LUXON HOMES

BUILDING DREAMS, CRAFTING HOMES.

ABN 20 620 937 46
Taylors Hill Vic 3037
Phone: (04) 06 593 307
Email: luxonhomes@gmail.com
Report By: Hany Abdelmalak
DBU
Dip Building & Construction

01/08/2022

Site Address:

Client Name:

Phone #:

Email:

Dwelling type:	House
Dwelling configuration:	Double Storey
Nature of works:	New Building.
Stage of inspection:	Fixing & Waterproofing.
Construction Type:	Brick Veneer.
Garage:	Not applicable.
Foundations:	Slab.
Builder:	Urban Edge.

Client Brief

I was instructed to inspect the client's new home to write a report as to the overall installation of all items required to construct a new home to completion stage. Our role is to assist the clients in outlining any issues that may be identified as being within the scope of the builder to ensure that all construction items are correctly constructed and completed in a workman like manner and meet with all relevant codes and industry practises. As such the client has engaged our services to assist with this report.

Inspection and Report

Our Inspection is a visual inspection of the overall finishes and the quality of those finishes presented by the Builder. This Report is a list of items that in our judgement do not reach an acceptable standard of quality, level of building practice, or have not been built in a proper workmanlike manner, in relation to the Building Code of Australia, (BCA's) the Building Regulations, any relevant Australian Standards and the acceptable standards and tolerances as set down by the Building Commission.

Access

Access was gained to all required areas of the residence.

Report Conditions

The terms and conditions that our site inspection and this report are carried out and supplied under are listed on the last page of this report.

The building process is progressive and items in this report may or may not be covered during the build by materials installed over a documented defect. We recommend that all clients book a reinspection and state that the builder must present all defects rectified prior to moving forward with the build. All items that we are unable to look at from a previous report will not be included in any future reports. We will use all endeavours to ensure rectification, however we are limited to non-destructive method of detection.

Summary

The results of our inspection have been fully detailed in the attached schedule of Building Defects.

Should the reader of this report have any additional queries or questions in relation to the items set out within it, please do not hesitate to contact the writer via any of the methods detailed at the top of the cover page.

Please note: **A fee of $350.00 per hour**, or part thereof, plus GST will be charged for any clarification required by the builder, or any of the builders' employees, and a purchase order for same will be required prior to any contact between Luxon Homes and the builder.

An inspection was conducted at the above address on 01/08/2022 for the purpose of a general home inspection, requested by the 'client'.

The inspection was conducted without the 'client' present, and details exterior and interior.

The weather was fine at the time of the inspection.

Entry to site was obtained under the Building Act, 1993, section 240 and the Domestic Building Contracts Act, 1995, part 2, **section 17** and 19. We act and make limited representations under the direction of the dwellings owners under these two acts.

Schedule of Defects:

All completed items have been removed from the report, along with any items we are unable to inspect due to the progression of works. All outstanding items have been relisted with new photographs.

Defects, observations and other related comments from the Fixing & Water Proofing Inspection on the 01/08/2022: It was noted a number of elements presented as incomplete. To be inspected at next site visit.




1.

It was noted that the dwelling was not water tight as per the photos below.

Water cannot be allowed to enter a dwelling after the installation of batts or plaster.

The builder as a matter of urgency must seal the dwelling or alternately replace batts and plaster if they are wetted. I refer the builder to AS 2589 (Australian Plaster Standard) and AS 3999, (Australian Insulation Standard) which calls for both to be fully protected from moisture.





2.

We refer the builder to the implied warranties where the builder agreed to build the dwelling in a **proper and workmanlike manner and with care and skill**.

8. Implied warranties concerning all domestic building work

The following warranties about the work to be carried out under a domestic building contract are part of every domestic building contract—

(a) the builder warrants that the work will be carried out in a proper and workmanlike manner and in accordance with the plans and specifications set out in the contract;

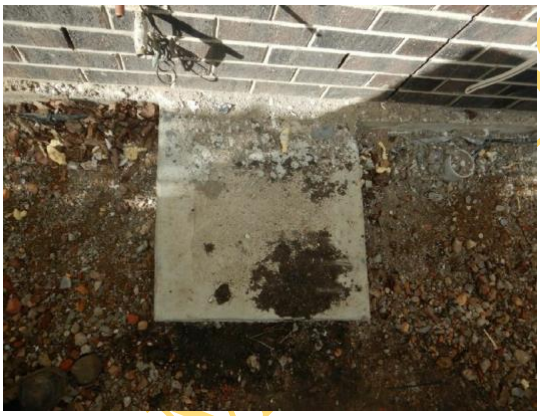
(d) the builder warrants that the work will be carried out with reasonable care and skill and will be completed by the date (or within the period) specified by the contract;

LHS

LHS

LHS

Front LHS-missing rivets



OOS

Incomplete roof screws LHS.

Complete as per SA HB 39

3.

AS 4100, 15.2.2: - Members, components and fasteners shall be handled and stacked in such a way that damage in not caused to them. Means shall be provided to minimize damage to the corrosion protection on the steel work.
Surface rust and corrosion protection damage has been noted on this site.

15.2.2 Delivery, storage and handling

Members, components and fasteners shall be handled and stacked in such a way that damage is not caused to them. Means shall be provided to minimize damage to the corrosion protection on the steelwork.

All work shall be protected from damage in transit. Particular care shall be taken to stiffen free ends, prevent permanent distortion, and adequately protect all surfaces prepared for full contact splices. All bolts, nuts, washers, screws, small plates and articles generally shall be suitably packed and identified.

C5 PROTECTION DURING TRANSPORT AND HANDLING AFTER CORROSION PROTECTION

Structural members should be adequately protected during handling and transport to prevent damage to the corrosion protection. Units which are transported in nested bundles should be separable without damage to the units or their coatings. Care should be taken when handling long units or bundles. Consideration should be given to the use of lifting beams with appropriately spaced lifting points and slings, or to lifting with properly spaced fork-lift tines.

C6 REPAIRS TO CORROSION PROTECTION

Corrosion protection which has been damaged by welding or other causes should be restored before the structure is put into service. The damaged area should be dry and clean, free from dirt, grease, loose or heavy scale or rust before the corrosion protection is applied. The corrosion protection should be applied as soon as practicable and before noticeable oxidation of cleaned surfaces occurs. Damaged zinc coating should be restored by a suitable zinc paint.

4.

It was noted Perma Timber CX cladding has been used. Builder to clarify installation guide allows cladding to be sitting flush against flashings.

The Domestic Building Contracts Act 1995, Section 26: -Supply a copy of all to my client as per section 26 of the Domestic Building Contracts Act 1995.

26. Builder must supply copies of relevant reports etc.

(1) A builder must give to a building owner a copy of any report, notice, order or other document that the builder is given in relation to the building work being carried out by the builder for the building owner by any public statutory authority, provider of services such as gas, electricity, telephone, water and sewerage or person registered under the **Building Act 1993**, and must do so as soon as practicable after receiving the report, notice, order or document.

Penalty: 20 penalty units.

VERTICAL INSTALLATION

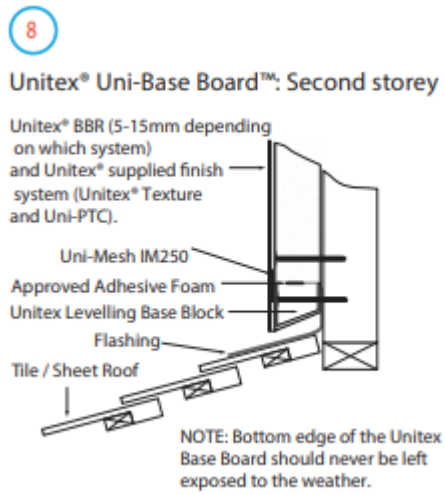
To install PermaTimber® CX Castellation vertically complete the following steps...

1. Ensure you have installed a waterproof membrane in accordance with BCA requirements.
2. Depending on personal preference and the application, the tongue can be left on or cut off.
3. PermaTimber® CX Castellation must be started at a corner, external wall or against another cladded wall.
4. Fix the cladding to the subframe through the gap in between the first and second rib on the tongue side.
5. Use the PermaTimber® Snap Cap system to conceal the screw or leave as a face-fix screw. Alternatively, use a colour match screw.

Cap system or colour match screw to be completed

5.

<u>Unitex external cladding</u>: Ensure a gap to roofing system as per Unitex installation guide.



Rear

6.

HB 39, part 8.4, section (c), (v): - Where used, pressure flashings shall be secured at 100mm maximum spacings.

Fixings exceed 100 mm. The current installation has not met this requirement.

(c) Pressure flashings may be used in lieu of cutting grooves into walls, provided they are used only with smooth surface finished walls, e.g. smooth finished concrete or smooth finished brickwork with flush pointed mortar courses, provided [see Figure 8.4(C)]—

(i) the pressure flashings are purpose-made machine folded with a safety/stiffening fold at the upper edge or alternatively constructed with a safety/stiffening fold at 45° from vertical to allow for the placement of a silicone filler;

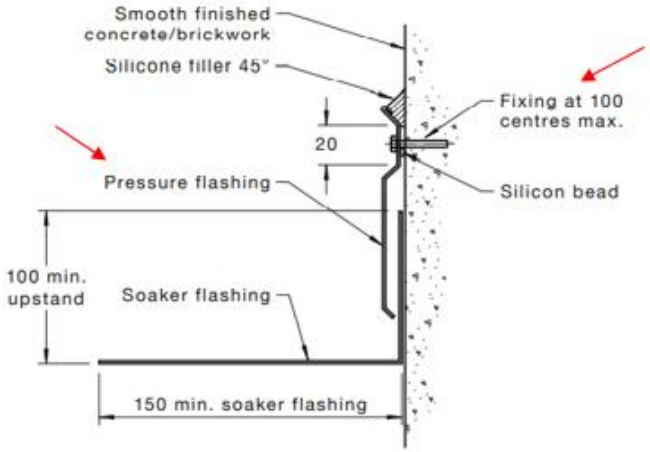
(ii) the sealant is applied in a sandwiched seal of approximately 20 mm wide;

(iii) the fixing of the flashing will ensure a durable seal is maintained;

(iv) the seal is protected from excessive movement due to expansion and contraction;

(v) the fixing centres are at no more than 100 mm spacings; and

(vi) the fixing devices are fit for purpose and compatible with the flashing material.



DIMENSIONS IN MILLIMETRES

FIGURE 8.4(C) PRESSURE FLASHING

7.

AS 1562.1; 4.4.2: - Fasteners in valleys or crests (of sheeting) shall be tightened to compress flexible seals without deforming the cladding or damaging any washers. Care should be exercised to prevent the entrapment of swarf between the seal and the cladding.

These requirements have not been fully met.

Note: Due to WH&S restrictions I am unable to climb on roofs. Nor am I able to view any parts of upper level roofs of two storey homes. The builder is responsible for ensuring all areas are compliant.

4.4.2 Pierced-fastened cladding

Fasteners in valleys or crests shall be tightened to compress flexible seals without deforming the cladding or damaging any washers.

Where nails are used, any local distortion shall not extend beyond the area covered by the washer and seal.

NOTES:

1 Compressed washers should be used to minimize water leakage and provide cladding performance as per design documentation (see Clause 3.5).

2 Care is to be exercised to prevent the entrapment of swarf between the seal and the cladding for both crest and valley fasteners.

Figure 3.6.1
It is important that you set screws correctly

3.6 Setting of screws

Fasteners with sealing washers should be tightened only until the washer is gripped firmly enough to provide a weathertight seal. The fasteners should not be over-tightened because this may split the sealing washer or deform the sheet, either of which could lead to water penetration. Take particular care when valley fixing because there is no flexibility with the sheet hard against its support. Take particular care to ensure the fastener is driven perpendicular to the sheeting to avoid deformation of the washer.

8.

Standards Australia HB 39: - The gutters and roof sheeting must be fully cleaned of metal particles, roof screws, pop rivets, mortar, paint, and the like.

The roof and gutter installation to this dwelling has not met this requirement.

3.6 CLEANING UP

Normal installation practices such as drilling and cutting usually leave offcuts and metallic swarf on or around the roof area. These materials and all other debris, including blind rivet shanks, nails and screws are to be cleaned from the roof area and gutter regularly during the installation process as unsightly staining of the surface due to oxidation of the metal particles will result, leading to corrosion and possible failure of the roofing material or guttering. Where practicable, the entire installation should be cleaned down with a blower vac, swept or, alternatively, if a water supply is available, hosed down at the completion of the work.

9.

VBA Guide to Standards and Tolerances; 6.02: - Staining, folds, splits, dents, and other distortions in roof cladding are defective if visible from a normal viewing position at the ground or an upper floor level.

Roof sheeting to this dwelling has not met this requirement.

6.02 Roof cladding

Staining, folds, splits, dents, open joints between panels, cracking and other distortions in roof cladding is defective if it is visible from a normal viewing position at ground level or an upper floor level.

Any corrosion of roof cladding is defective unless it is caused by a lack of maintenance or damaged by the owner.

Rear LHS

10.

NCC 2019; Part 2.2 Damp and Weatherproofing: - A building, including any associated site work, must be constructed in a way that protects people and other property from the adverse effects of redirected surface water.

Temporary downpipes have not been installed to this dwelling.

Part 2.2 Damp and weatherproofing

Explanatory information:

Objective

O2.2

The Objective is to—

(a) safeguard occupants from illness or injury and protect the building from damage caused by—
- (i) *surface water*; and
- (ii) external moisture entering a building; and
- (iii) the accumulation of internal moisture in a building; and
- (iv) discharge of *swimming pool* waste water; and

(b) protect *other property* from damage caused by—
- (i) redirected *surface water*; and
- (ii) the discharge of *swimming pool* waste water.

Functional statements

F2.2.1 Surface water

A building including any associated *sitework* is to be constructed in a way that protects people and *other property* from the adverse effects of redirected *surface water*.

11.

The slab has been installed with what is known as over pour. On this particular home the over pour will affect the home owner's ability to install paving and other landscaping.

The over pour will need to be removed. This will require:

- Seek engineering process and design for rectification of this defect.
- Document same.
- Send the engineering to the site surveyor for approval.
- Have the site surveyor witness the repair of the slab to ensure that the builder has carried out the works in accordance with the process's and rectification statements in the engineering documentation.
- Supply a copy of all to my client as per section 26 of the Domestic building contracts Act 1995.
- Satisfy the defect has not been hidden by placing soil over the edge beam of the over poured slab.

12.

AS 2870; 6.4.7: - The concrete shall be transported, placed, compacted and cured with good building practice. Concrete in beams is to be mechanically vibrated. Engineering has noted this requirement.

The dwellings slab presents with an amount of what is known as a bony finish to the edge beam of the home. Air pockets are to be vibrated out of the installation.

It is our recommendation that the builder seeks a professional opinion from the site engineers in relation to this item and rework accordingly.

Any documentation that the builder relies upon in relation to rectification must be provided to our client under section 26 of the Domestic Building Contracts Act.

6.4.7 Placing, compaction and curing of concrete

The concrete shall be transported, placed, compacted and cured in accordance with good building practice.


13.

Victorian Domestic Building Contracts Act; Part 9 s.137: - The vendor (builder) warrants that materials must be good and suitable for the purpose which they are used. Unless otherwise stated in the contract, materials shall be new.

Part 9—Liability

s. 137D

(b) the vendor warrants that all materials used in that domestic building work were good and suitable for the purpose for which they were used and that, unless otherwise stated in the contract, those materials were new; and

(c) the vendor warrants that that domestic building work was carried out in accordance with all laws and legal requirements, including, without limiting the generality of this warranty, this Act and the regulations.


Alfresco

14.

AS 2589; 3.4: - Control joints for external plasterboard shall be provided at max. 6 m spacing in either direction.

External ceilings have not met this requirement.

3.4 CONTROL JOINTS

Control joints and their positioning shall be determined at design stage and included on relevant specifications and diagrams including accurate details for installation.

Control joints shall be provided at not more than 12 m intervals in either direction for internal walls and ceilings, and at not more than 6 m intervals in either direction for external ceilings. Where a control joint is required in a wall or ceiling it shall be continuous through battens and mouldings, such as cornices, in order to maintain continuity. Additionally, control joints shall coincide with movement joints in the substrate and with a change in substrate material.

15.

Australian Glass and Window Association (AGWA): - Windows shall be packed plumb and square including under the sill.

The window reveals and door frames around the dwelling have not been installed in accordance with the AGWA installation instructions or the manufacturer's installation instructions.

CORRECT INSTALLATION OF FRAMES

1. Fit flashing to window surround as required.
2. Measure the frame opening to ensure that there is sufficient room for the product and additional packing.

   Stud Opening

   Height = O/A reveal size + adequate clearance

   Width = O/A reveal size + adequate clearance

   Clearance dimensions vary between manufacturer's products. For adequate clearance, refer to instructions.
3. Frame must be packed plumb, square and not twisted between the openings. Ensure the sill is fully supported. Failure to do so may result in sill roll on sliding windows.

   Sills on all windows and doors must be straight and level and should be packed and secured.

To ensure the satisfactory long term performance of sliding doors, the sill should be fully supported. Where the sill projects during construction the sill should be fully supported.

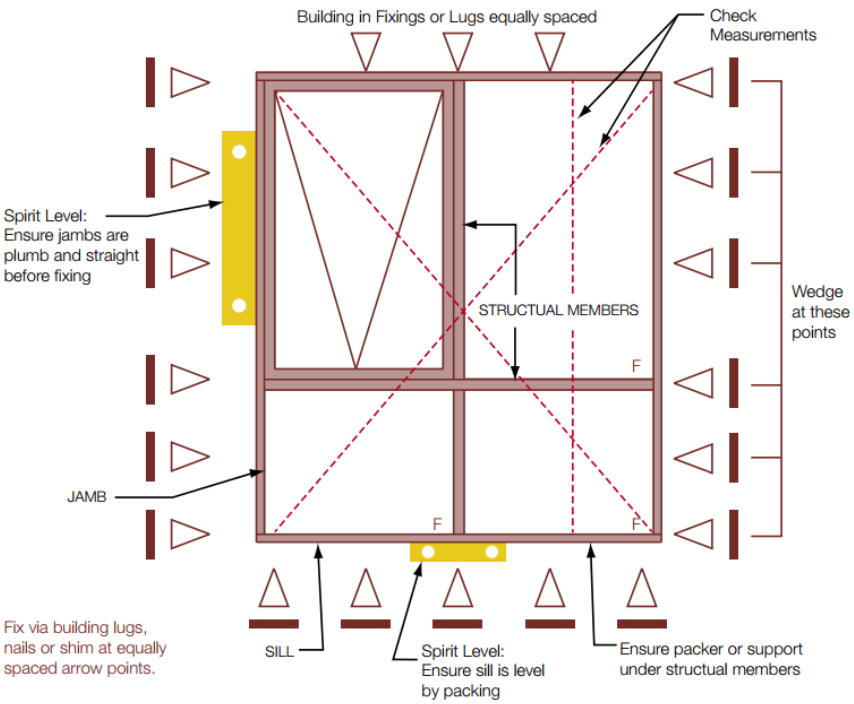
Keep sashes closed whilst installing frames.

Secure frames with a fixing of a gauge and spacing appropriate for the wind load.

In brick veneer constructions, aluminium frames should be secured by nailing or screwing through reveal into stud work.

INSTALLATION

Figure 11 Installation Summary



16.

It was noted in parts around the dwelling the Vapour Barrier has been allowed to fall below FGL. Other areas are well installed.

It is a requirement of Part 3.2.2.6 Vapour Barriers of the NCC that *'The vapour barrier must be placed beneath the slab so that the bottom surface of the slab is entirely under laid and extends under edge beams to finish at ground level in accordance with Figure 3.2.2.3.'*

It must be further noted this is also required to class 10 buildings when the slab is continuous from a class 1 slab.

3.2.2.6 Vapour barriers

A vapour barrier must be installed under slab-on-ground construction for all Class 1 buildings and for Class 10 buildings where the slab is continuous with the slab of a Class 1 building as follows—

(a) Materials

A vapour barrier must be—

(i) 0.2 mm nominal thickness polyethylene film; and

(ii) medium impact resistant,

determined in accordance with criteria specified in clause 5.3.3.3 of AS 2870; and

(iii) be branded continuously "AS 2870 Concrete underlay, 0.2 mm Medium impact resistance".

(b) Installation

A vapour barrier must be installed as follows—

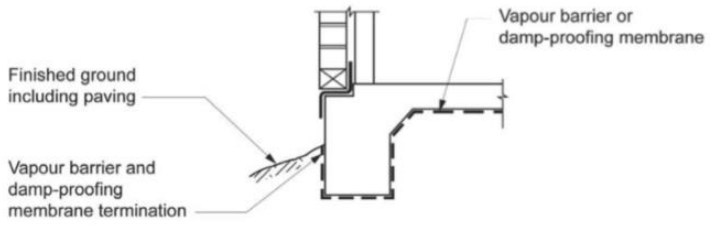
(i) lap not less than 200 mm at all joints; and

(ii) tape or seal with a close fitting sleeve around all service penetrations; and

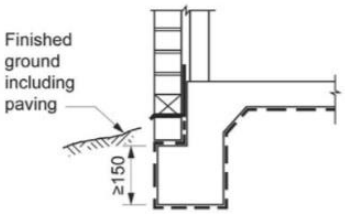
(iii) fully seal where punctured (unless for service penetrations) with additional polyethylene film and tape.

(c) The vapour barrier must be placed beneath the slab so that the bottom surface of the slab is entirely underlaid and extends under edge beams to finish at ground level in accordance with Figure 3.2.2.3.

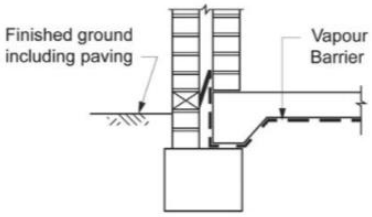
Figure 3.2.2.3 Acceptable vapour barrier and damp-proofing membrane location



(a) Minimum rebate for cavity masonry or veneer wall



(b) Deep edge rebate alternative



(c) Masonry alternative

It is known in high quality soils the vapour barrier can terminate at the bottom of the edge beam with local expert approval. If the builder wishes to claim local approval, they must provide documentation from the local council's surveyor under section 26 of the building act 1995.
Otherwise, the builder must ensure that the barrier is fully installed as per the NCC and AS 2870.

17.

AS 4773.2, part 9.6.2.1: - Veneer walls shall be drained to weep holes spaced at 1200 mm maximum centres. The raking of the perpendicular joints shall extend the full width of the masonry including the bed joint.

Blocked and/or partially blocked weep holes to this dwelling do not meet these requirements.

Special care must be taken to ensure the DPC flashing is not damaged / breached.

9.6.2 Flashings and weepholes

9.6.2.1 *Cavity flashings*

A cavity flashing that is also a DPC shall extend across the full width of the masonry skin. Flashing that protrudes past the face of the wall shall be either cut off or turned down.

Veneer walls shall be drained by weepholes at 1200 mm maximum centres. The raking of perpendicular joints to form weepholes shall extend the full width of masonry (through the wall) including bed joint at the level of the flashing.

Where cavity flashings are penetrated, the flashing shall be punched through or cut from the inside of the wall, and be fitted around the penetration and sealed.

18.

Rehau Technical Manual; AS 3500.1; AS 4773.2 :- The water lead in enter the dwelling at the base of the wall. The recommended method of installation is through the slab footing and exiting within the perimeter wall frame.

The following are compliance issues with this installation method.

Rehau Technical Manual :- The Rehau pipe is not designed to be an external installation and will break down in UV light over time.

7.11 Installation in areas exposed to UV radiation and light

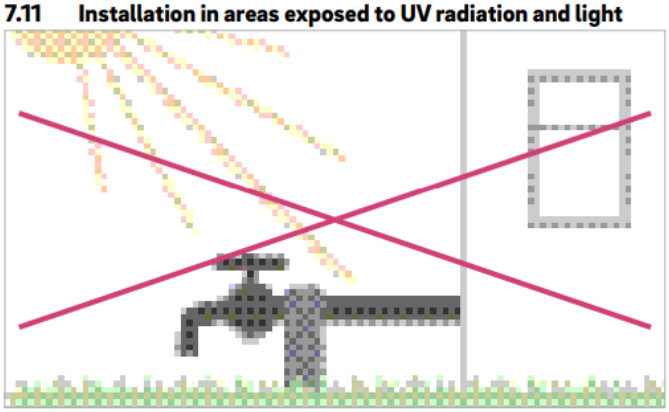


Fig. 7-30 Unprotected installation in areas exposed to UV radiation is not premitted
Example: Outdoors

- Store and transport pipes with protection against UV radiation.
- Protect piping from UV rays in areas where UV radiation can occur (e.g. sunlight, neon light).
- RAUTITAN PE-Xa pipes shall be installed in dark areas or protected in conduit to avoid biofilm growth.

§ All external installations shall follow the applicable water and gas installation standards.

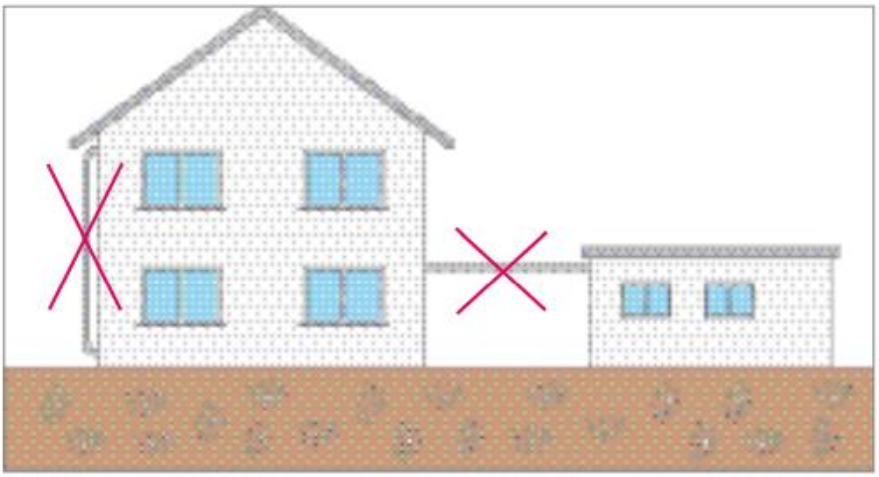


Fig. 7-32 External installation prohibited

- The system components must be protected from any mechanical and physical damages. Consideration shall be given to the type and level of damage which is likely to occur during the long term operation of the system, e.g. UV-radiation, lawn mower, etc.

AS 3500.1 :- The water pipe suppling the dwelling must be installed below ground at a depth designed under AS 3500.1

5.9 DEPTH OF COVER

Where water services are installed below ground, the minimum cover shall be as specified in Table 5.9, measured from the proposed finished surface levels.

TABLE 5.9

MINIMUM DEPTH OF COVER FOR BURIED PIPES

Loading conditions	Minimum cover mm
Under slabs and footings (concrete)	75
Not subject to vehicular loading (excluding fire services)	300
Fire services not subject to vehicular loading	600
Subject to vehicular loading:	
(a) no carriageway	450
(b) sealed carriageway	600
(c) unsealed carriageway	750
Pipes in embankments or subject to construction equipment loads	750

NOTE: For minimum cover in bushfire areas, see Clause 5.20.

5.10 BEDDING AND BACKFILL

The water services shall be surrounded with not less than 75 mm of compacted sand, or fine-grained soil, with no hard-edged object in contact with or resting against any pipe or fitting.

NOTE: For typical installation, see Figure 5.10.

Material used for final backfill shall be free from rock, hard matter or organic material and be broken up to contain no soil lumps larger than 75 mm.

Unless specified to the contrary, copper and stainless steel pipelines may be installed in soil excavated from the trench in which they are to be installed, provided the soil is compatible with copper and stainless steel and free from rock and rubble.

NOTE: For minimum cover, see Clause 5.9.

AS 4773.2 :- Finished soil level must be a minimum of 150mm below the DPC flashing and weep holes. Alternitalvely a concrete path can be installed 75mm below the DPC

9.6.1 Damp-proof courses

Damp-proof-courses (DPCs) shall comply with Clause 5.6 and shall be—

(a) installed in masonry walls where required to form a continuous damp-proofing barrier around the building;

(b) of sufficient width to extend through the entire masonry leaf; and

(c) visible at the face of the wall, including after rendering or any other applied coatings.

The height of the DPC shall be not less than—

(i) 150 mm above the adjacent finished ground level;

(ii) 75 mm above the finished paved, concrete or landscaped areas that slope away from the wall; or

(iii) 50 mm above finished paved, concrete or landscaped areas that slope away from the wall and protected from the direct effect of the weather by a carport, veranda or the like.

19.

AS 3000; 2.10.2.1 & 1.5.14: -The switchboard is without a working door.
Switchboards shall be protected against the effects of moisture to which may be exposed.
The switchboard to be fully sealed and functional.

2.10.2.1 *General*

Switchboards shall be—

(a) installed in suitable well-ventilated places; and

(b) protected against the effects of moisture to which they may be exposed; and

(c) arranged so as to provide sufficient space for the initial installation and later replacement of individual items of the control and protective devices and accessibility for operation, testing, inspection, maintenance and repair.

1.5.14 Protection against external influences

All parts of an electrical installation shall be designed to be adequately protected against damage that might reasonably be expected from environmental and other external influences to which the electrical installation may be exposed under the conditions of its use. These conditions would be those that would be expected during normal operation.

Damage from such influences may include mechanical damage, and damage because of exposure to weather, water, flora, fauna, seismic activity, excessive dampness, corrosive fumes, galvanic action, accumulation of dust, steam, oil, temperature, explosive atmospheres, vibration or any other influence to which the electrical installation may be exposed under the conditions of its use.

20.

NCC 2019; 3.1.3.3: - The dwellings slab footings have the opportunity to pool with water due to the way the block has been cut and the lack of soil removal.

Water management on site is paramount to ensuring foundations are not damaged. Water, when seeping down beside the slab, between the slab and the dirt softens the dirt. The soils capacity to withstand the downward pressure of the forces of the weight in the slab is greatly reduced.

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 a minimum of 50 mm over a distance of 1 m.

We also refer the builder to the soil report and engineering drawings that call for the site drainage to be managed via sloping water away from the slab.

This dwelling has not met this requirement.

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 (see Figure 3.1.2.2)—

(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.

(b) Slab-on-ground — finished slab heights:

the height of the slab-on-ground above external finished surfaces must be not less than (see Figure 3.1.3.2)—

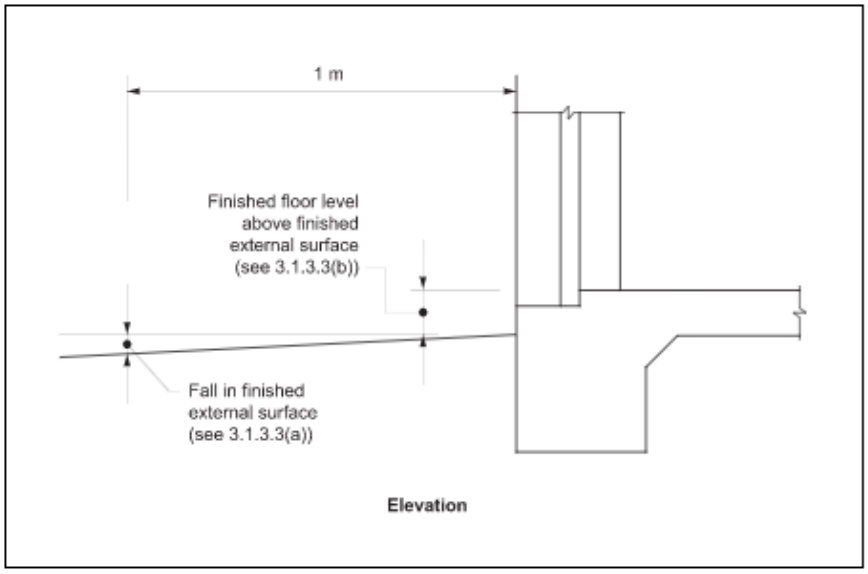
(i) 100 mm above the finished ground level in *low rainfall intensity areas* or sandy, well-drained areas; or

(ii) 50 mm above impermeable (paved or concreted areas) that slope away from the building in accordance with (a); or

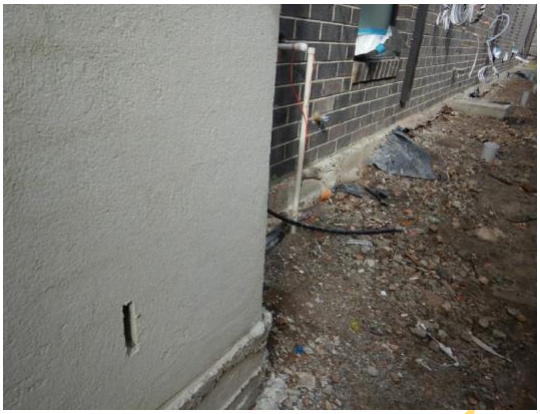
(iii) 150 mm in any other case.

(c) The ground beneath suspended floors must be graded so that the area beneath the building is above the adjacent external finished ground level and *surface water* is prevented from ponding under the building (see Figure 3.1.3.3).

Figure 3.1.3.2 Site surface drainage



The builder must rework these sections to comply with the following, ensuring fall of 50 mm over a distance of 1 m.



21.

The land to the garage falls back towards the foundations of the slab. Given that this is a zero boundary, the builder must work in provisions for draining the soil to this area.

I noted that the Engineering states that a 50 mm fall away from the footings must be installed. The builder needs to assist us with an understanding of how, with a zero boundary the builder expects to achieve this requirement.

The NCC mandates that water is controlled and must fall away from the dwelling. See part 3.1.2.3 and figure 3.1.2.2.

I also refer the builder to the soil report that would clearly call for the site drainage to be managed via sloping water away from the slab and more so, managing same.

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 (see Figure 3.1.2.2)—

(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.

(b) Slab-on-ground — finished slab heights:

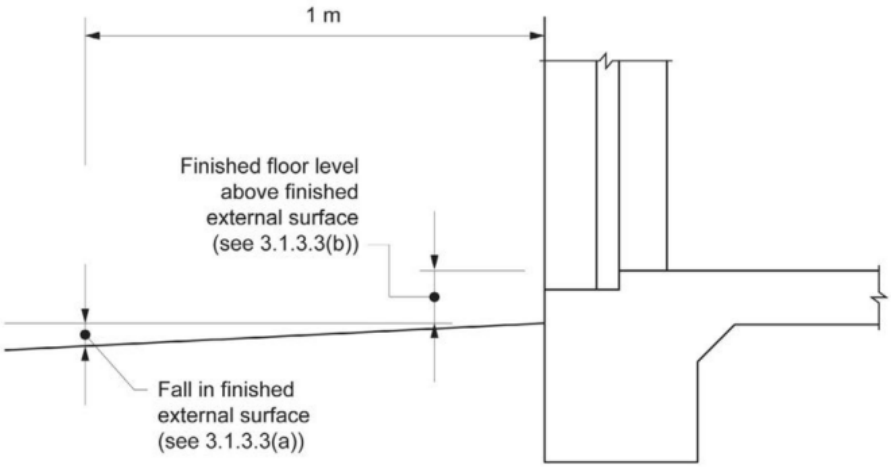
the height of the slab-on-ground above external finished surfaces must be not less than (see Figure 3.1.3.2)—

(i) 100 mm above the finished ground level in *low rainfall intensity areas* or sandy, well-drained areas; or

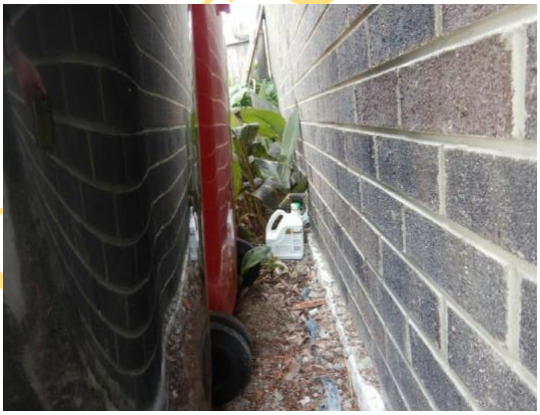
(ii) 50 mm above impermeable (paved or concreted areas) that slope away from the building in accordance with (a); or

(iii) 150 mm in any other case.

Figure 3.1.3.2 Site surface drainage



Elevation



22.

There are a number of areas in the home that exceed the allowance of 4 mm tolerance over 2 m.

- bowed walls or studs (B)
- out of plumb walls (OOP)
- out of square skirting (OOS)
- out of alignment walls (OOA)
- ceiling or cornice out of level (C-OOL)
- bulkhead out of level (BH OOL)

Please refer to photographs below:

As stated, the acceptable allowance is 4 mm over 2 m. These walls will need to be reworked to ensure that the builder complies with this requirement.

4.03 Straightness of steel and timber frame surfaces

Frames are defective if they deviate from plane (horizontal or vertical bow) by more than 4 mm in any 2 m length of wall. Refer to Diagram E.

We also refer the builder to AS 2589, clause 4.2.2.

4.2.2 Finished framing deviations and tolerances

The deviation in the position of the bearing surface of the finished framing immediately prior to installation of lining from a 1.8 m straight edge shall not exceed the values given in Table 4.2.2 when measured over a 1.8 m span at any point [see Figure 4.2.2(A)].

Where the dimensional tolerances of the fixing surface plane fall outside these tolerances, a suitable levelling system shall be used [see Figure 4.2.2(B)].

For wall and ceiling framing that is in accordance with the dimensional tolerances of this Clause, gypsum linings may be fixed directly to the framing with an appropriate fastening system in accordance with Clause 4.4.3.

TABLE 4.2.2

DEVIATION IN THE POSITION OF THE BEARING SURFACE OF THE FINISHED FRAMING

Substrate type	Levels 3 and 4		Level 5	
	Deviation of 90% of area mm	Deviation of remaining area mm	Deviation of 90% of area mm	Deviation of remaining area mm
Steel and timber framing, and battened masonry	4	5	3	4

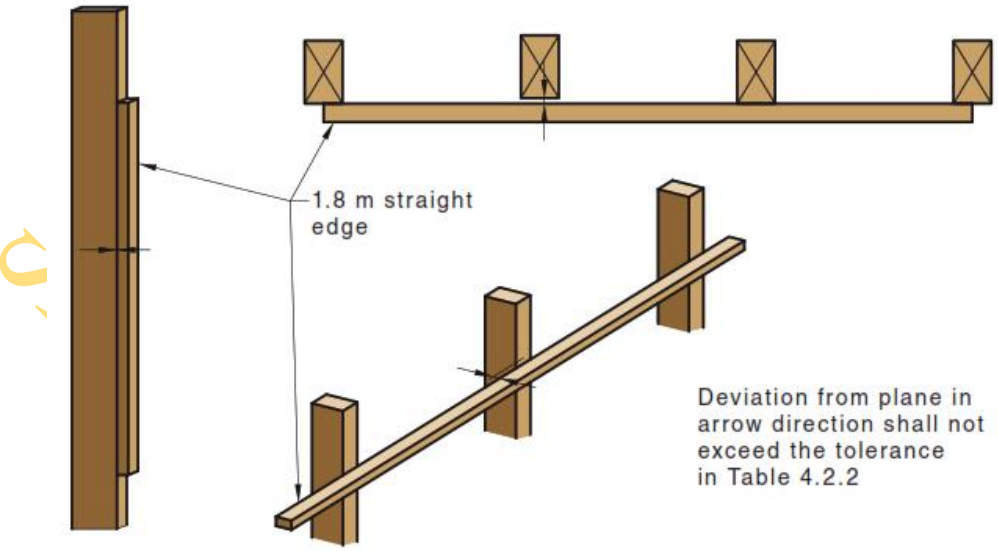


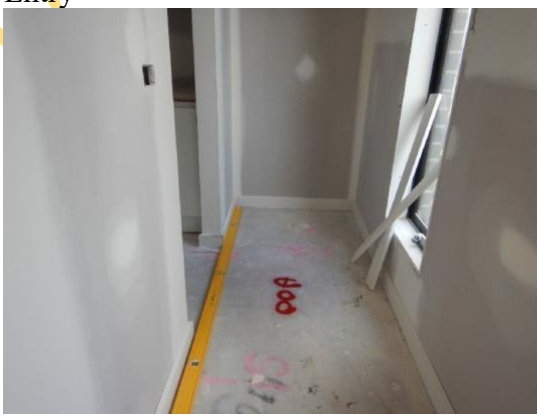
FIGURE 4.2.2(A) ASSESSING FRAMING TOLERANCE

Entry

Entry

WIR

Entry



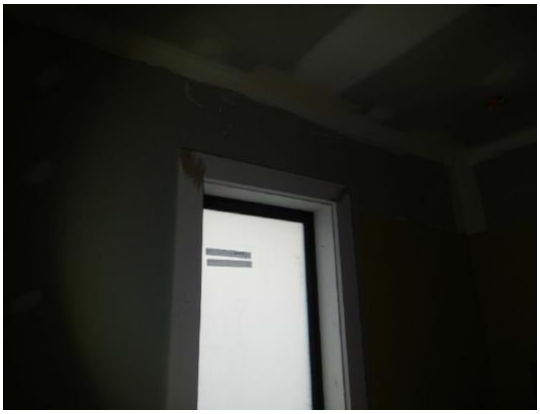
Prep

Grand family

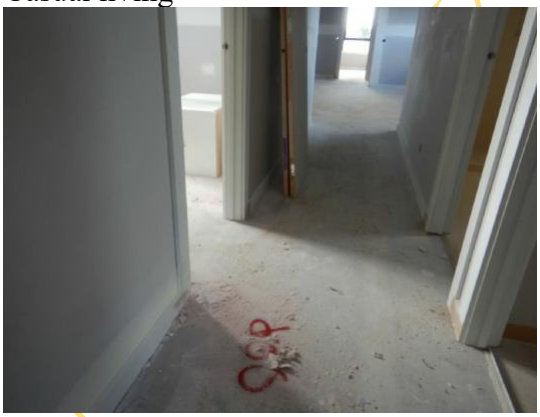
Grand Family

Stairwell

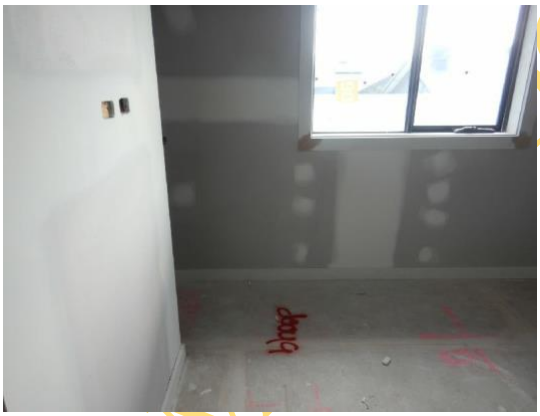
Casual living



Guest Ens



Hall



Bed 2

Casual living

23.

VBA Guide to Standards and Tolerances; part 8.04: - Clearances between door leaves and frames and between adjacent door leaves are defective if it is not uniform. Clearances between door leaves or between a door leaf and the frame is defective if it is less than 2 millimetres or greater than 5 millimetres.

This requirement has not been met as demonstrated in the following photos.

8.04 Internal door clearances

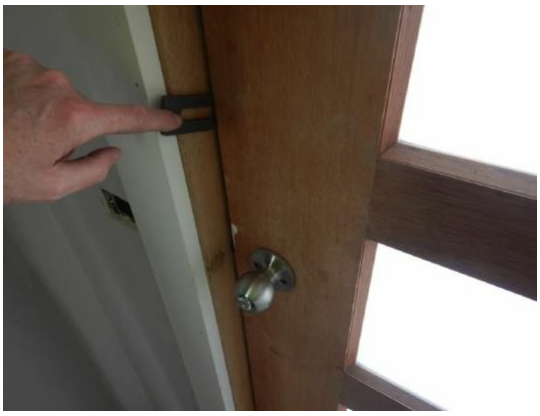
Unless documented otherwise, the installation of doors is defective if, within three months of completion:

a) clearances between door leaves and frames, and between adjacent door leaves are not uniform

b) clearances between door leaves, or between a door leaf and the frame, is less than 2 mm or greater than 5 mm in width.

Unless additional clearance is required for removable toilet doors or air ventilation, a clearance between the door and the floor finish is defective if it is greater than 20 mm after installation of the floor covering.

Note: Clearances under doors will generally be determined by the nominated floor coverings.



Entry

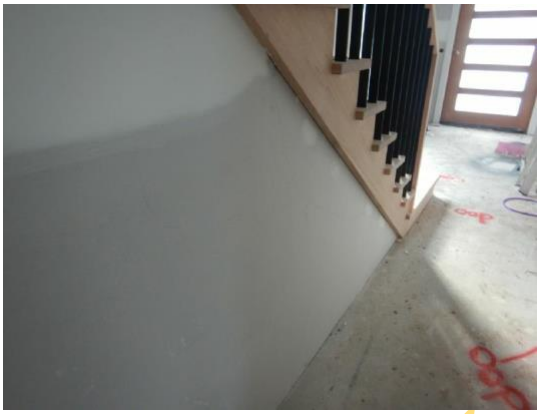
24.

VBA Guide to Standards and Tolerances; 9.02: - Lined wall surfaces, internal and external, are defective if they deviate from plain (bow) by more than 4 millimetres within any 2 metre length of wall.

Visible hollows defined by thickening of skirting and cornice lines required plaster floating / skimming to fill the hollow.

9.02 Straightness of internal and external wall surfaces

Walls are defective if they deviate from plane (bow) by more than 5 mm over a 1.8 m straight edge. This tolerance includes internal walls with a build-up of plaster at internal and external corners of the plasterwork. Refer to Diagram E on page 13 of this Guide.

25.

The carpenter has used uncoated nails for the installation of the door and windows frames.

All steel nails to all door frames and windows must be removed. The current installation of plain steel framing nails and bullet head nails will result in rust bleeding through the paintwork to the dwelling, several years after handover.

AS 2047-2014 section 5.5 calls for a zinc, stainless steel or simular treated products only to be installed. The current steel nails will rust and are unacceptable. The use of galvanised or zinc coated nails are the preferred fixing method.

5.5 ANCHORING DEVICES

Anchor brackets or other devices and their attachments shall be so designed and located that they will transmit the combination of loads to the supporting building structure.

All steel fixing devices shall be either of stainless steel in accordance with AS 4291.1 or zinc-coated in accordance with service condition number 2 specified in AS 1789.

NOTES:

1 Ferrous anchoring devices are equivalent to wall ties in masonry walls.

2 Cyclic loading does occur during a tropical cyclone and it could affect materials that are susceptible to low cyclic fatigue.

26.

The window nail fixings are presenting as less than the minimum fixing requirements as laid out by the Australian Window Association.

All fixings must meet the minimum requirement of this dwellings wind rating, N1.

Nail Capacity - N1

ULS Wind Pressure: 700 Pa, Nail Diameter: 1.8 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	6	6	6	6
900	4	4	4	4	6	6	6	8	8	10	10
1200	4	4	4	6	6	8	8	10	10	12	12
1500	4	4	6	8	8	10	10	12	14	14	16
1800	4	6	6	8	10	12	12	14	16	18	18
2100	4	6	8	10	12	14	14	16	18	20	22
2400	4	6	8	10	12	14	16	18	20	22	24
2700	6	8	10	12	14	16	18	20	24	26	28

ULS Wind Pressure: 700 Pa, Nail Diameter: 2.1 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	4	4	4	6
900	4	4	4	4	4	4	6	6	6	6	8
1200	4	4	4	4	6	6	6	8	8	8	10
1500	4	4	4	6	6	6	8	8	10	10	12
1800	4	4	6	6	8	8	10	10	12	12	14
2100	4	4	6	6	8	10	10	12	12	14	16
2400	4	6	6	8	10	10	12	14	14	16	18
2700	4	6	8	8	10	12	14	14	16	18	20

ULS Wind Pressure: 700 Pa, Nail Diameter: 2.5 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	4	4	4	4
900	4	4	4	4	4	4	4	4	4	4	6
1200	4	4	4	4	4	4	4	6	6	6	6
1500	4	4	4	4	4	6	6	6	6	8	8
1800	4	4	4	4	6	6	6	8	8	8	10
2100	4	4	4	6	6	6	8	8	10	10	12
2400	4	4	4	6	6	8	8	10	10	12	12
2700	4	4	6	6	8	8	10	10	12	12	14

ULS Wind Pressure: 700 Pa, Nail Diameter: 2.8 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	4	4	4	4
900	4	4	4	4	4	4	4	4	4	4	4
1200	4	4	4	4	4	4	4	4	4	6	6
1500	4	4	4	4	4	4	4	6	6	6	6
1800	4	4	4	4	4	6	6	6	6	8	8
2100	4	4	4	4	6	6	6	8	8	8	10
2400	4	4	4	4	6	6	8	8	8	10	10
2700	4	4	4	6	6	8	8	8	10	10	12

ULS Wind Pressure: 700 Pa, Nail Diameter: 3.15 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	4	4	4	4
900	4	4	4	4	4	4	4	4	4	4	4
1200	4	4	4	4	4	4	4	4	4	4	4
1500	4	4	4	4	4	4	4	4	6	6	6
1800	4	4	4	4	4	6	6	6	6	6	6
2100	4	4	4	4	6	6	6	6	6	8	8
2400	4	4	4	4	6	6	6	6	8	8	8
2700	4	4	4	4	6	6	6	8	8	8	10

ULS Wind Pressure: 700 Pa, Nail Diameter: 3.75 mm

Window Height \ Window Width	600	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
600	4	4	4	4	4	4	4	4	4	4	4
900	4	4	4	4	4	4	4	4	4	4	4
1200	4	4	4	4	4	4	4	4	4	4	4
1500	4	4	4	4	4	4	4	4	4	4	4
1800	4	4	4	4	4	6	6	6	6	6	6
2100	4	4	4	4	6	6	6	6	6	6	6
2400	4	4	4	4	6	6	6	6	6	6	6
2700	4	4	4	4	6	6	6	6	6	6	8

Embedment Depth

Embedment Depth into timber and masonry

p ≥ 10D

p = penetration
D = diameter of nail or screw

Example:
- Using a 2.5mm nail, penetration should be at least 25mm
- Using a 6 Gauge screw, determine the diameter, in this case 2.8mm, penetration should be at least 28mm

27.

Some of the bottom reveals are presenting with significant fall back towards the window.

Many window manufactures require a 7 mm cement sheet or pine board strip placed in the cavity to support the heavy glazed section; this was not present at the time of inspection. This often also results in bows to the top styles long after the windows are installed.

We refer the builder to AS2047 - 2014.

7.2 INSTALLATION

7.2.1 General

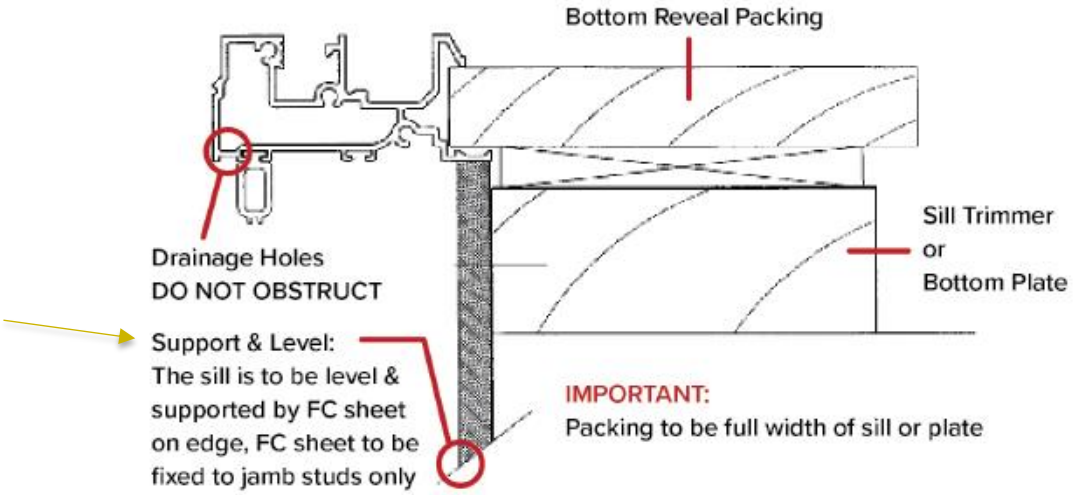
Openings in buildings into which windows are to be installed shall be of sufficient size to allow the window frame to be installed level and plumb.

Windows shall only be installed in locations for which they are designed in accordance with this Standard.

Window assemblies shall be fixed into the building using recognized building practices. Fixing shall not deform the window assembly. Non-loadbearing window assemblies shall not carry building loads.

Installed windows assemblies shall prevent water penetration and excessive air infiltration.

NOTE: Window manufacturers' installation procedures may need to be followed for particular installations.



Guest Bed

28.

AS 1860.2; 10.4: - Particleboard sheet flooring shall be screwed (not nailed) to I-beam and truss joists.

Fixing of particle board sheet flooring has not met this requirement.

Note: 'Struct-a-floor' sheet flooring may be nailed to Carter Holt Harvey I-beams in accordance with the manufacturer's installation requirements.

10.4 Screws

Selection of screws for use with particleboard flooring sheets shall be in accordance with Table 2.

NOTE: If particleboard flooring is fixed to I-beam and truss joists, screws (not nails) should be used. The flanges may be only 35 mm thick and nails will penetrate through and may not have sufficient holding strength.

TABLE 2

MINIMUM SCREW SIZE/LENGTH COMBINATIONS

Joist material	Flooring thickness, mm	Screw type and size
Timber	19 and 22	No. 10 × 50 mm twin-thread, self-drilling wood screw
	25	No. 14 × 65 mm twin-thread, self-drilling wood screw
Steel	19, 22, 25	No. 9 ×, or 10 × 45 mm countersunk self-embedding head, self-drilling

NOTES:

1 Proprietary screws with self-breaking cutter nibs, to provide clearance in timber that is fixed to metal, are available and are preferred for particleboard flooring (see AS 3566.1 and AS 3566.2). Further advice should be obtained from the screw manufacturer.

2 Some heavier gauge steel sections may require a No. 12 or No. 14 size screw.

3 The screw-driving unit should be adjusted to drive the screw head 2 mm to 3 mm below the panel surface to allow for later sanding. Screws should not be driven more than 3 mm below the panel surface.

29.

As per the inserted direct from AS 3958.1, part 4.6.5 calls for the installation of fixings dependant on the tile thickness. I noted that this was not installed as per this detail when we were on site.

4.6.5 Fixing of gypsum-plasterboard sheets

Gypsum plasterboard sheets to be used as a substrate for wall tiling should comply with Clause 2.6.5. In dry-area applications, sheets should be fixed in accordance with AS/NZS 2589.1 with fastener centres and joint finish coat as specified by the gypsum plasterboard manufacturer. For wet-area applications, sheets should be fixed in accordance with AS 3740 and the gypsum plasterboard manufacturer's recommendations.

In addition to wet-area applications, water-resistant gypsum plasterboard sheets should also be used in areas subject to infrequent wetting, such as kitchens, laundries and general bathroom areas.

Gypsum plasterboard sheets of any grade are not recommended for use in group showers.

Particular attention should be paid to the following:

(h) In both dry- and wet-area applications as follows:

(i) For wall tiles 6.5 mm thick or less, gypsum plasterboard should be fixed along each stud at 200 mm maximum centres in the field of the board, and at 150 mm maximum centres for corners, openings, edges and butt joints.

(ii) For wall tiles more than 6.5 mm thick, fasteners should be spaced along each stud at 100 mm maximum centres in the field of the board, and at corners, openings, edges and butt joints.

(iii) Gypsum plasterboard sheets adjoining floors to all areas, except shower recesses, to be fixed 10 mm clear of the finished floor.

30.

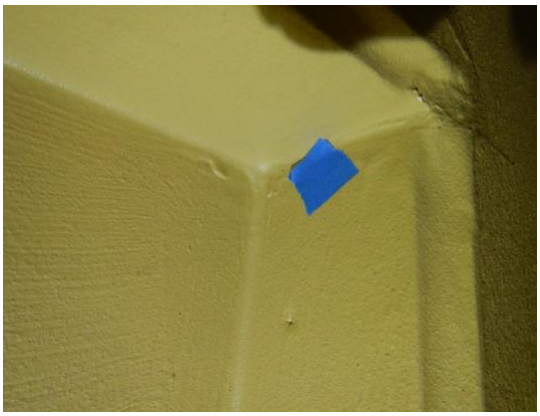
The NCC Vol.2; Definitions: - Waterproof means the property of a material that does not allow moisture to penetrate through it.

We noted some small holes, cracks, or gaps in various sections to the membrane in wet areas.

All areas must be **waterproof** in accordance with the NCC Volume 2 and the manufactures specifications.

Schedule 3	Definitions

Waterproof means the property of a material that does not allow moisture to penetrate through it.



31.

We noted areas of the waterproof membrane presenting with excessive bulges in the finish. These sections will cause undulations to the proposed tile or other final surface work in this area. Our fear is the tiler may remove these excessive areas in a manner that will cause a penetration in the waterproof membrane. All areas will need to be reworked ensure no voids are created and therefore the finish is waterproof in accordance with the NCC.

Waterproof means the property of a material that does not allow moisture to penetrate through it.

Rectification Required: YES

TERMS & CONDITIONS OF
Luxon Homes
SITE INSPECTION AND REPORT

1. Purpose
The purpose of our inspection is to identify any defects in the finishes and the quality of those finishes presented by the builder at the stage of works nominated on the front of this report. This report contains a schedule of building defects that in the writer's judgement do not reach an acceptable standard of quality, level of building practice, or have not been built in a proper workmanlike manner relative to the Building Code of Australia, the relevant Australian Standards or the acceptable standards and tolerances as set down by the Building Control Commission.

2. Scope
Our engagement is confined to that of a Building Consultant and not that of a Building Surveyor as defined in the Building Act, of 1993. We therefore have not checked and make no comment on the structural integrity of the building, nor have we checked the title boundaries, location of any easements, boundary setbacks, room dimensions, height limitations and or datum's, glazing, alpine and bush-fire code compliance, or any other requirements that is the responsibility of the Relevant Building Surveyor, unless otherwise specifically noted within this report.

3. Assumed Finishes
Our inspection was carried out on the quality of the fixtures and finishes as installed, and no investigation of any documentation or statuary requirements was carried out to verify their correctness.

4. Documentation
Unless otherwise noted any contractual documentation made available to us during our inspection is only viewed on an informal basis and we make no certification that the building has been constructed in accordance with them.

5. Non-Destructive Inspection
Unless otherwise noted our inspection was carried out on a non-destructive basis and exclude anything that would have require the removal of any fixtures, fittings, cladding, insulation, sisalation, roofing, lining materials, excavated of any soil or the removal of any part of the plastic membrane.

6. Measurements/Levels
Unless otherwise noted all measurements have been taken with a standard ruler, and levels with either a 900 or 2100mm long spirit level.

7. Services, Appliances, Plants and Equipment
Unless otherwise noted, we did not test or check for appropriateness, capacity, correct installation or certification of any service, appliances, plant and equipment, i.e. heaters, hot water units, air conditioners, ovens, hotplates, dishwashers, range hoods, spa pump, electrical wiring, gas lines, electricity and water supply, sewer, stormwater and agricultural drains.

8. Client Use
This report has been prepared for the exclusive use of the client/s whose name/s appear/s on the front of this report as supplied by Darbecca ABN 12 115 961 487. Any other person who uses or relies on this report without the authors written consent does so at his or her own risk and no responsibility is accepted by Luxon Homes or the author of this report for such use and or reliance.

9. Report Reproduction
This report cannot be reproduced in part; it must only be done so in full.

10. Reference
Any reference contained within this report to the Building Code of Australian, an Australian Standard, a manufacturers technical data sheet or installation instruction is neither exhaustive nor a substitute for the original document and are provided as a guidance only. Luxon Homes or the author of this report for the use or reliance upon of the part references contained within this report will accept no responsibility.

11. Report Exclusions
a) Defects in inaccessible parts of the building including, but not limited to, the roof space and or the sub-floor area unless otherwise noted,
b) Defects not apparent by visual inspection, or only apparent in different weather or environmental conditions as to those prevailing at the time of the inspection,
c) Defects that we did not consider significant enough to warrant any rectification work at the time of our inspection,
d) Defects outside the scope of the client brief
e) Check measure of rooms, walls, and the overall building, for size, parallel and squareness unless otherwise noted,
f) Landscaping, retaining wall/s, or any structures outside the roofline of the main building unless otherwise noted,
g) Enquiries of Council or any other Authorities,
h) Investigation for asbestos and or soil contamination,
i) Investigation for the presence of any termites or borers and for the correct installation of any termite barriers and or other risk management procedures or devices.
j) Defects in relation to PVC sewage and storm water pipes are not covered in this inspection. Clients must seek the services of a licenced plumber to check all sewage and storm water pipes.

12. VCAT Suitability
Unless specifically noted this report has not been prepared in-line with the requirements of Practice Note VCAT 2.