5.5; and (ii) 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 (iii) be connected to the consumer mains power where consumer power is supplied to the building; and (iv) be interconnected where there is more than one alarm. (b) Heat alarms must be installed in a Class 10a private garage that is located beneath a Class 1a dwelling and not associated with that dwelling, in accordance with NSW 1.1.4. Smoke alarms are installed, however relocation in compliance with the below requirement and confirmation of a 240v connection are required. ***Note 1:*** *NSW 1.1.4 Heat alarms relates to garage top dwellings and non-associated private garages.* *(b) above and NSW 1.1.4 is not considered to apply to the development as it currently is and is provide for information purposes only.*	*Confirmation of hardwiring of smoke alarms is required*
3.7.5.3	Location- Class 1a buildings	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	*Relocation of existing alarms required; current locations are not compliant.*

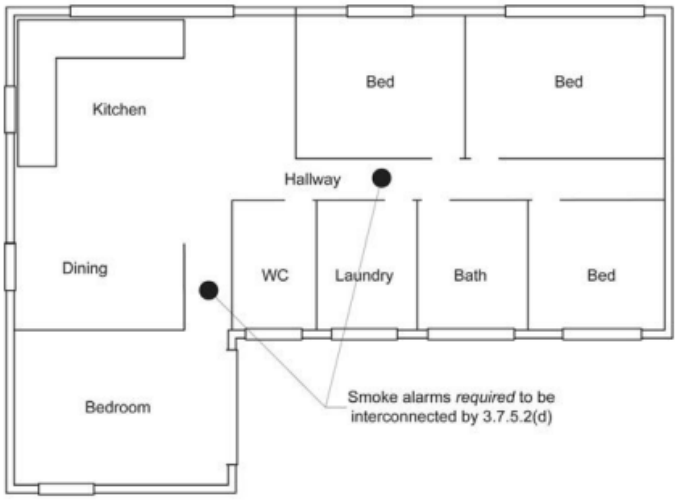
Figure 3.7.5.1

Diagram a Class 1a building where all bedrooms are grouped together and served by a hallway

Legend for Figure 3.7.5.1 Diagram a:

- **Smoke alarm**

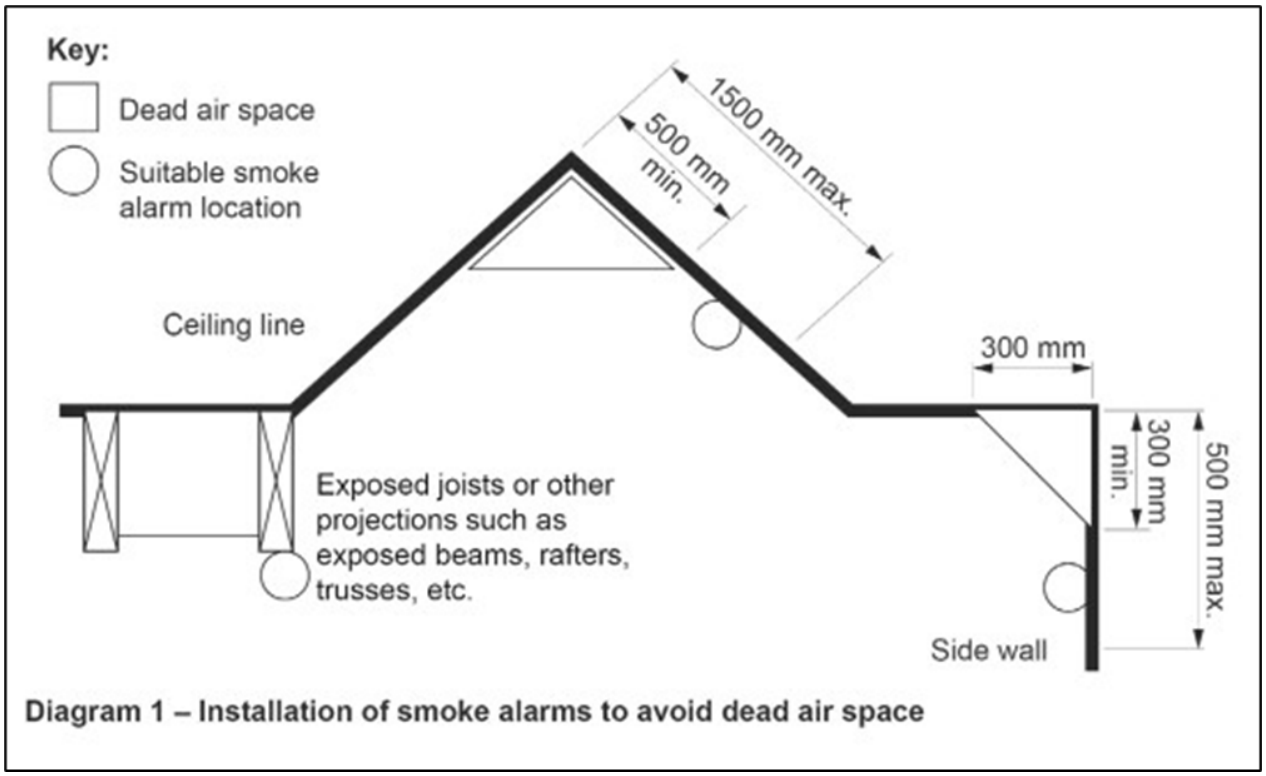
Diagram b Class 1a building where bedrooms are located in separate areas



Legend for Figure 3.7.5.1 Diagram b:

- **Smoke alarm**

3.7.5.4	Location- Class 1b buildings	In a class 1b building, smoke alarms must be located- (a) in every bedroom; and (b) corridor associated with a bedroom (or an area between the bedrooms and the remainder of the building); and (c) each other storey	*N/A applies to Class 1b structures only*

3.7.5.5	Installation of smoke alarms	Required smoke alarms must be installed on or near the ceiling, in accordance with the following: (a) Where a smoke alarm is located on the ceiling it must be- (i) a minimum of 300 mm away from the corner junction of the wall and ceiling; and (ii) between 500 mm and 1500 mm away from the high point and apexes of the ceiling, if the room has a sloping ceiling. (b) Where (a) is not possible, the smoke alarm may be installed on the wall, and located a minimum of 300 mm and a maximum of 500 mm off the ceiling at the junction with the wall.	*Compliance is required for alarms installed*
 **Diagram 1 – Installation of smoke alarms to avoid dead air space**			
3.7.5.6	Lighting to assist evacuation- Class 1b buildings	In a Class 1b building, a system of lighting must be installed to assist evacuation of occupants in the event of a fire, and (a) be activated by the smoke alarm required by 3.7.5.4(b); and (b) consist of- (i) a light incorporated within the smoke alarm; or (ii) the lighting located in the corridor, hallway or area served by the smoke alarm.	*N/A; applies to Class 1b structures only*

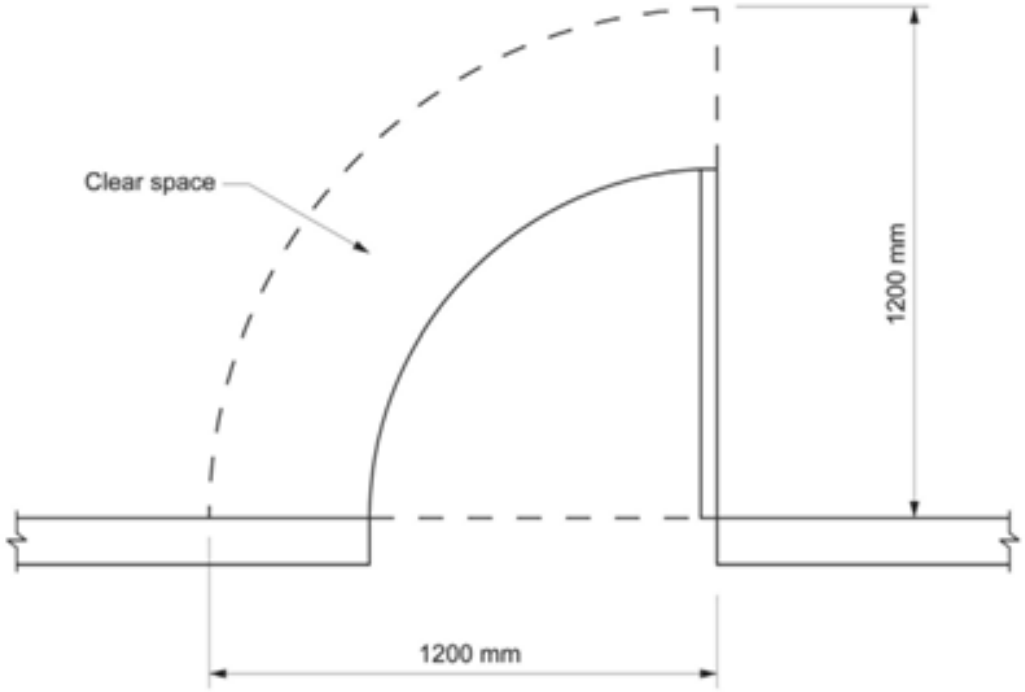
Part 3.8- Health and amenity			
Part 3.8.1 Wet areas and external waterproofing			
3.8.1.2	Wet areas	Wet areas (when installed) must be in compliance with Table 3.8.1.1 and AS3740 Note: linings must comply with the table and wet area flashing (WAF) must be installed complying with AS3740. **Note:** Table 3.8.1.1 identifies different types of surfaces, substructures and materials and how they are protected together with wall floor junction points from moisture ingress. More detailed information on these items can allow for more specific requirements for these structures. AS3740 also provides guidance in this regard.	*Confirmation of compliance of newly constructed works with AS 3740 required.*
Part 3.8.2 Room Heights			
3.8.2.2	Heights of rooms and other spaces	Heights of rooms and other spaces must be not less than- • in a habitable room excluding a kitchen- 2.4 m; • in a kitchen - 2.1 m; • in a corridor, passageway or the like- 2.1m; • in a bathroom, shower room, laundry, sanitary compartment, airlock, pantry, storeroom, garage, car parking area or the like- 2.1 m;	*Complies*
Part 3.8.3 Facilities			
3.8.3.2	Required facilities	a) A Class 1 building (dwelling) must be provided with; a kitchen sink and facilities for the prep and cooking of food; a bath or shower; clothes washing facilities- comprising of at least one washtub and space in the same room for a washing machine; a toilet and washbasin (for exclusive handwashing). 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.	*Complies*

Figure 2 – Toilet Facilities

Figure 3 – Kitchen Facilities

3.8.3.3	Construction of sanitary compartments	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.	*Note* *WC Complies with required clear space requirement*

Figure 3.8.3.3 Construction of sanitary compartments



Part 3.8.4 Light			
3.8.4.2	Natural lighting	All habitable rooms should be provided with natural light consisting of a provision of not less than 10% of the floor area of the room, and must be provided by windows, roof lights or a combination of the two.	*Complies*
3.8.4.3	Artificial lighting	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 m2 of floor area; or (b) in accordance with AS/NZS 1680.0.	*Assumed compliance*

Part 3.8.5 Ventilation			
3.8.5.2	Ventilation requirements	Ventilation must be provided to a habitable room, sanitary compartment, bathroom, shower room, laundry and any other room occupied by any person with an openable portion of not less than 5% of the floor area. ***Note:*** *as most windows are 50% openable if the requirements of 3.8.4.2 are met then the requirements for natural ventilation are also satisfied*	*Complies*
3.8.5.2	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; or (b) the sanitary compartment is provided with an exhaust fan or other means of mechanical exhaust ventilation.	*Complies*
Part 3.8.6 Sound Insulation			
3.8.6.2	Sound insulation requirements	(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 an $R_w + C_{tr}$ (airborne) not less than 50; and (ii) be of discontinuous construction if it separates a bathroom, sanitary compartment, laundry or kitchen in one Class 1 building from a habitable room (other than a kitchen) in an adjoining Class 1 building (b) For the purposes of (a)(ii), discontinuous construction means a wall system that has two separate leaves and that is not a staggered stud wall, that complies with the following: (i) The wall has a minimum 20 mm cavity between leaves. (ii) For masonry walls, where wall ties are required to connect leaves, the ties are of the resilient type. (iii) For walls other than masonry, there is no mechanical linkage between leaves except at the periphery. (c) A wall required to have sound insulation must continue to- (i) the underside of the roof above; or	*Note* *Current design is only 1 SOU, and as such this clause does not apply.*

		(ii) a ceiling that provides the sound insulation required for the wall.	
Part 3.8.7 Condensation management			
3.8.7.2	Pliable building membrane	Where a pliable building membrane is installed in an external wall, it must- (i) comply with AS/NZS 4200.1; and (ii) be installed in accordance with AS 4200.2; and (iii) be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building.	*Certification of compliance required from installer/manufacturer*
3.8.7.3	Flow rate and discharge of exhaust systems	(a) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of- (i) 25 L/s for a bathroom or sanitary compartment; and (ii) 40 L/s for a kitchen or laundry. (b) Exhaust from a bathroom, sanitary compartment, or laundry must be discharged- (i) directly or via a shaft or duct to outdoor air; or (ii) to a roof space that is ventilated in accordance with 3.8.7.4.	*Assumed compliance*
3.8.7.4	Ventilation of roof spaces	(a) Where an exhaust system covered by 3.8.7.3 discharges into a roof space, the roof space must be ventilated to outdoor air through evenly distributed openings. (b) Openings required by (a) must have a total unobstructed area of 1/300 of the respective ceiling area if the roof pitch is more than 22°, or 1/150 of the respective ceiling area if the roof pitch is not more than 22°. (c) 30% of the total unobstructed area required by (b) must be located not more than 900 mm below the ridge or highest point of the roof space, measured vertically, with the remaining required area provided by eave vents.	*Any exhaust systems to be installed must comply with this clause*

Part 3.9- Safe movement and access			
Part 3.9.1 Stairway and ramp construction			
3.9.1.2	Stairway construction	A stairway must be designed to take loading forces in accordance with AS/NZS 1170.1 and must have between 2 and 18 risers in each flight Risers (non-spiral) must be a min. of 115mm and max. of 190mm Goings (non-spiral) must be a min. of 240mm and max. of 370mm	*N/A*
3.9.1.3	Ramps	An external ramp serving an external doorway or a ramp within a building must- (a) be designed to take loading forces in accordance with AS/NZS 1170.1; and (b) have a gradient not steeper than 1:8; and *(c) be provided with landings complying with 3.9.1.5 at the top and bottom of the ramp and at intervals not greater than 15m.*	*N/A*
3.9.1.4	Slip- resistance	The requirements for slip-resistance treatment to stair treads, ramps and landings are as follows: (a) Treads must have- (i) a surface with a slip-resistance classification not less than that listed in Table 3.9.1.3 when tested in accordance with AS 4586; or (ii) a nosing strip with a slip-resistance classification not less than that listed in Table 3.9.1.3 when tested in accordance with AS 4586. (b) The floor surface of a ramp must have a slip-resistance classification not less than that listed in Table 3.9.1.3 when tested in accordance with AS 4586. (c) Landings, where the edge leads to the flight below, must have- (i) a surface with a slip-resistance classification not less than that listed in Table 3.9.1.3 when tested in accordance with AS 4586, for not less than 190 mm from the stair nosing; or	*N/A*

		(ii) a nosing strip with a slip-resistance classification not less than that listed in Table 3.9.1.3 when tested in accordance with AS 4586. **Note:** Table 3.9.1.3 identifies the following; Ramp not steeper than 1:8- dry conditions P4 or R10; wet conditions P5 or R12 Tread surface- dry conditions P3 or R10; Wet conditions P4 or R11 Nosing or landing edge strip- dry conditions P3; wet conditions P4.	
3.9.1.5	Landings	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; 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; 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.	*N/A*
3.9.1.6	Thresholds	Where the threshold of a doorway is more than 230 mm above the adjoining surface it must incorporate steps having riser (R) and going (G) dimensions in accordance with 3.9.1.2.	*Note; Structure is a conversion from a 10a shed structure to a 1a Structure* *Assumed compliance*

Part 3.9.2 Balustrades and Handrails			
3.9.2.2	Barriers to prevent falls	A continuous barrier must be provided along the side of a trafficable surface, such as- (i) a stairway, ramp or the like; and (ii) a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and (iii) a roof top space or the like to which general access is provided; and any delineated path of access to a building, where it is possible to fall 1 m or more measured from the level of the trafficable surface to the surface beneath.	*N/A*
3.9.2.3	Construction of barriers to prevent falls	A barrier required by 3.9.2.2 must comply with the following: (a) Barrier height: The height of a barrier must be in accordance with the following: (i) The height must not be less than 865 mm above the nosings of the stair treads, the floor of a ramp or the like (ii) The height must not be less than- (A) 1 m above the floor of any landing, corridor, hallway, balcony, deck, verandah, access path, mezzanine, access bridge, roof top space or the like to which general access is provided (B) 865 mm above the floor of a landing to a stairway or ramp where the barrier is provided along the inside edge of the landing and does not exceed a length of 500 mm. (b) Transition zone: A transition zone may be incorporated where the barrier height changes from 865 mm on the stairway flight or ramp to 1 m at the landing (c) Openings in barriers: Openings in barriers (including decorative balustrades) must be constructed so that they do not permit a 125 mm sphere to pass through it and for stairways, the opening is measured above the nosing line of the stair treads	*N/A*

3.9.2.4	Handrails	(a) Handrails to a stairway or ramp must- (i) be located along at least one side of the stairway flight or ramp; and (ii) be located along the full length of the stairway flight or ramp, except in the case where a handrail is associated with a barrier the handrail may terminate where the barrier terminates; and (iii) have the top surface of the handrail not less than 865 mm vertically above the nosings of the stair treads or the floor surface of the ramp (see Figure 3.9.2.4); and (iv) be continuous and have no obstruction on or above them that will tend to break a handhold, except for newel posts, ball type stanchions, or the like. (b) The requirements of (a) do not apply to- (i) a stairway or ramp providing a change in elevation of less than 1 m; or (ii) a landing; or (iii) a winder where a newel post is installed to provide a handhold	*N/A*
3.9.2.6	Protection of openable windows-bedrooms	(a) A window opening in a bedroom must be provided with protection, where the floor below the window is 2 m or more above the surface beneath. (b) Where the lowest level of the window opening covered by (a) is less than 1.7 m above the floor, the window opening must comply with the following: (i) The openable portion of the window must be protected with- (A) a device capable of restricting the window opening; or (B) a screen with secure fittings. (ii) A device or screen required by (i) must- (A) not permit a 125 mm sphere to pass through the window opening or screen; and (B) resist an outward horizontal action of 250 N against the- (aa) window restrained by a device; or (bb) screen protecting the opening; and (C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. (c) Where a device or screen provided in accordance with (b)(i) is able to be removed,	*N/A – No windows are more than 4m above the surface beneath*

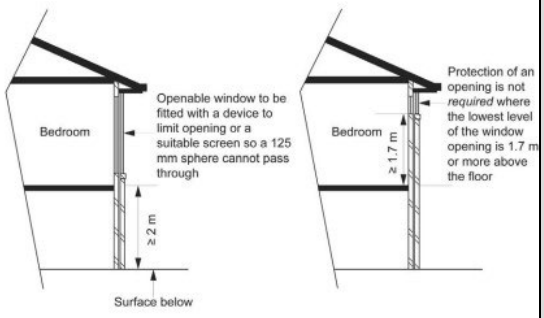
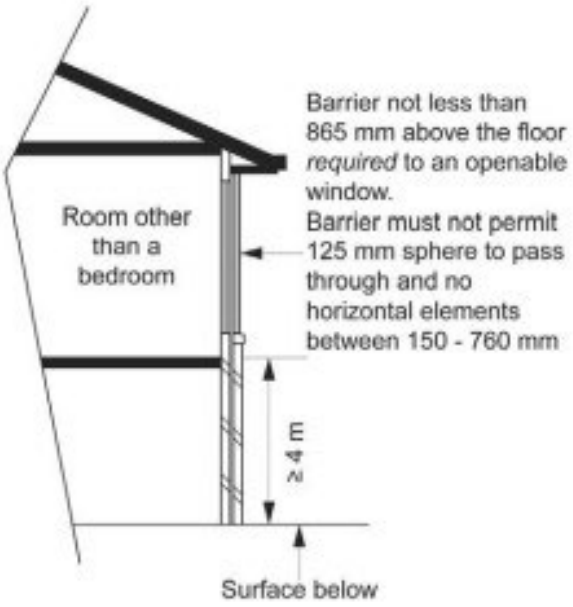
		unlocked or overridden, a barrier with a height not less than 865 mm above the floor is required to the openable window in addition to window protection. (d) A barrier covered by (c) must not- (i) permit a 125 mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing (see Figure 3.9.2.5). **Figure 3.9.2.5 Protection of openable windows—bedrooms**  	
3.9.2.7	Protection of openable windows- rooms other than bedrooms	(a) A window opening in a room other than a bedroom must be provided with protection where the floor below the window is 4 m or more above the surface beneath. (b) The openable part of the window covered by (a) must be protected with a barrier with a height of not less than 865 mm above the floor. (c) A barrier required by (b) must not- (i) permit a 125 mm sphere to pass through it; and (ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. (See Figure 3.9.2.6)	*N/A – No windows are more than 4m above the surface beneath*

Figure 3.9.2.6 Protection of openable windows - rooms other than bedrooms



Part 3.10- Ancillary provisions and additional construction requirements			
Part 3.10.2 Earthquake Areas			
		Most domestic structures are generally considered resistant to earthquakes as the loads catered for within wind resistance are generally considered adequate for earthquake resistance. AS1170.4 can offer additional information in this regard.	*N/A*
Part 3.10.3 Flood Hazard Area			
		The siting of the structure is not identified as a flood hazard area	*N/A*
Part 3.10.5 Construction in bushfire prone areas			
		Performance requirements are satisfied for a class 1, 10a or deck associated with a class 1 building if it is constructed in accordance with AS 3959 or the NASH standard for steel framed construction in bushfire areas.	*N/A*

Part 3.12- Energy efficiency			
		Energy efficiency for habitable structures in NSW is managed through the BASIX system. A BASIX certificate and modelling will be required to satisfy this requirement.	*Information only* *A BASIX certificate is required and has been submitted with the associated Development Application*

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