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FRAME STAGE INSPECTION

1234 Main St. Preston Victoria 3072

Buyer Name
26/10/2020 9:00AM

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The purpose of the inspection

The purpose of the inspection is to provide advice to you (the client and/or your nominated party acting on your behalf), regarding the condition of the property at the date and time of inspection.

The inspection shall comprise visual assessment of the property to identify major defects and to form an opinion regarding the general condition of the "Frame Stage" at the time of inspection.
An estimate of the cost of rectification of defects is not required in an inspection report.

In addition, we strongly recommend that upon receipt of your report, that you read carefully and heed all recommendations made by the Inspector. We also recommend you call the Inspector to clarify anything that you do not understand.
Please be aware that a *Building Report is NOT* a Timber Pest Report, Electrical Report, Plumbing Report, Pool Report, Cost Estimate Report, Compliance Certificate or a Guarantee against future problems from developing. The report does not include identification of unauthorised building works or works not in compliant with building regulations, local laws or bylaws.

Conditions of Inspection

A report may be conditional on the following:
Information provided by the person, the employees or agents of the person requesting the report.
Apparent concealment of possible defects.

Prevailing weather conditions.

Debris or stored belongings.

Any other factor limiting the preparation of the report.

Areas for inspection

The inspection shall cover all accessible areas.
The client shall arrange right of entry, facilitate physical entry to the property and supply necessary information to enable the inspector to undertake the inspection and prepare a report. The inspector is not responsible for arranging entry to property or parts of property. Areas where reasonable entry is denied to the inspector, or where reasonable access is not available, are excluded from, and do not form part of, the inspection.

Safe and reasonable access

The extent of accessible areas shall be determined by the inspector at the time of inspection, based on the conditions encountered at the time of inspection. The

inspector shall also determine whether sufficient space is available to allow safe access. The inspection shall include only accessible areas and areas that are within the inspector's line of sight and close enough to enable reasonable appraisal. Reasonable access is described below in accordance with AS4349.1
The inspector shall inspect an elevated area only where— (a) it is at a height at which safe reasonable access is available, or where safe and reasonable access is otherwise available; or
(b) an unobstructed line of sight is present from safe use of a 3.6 m ladder and the building elements present are close enough to allow appraisal.
NOTE: 'Elevated area' includes the roof, roof space, crawl space, landing feature, and the like, generally elevated above the ground and not intended for normal use by occupants.

Roof exterior: accessible from a 3.6m ladder placed on the ground.

Roof interior: 400mm x 500mm access hole, 600mm x 600mm crawl space.

Sub Floor: 400mm x 500mm access hole with a 400mm x 500mm crawl space.

Reasonable access *does not* include the cutting of access holes or the removal of screws and bolts or any other fastenings or sealants to access covers.

Sub floor areas sprayed with chemicals should not be inspected unless it is safe to do so.

Access limitations may include

Legal right of entry, denied entry, locked doors / gates, locked windows, locked cupboards, pets, security systems, furniture, rugs, stored items, duct work or other obstructions. Other limitations may include physical access such as but not limited to, thick vegetation, narrow areas that cannot be entered, tight roof and crawl spaces, inaccessible spaces, or adverse weather conditions. The report shall identify any area or item within the scope of an inspection that was not inspected and the factor that prevented inspection.

What is reported on
The inspection includes subjective appraisal by an inspector competent to assess the condition of residential buildings. It involves a subjective assessment so different inspectors or even the same inspector on a different occasion may reach different conclusions.
The inspection comprises a visual assessment of the "Frame" to identify major defects and to form an opinion regarding the general condition of the framing at the time of inspection.
The following areas shall be inspected where applicable:

The floor(s), walls and roof frame of the building: Ground Floor frame, Ground Floor Walls Frames, First Floor Floor Frame, First Floor Wall Frames, Roof / Truss Framing, Deck Framing and Balcony Framing where applicable.

SUMMARY

1: INSPECTION DETAILS

Information

General: In Attendance
Tradesmen On-site

General: Weather Conditions
Fine & Dry, Sunny

General: Doccumentaion
Architectural Drawings, Engineering Drawings

General: Approximate Size of Land
1080 M2

General: Building Type
Residential, House, Freestanding, Single Storey

General: Direction House Faces
North

General: Construction Type
Brick Veneer

General: Footing Type
Waffle Pod Slab

General: Utilities: Power
Not Connected

General: Utilities: Mains Water
Connected, Not Tested

General: Utilities: Sewer
Not Tested

General: Utilities: Gas
Not Connected

General: Areas Inspected
Wall and Roof Frame

General: Areas Not Inspected
Boundary Fence, Electrical, Underground Stormwater Pipes, Underground Sewer Pipes, Agi-Drains

General: Areas Restricted To Inspection
N/A

General: Inspection Report Particulars
Informational

Our inspection is a visual inspection of the wall and roof framing components completed by the Builder up to the frame stage, at the time of attendance.

This report contains a 'List of Building Defects' and items that in the writers judgement (with over 30 years of industry experience) do not reach the minimum acceptable standard of quality, level of building practice, or have not been built in a proper workmanlike manner with regard to the requirements of the Building Acts and Regulations, the National Construction Code (NCC), the relevant Australian Standards or to within the Building Commission's guide to acceptable Standards & Tolerances.

None of the rectification methods, procedures or products suggested within this report are to be read as an instruction to the builder, nor are they an authorisation to vary from the original contractual documentation, manufacturers installation instruction, any Australian Standards or the NCC. Therefore, depending on the rectification works required, the builder must obtain a signed variation and/or agreement from the client prior to carrying out any such work, whenever one would normally be necessary.
This report must be read by the builder in addition to any list or other correspondence provided by the owner/s.

All site inspections, meetings, this report, all future reports, correspondence and advice that we provide in relation to this property, whether written or verbal, are provided subject to the limitations and exclusions detailed in our standard terms and conditions set out on the signed inspection agreement.

General: General Information
General

The CSIRO have put out a Home Owners Guide to Foundation Maintenance and Footing Performance which can be found here

Inspection Categories: Inspection Categories

Explanation of Ratings (How to Read Report)

This report divides deficiencies into three categories; Major Defects (in red), Minor Defects (in orange), and Maintenance Items / FYI (coloured in blue). Safety Hazards or Concerns will be listed in the Red or Orange categories depending on their perceived danger but should always be addressed ASAP.

IN = **Inspected and Serviceable**. The inspector has viewed the subject area, system or component and no major defect, minor defect or repair recommendations were found and unless otherwise noted, the system or component was found to be functioning properly, or in acceptable condition at the time of the inspection.

NI = **Not Inspected**. An item or component that was not inspected at the time of the inspection.

NP = **Not Present**. An item or component that was not present at the time of the inspection.

O = **Observations.** Observations are further broken into 3 categories as listed below.

Major Defect. An observed defect; works completed in an unprofessional or workman like manner, a non-compliant component or system, an item, component or system where rectification has to be carried out in order to avoid unsafe conditions, loss of utility, deterioration of the structure / property, or a fault or deviation from the intended structural performance of a building element / structure.

Minor Defect. An item, component or system that was observed to include a deficiency. These items may have been functional at the time of inspection, but this functionality may be impaired, not ideal, or the defect may lead to further problems in the future.

Maintenance Items / FYI - This categorisation will include items or components that were found to be in need of recurring or basic general maintenance and/or may need minor repairs which may improve their functionality. This categorisation will also include **FYI** items that could include observations, important information, recommended upgrades to items, areas or components.

These categorisations are in my professional judgement and based on what I observed at the time of inspection. This categorisation should not be construed as to mean that items designated as "Minor Defects" or "Maintenance Items" do not need repairs or replacement. The recommendations in each comment is more important than its categorisation. Due to your perception, opinions, or personal experience you may feel defects belong in a different category, and you should feel free to consider the importance you believe they hold during your purchasing decision. Once again, it is the "Recommendations" in the text of the comment pertaining to each defect that is paramount, not its categorical placement.

Limitations

General

OVERVIEW

Topnotch Building Inspections strives to perform all inspections in substantial compliance with the Australian Standards for Building Inspections and in compliance with good building practices, at the time of the inspection. As such we inspect the readily, accessible, visually observable, systems and components within the staged building inspection as described in the inspection agreement and scope. Where systems or components as described in the Agreement were not inspected, the reason(s), limitations of why the item was not inspected will be stated. The inspection is neither technically exhaustive nor quantitative.

There may be comments made in this report that exceed the required reporting of the Agreement, these comments (if present) were made as a courtesy to give you as much information as possible about the staged inspection. Exceeding the Agreement or Standards of Practice will only happen when I feel I have the experience, knowledge, or evidence to do so. There should be no expectation that the Agreement or Standards of Practice will be exceeded throughout the inspection, and any comments made that do exceed the agreement or standards will be followed by a recommendation for further evaluation and repairs by applicable tradespeople.

This report contains observations of those systems and components that, in my professional judgement, were not functioning properly, significantly deficient, or unsafe. **All items in this report that were designated for repair, rectification, modification,replacement, maintenance, or further evaluation should be investigated and undertaken by qualified tradespeople prior to commencement of the next stage relevant to that observation or defect.**

This inspection will not reveal every concern or issue that may be present, but only those significant defects that were accessible and visible at the time of inspection. This inspection can not predict future conditions, or determine if latent or concealed defects are present. The statements made in this report reflect the conditions as existing at the time of inspection only, and expire at the completion of the inspection, as conditions can change. Weather conditions and other changes in conditions may reveal problems that were not present at the time of inspection. Refer to Australian Standard 4349.0-2007 and the Base Stage Inspection agreement regarding the scope and limitations of this inspection.

The inspection shall comprise of a **visual assessment** of the building stage to identify major defects and to form an opinion regarding the general condition of the Base Stage Inspection at the time of inspection.

Areas for inspection
The inspection shall cover all **accessible areas and items covered in a base stage inspection**. The client shall arrange right of entry, facilitate physical entry to the property and supply necessary information to enable the inspector to undertake the inspection and prepare a report. The inspector is **not responsible** for arranging entry to property or parts of property.
Areas where reasonable entry is denied to the inspector, or where reasonable access is not available, **are excluded from**, and do not form part of, the inspection.
NOTE: Those areas may be the subject of an additional inspection following the provision of reasonable entry and access.

Inspection Process

The inspection shall comprise of a **visual appraisal** and limited assessment of systems, components and serviceability.

Limitations
Limitations that are reasonably expected to be present or that reasonably may occur shall be identified.

Extent of reporting
Significant items to be reported are as follows:
(a) Major Defects.

NOTE: A Major defect is any element, component or system that is **not in compliance** with the **Structural Drawings** or **Architectural Drawings** and is one of sufficient magnitude where rectification has to be carried out in order to avoid unsafe conditions, loss of utility or further deterioration of the element, component, system or property. *These defects will need to be rectified before further works are undertaken* and require a professional trades person or qualified person to rectify. Where a major defect has been observed, the inspector may advise to seek further evaluation and advice by a qualified professional.

(b) Minor Defects.
NOTE: A Minor defect is described as “A defect, other than a major defect”. For example, poorly spaced trench mesh or fabric supports, footings not cleaned of debris, minor holes in the vapour barrier etc.

Most of these defects are easily rectified. These defects must be rectified before further construction works are undertaken and require a professional trades person or qualified person to rectify.

(c) Maintenance Items / FYI

NOTE: A Maintenance Item and similarly an FYI is generally for your information. FYI's may include handy tips, additional information and websites or a professional opinion on an item that doesn't fall into the defects categories.

Acceptance criteria
The Base Stage Inspection shall be compared with the Structural and Architectural Drawings to ensure the building is constructed in accordance with these documents and generally accepted building practices at the time of construction.

This inspection is **NOT** intended to be considered as a **GUARANTEE OR WARRANTY, EXPRESSED OR IMPLIED, regarding the operation, function, or future reliability of the structure of the home and it's components AND IT SHOULD NOT BE RELIED ON AS SUCH.** This report is to help you to gain a better understanding of the condition of the Base Stage at the time of the inspection and should be used alongside the Relevant Building Surveyors Inspection Report.

General

NOTICE TO THIRD PARTIES

Notice to Third Parties: This report is the property of Topnotch Building Inspections and is **Copyrighted as of 2020**. The Client(s) named herein have been named as licensee(s) of this document. This document is non-transferable, in whole or in part, to any and all third-parties, including; subsequent buyers, sellers, and listing agents. Copying and pasting deficiencies to prepare a repair request is permitted. THE INFORMATION IN THIS REPORT SHALL NOT BE RELIED UPON BY ANY ONE OTHER THAN THE CLIENT NAMED HEREIN. This report is governed by an Inspection agreement that contained the scope of the inspection, including limitations, exclusions, and conditions of the copyright.

2: INSPECTORS COMMENTS

		IN	NI	NP	O
2.1	General	X			

IN = Inspected NI = Not Inspected NP = Not Present O = Observations

Information

General: Inspectors Comments

General

Many framing defect items were identified during my inspection.

Some of the items were rectified whilst I was on site by the "supervising apprentice"

I note, of particular concern is the lack of knowledge about the Australian Standard requirements regarding such items as Stud Lamination, Intersecting Wall Junctions, Blocking and Nail length requirements, and I highly recommend qualified supervision of apprentices and tradesmen.

Most of the defects identified in my inspection report could have been prevented had appropriate supervision been provided. These defects, however time consuming, should be relatively easy to rectify.

I note, the timber wall frames overhang the slab in some locations, and the design engineer has a detail for rectification, but notes his office is to be informed.

Also a common defect I find is with the fixing methods used for connector brackets, namely the use of coil guns which are unsuitable for use as deemed by the manufacturer of the brackets (Mitek).

See the body of the inspection report for more details.

Please note, not all defect items have been listed and photographed in this report.

The inspection report includes examples of the defects identified.

I assume that the eaves gutters are compliant with NCC:2019 Part 3.5.3.0 (Note State and Territory Variations) and AS:3500.3 requirements apply. Refer to VBA Technical Solutions Sheet No. 0.04 0 Roof Plumbing. See link here

I recommend all defects are rectified and a re-inspection is suggested to ensure compliance.

Should you have any questions about this report, please contact me directly on 0417870087.

Regards Colin Hamilton

3: SITE

		IN	NI	NP	O
3.1	Grading and Drainage	X			X

IN = Inspected NI = Not Inspected NP = Not Present O = Observations

Information

Rubbish Containment

Cage

Site Fencing

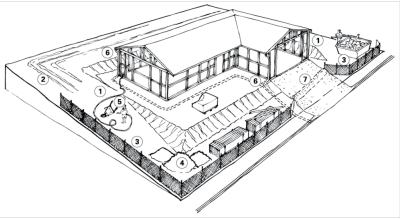
Fenced

The site was adequately fenced at the time of the inspection unless noted otherwise in this report.

Sediment Control

Not Present

Sediment control techniques are used on building sites to prevent sand, soil, cement and other building materials from reaching waterways. Even a small amount of pollution from a site can cause significant environmental damage by killing aquatic life, silting up streams and blocking stormwater pipes.



Erosion and sediment control measures:

1 minimise disturbance,

2 diversion devices,

3 sediment barriers,

4 secure stockpiles,

5 other containments,

6 early stormwater connection,

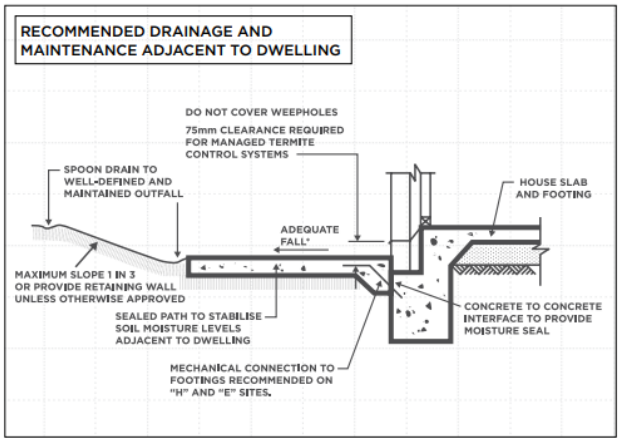
7 controlled access point.

Grading and Drainage: GRADING AND DRAINAGE

Grading and drainage is a common problem facing many homeowners. It's particularly important to ensure your property is adequately drained of surface water to prevent damage to your dwelling, landscaping and plants. A poorly drained property is a haven for mosquitoes and other pests including termites which can wreck havoc on your house and go undetected for some time.

If in doubt, consult an engineer for further advice.

See here for DIY ideas of how to Install Drainage in The Garden with more ideas here.



Grading and Drainage: DESIGN FOR SITE CONDITIONS

Design for site conditions, location of retaining walls, paths, swimming pools, future structures or proposed extensions etc. should all be considered when preparing the site for correct surface water flow.
If the ground slopes towards the house, paths with spoon drains should be provided.
It is also important to place drains uphill of the footings so as to direct water around the house and away from the footings. A stormwater and roof water drainage management plan should be considered and take into account water flowing from adjoining properties.

Seek the advice of an engineer and professional landscape designer or landscaper for more information.

Grading and Drainage: MAINTAINING YOUR HOME

When carrying out work around your home and garden, you need to make sure you don't change the moisture conditions of the foundation. It is also important that the foundation that supports the edges of your footing is not exposed to excess moisture, such as water ponding against footings or walls.

Below are some useful tips to help you protect your home from damage caused by excessive movement of the footings.

DO

• ***Prevent water flowing towards your home's foundations*** by sloping the soil, paths and garden beds away from the building (Figure1). As a rule, the more reactive the soil, the steeper the slope needs to be.
• If it is not possible for the surfaces surrounding your home to drain away from the building, you will need to ***install garden drainage systems*** or drains against your external walls to remove excess moisture to your storm water system. You should seek professional advice about any drainage work.
• Ensure you ***properly maintain*** any drainage installed by your builder.
• Make sure the roof of any garden shed adjacent to your home has ***gutters draining to your storm water system.***
• Ensure there is a minimum slope of 70mm for the first metre away from the house in very reactive soils.

DON'T

• Install sheds or outdoor roofed areas ***without connecting*** the roof drainage to storm water systems.
• Lay paving around the building ***without sufficient slope away from the building*** (Figure2). In large paved areas a drain and storm water collection pit may be necessary.
• Run machinery over shallow drainpipes. This may ***break or squash the pipes***, which can cause leaks and subsequent movement of the foundation.
• ***Excavate close to building footings***, where possible. If you do need to carry out excavations next to your house, make sure you ***don't excavate deeper than the base of the footing***. You should ensure you don't undermine the footing.
• Place garden beds alongside the house, where possible. If garden beds must be next to the house,make sure not to over water them. Footings constructed in reactive soil during dry conditions may experience damage if the perimeter of the house is watered unevenly or excessively.

More information can be found here.

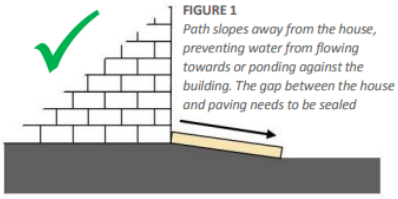


FIGURE 1
Path slopes away from the house, preventing water from flowing towards or ponding against the building. The gap between the house and paving needs to be sealed

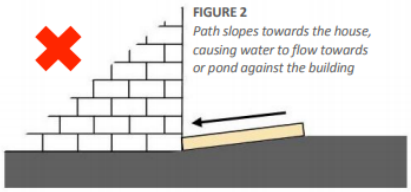


FIGURE 2
Path slopes towards the house, causing water to flow towards or pond against the building

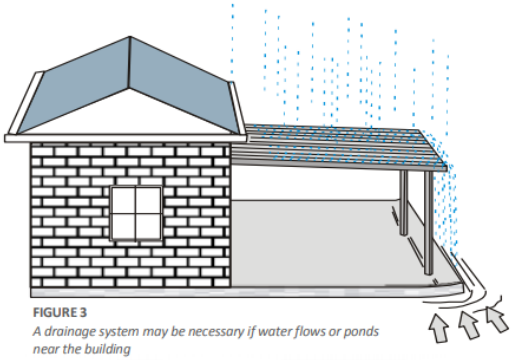


FIGURE 3
A drainage system may be necessary if water flows or ponds near the building

Observations

3.1.1 Grading and Drainage

Maintenance / FYI Item

BUILDING UNDER CONSTRUCTION

The site drainage was not assessed as the dwelling is under construction and external paving / landscaping works are yet to be undertaken.

West Elevation Garage

South Elevation, Laundry - Dining - Family

North Elevation, Master Bedroom - Entry

South Elevation, Bed 2 - Bathroom - Leisure

North Elevation, Bed 4 - Bed 3 - Sitting - Entry

4: SITE WORKS

		IN	NI	NP	O
4.1	Termite Barrier	X			
4.2	Vapour Barrier	X			X

IN = Inspected NI = Not Inspected NP = Not Present O = Observations

Information

Build Orientation
North

General Soil Material
Clay

Vapour Barrier: Information
Not Entirely Underlaid

Vapour Barrier: Penetrations
Serviceable

Site Gradient
Not finished at time of inspection

The surrounding soils must not fall towards the slab, water must be not pool against the slab edge or under the slab. Excessive moisture can cause the slab to heave, creating cracks and possible failure in the future.

Observations

4.2.1 Vapour Barrier

Minor Defect

VAPOUR BARRIER

GENERAL

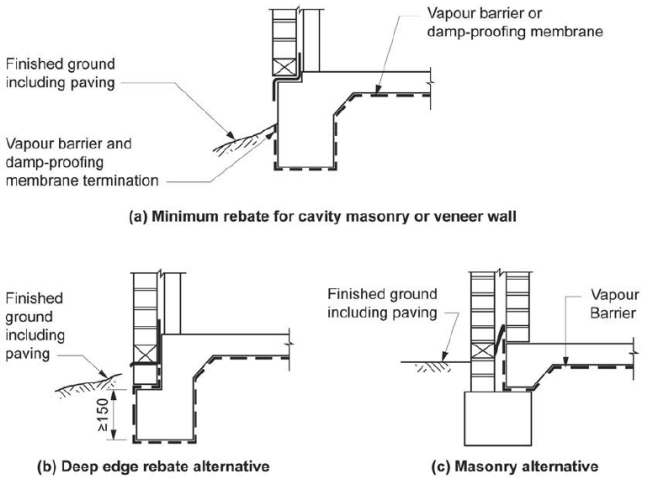
Although the dwelling is still under construction, I note and make mention that the vapour barrier is to be installed to comply with NCC:2019 Part 3.2.2.6

I recommend ensuring that the membrane is maintained in a manner suitable to its intended purpose of moisture control.

During external works ensure barrier is correctly installed and terminated.

NCC:2019 Part 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



Note to Figure 3.2.2.3: All dimensions in millimetres.

Recommendation

Contact your builder.

5: WALL FRAMING

		IN	NI	NP	O
5.1	Slab Edge Detail	X			X
5.2	Wall Framing	X			X
5.3	Stirrup Post Anchor	X			X

IN = Inspected NI = Not Inspected NP = Not Present O = Observations

Information

Informational

Our inspection is a visual inspection of the finishes and the quality of those finishes completed by the Builder up to the stage of our site attendance. This report contains a 'Schedule of Building Defects' that lists the items that in the writers judgement and 30 years of industry experience do not reach the minimum acceptable standard of quality, level of building practice, or have not been built in a proper workmanlike manner with regard to the requirements of the Building Acts and Regulations, the National Construction Code (BCA), the relevant Australian Standards or to within the Building Commission's guide to acceptable Standards & Tolerances

Observations

5.1.1 Slab Edge Detail

Major Defect / Safety Hazard

BOTTOM PLATES OVERHANG CONCRETE SLAB (11MM - 20MM)

SEE PHOTOGRAPHS FOR LOCATIONS

The bottom plates of the external wall frames were overhanging the slab in excess of the maximum 10mm allowance and is deemed to be defective.

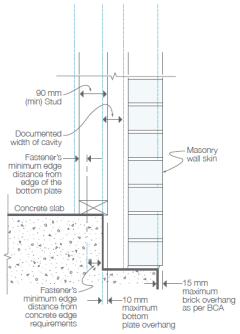
See photographs attached for locations

Victorian Building Authority, Guide to Standards and Tolerances 2015 (below)

4.08 Bottom Plates that Overhang Concrete Slabs

Bottom plates that are less than 90 mm wide and overhang concrete slabs are defective.
Bottom plates that are 90 mm wide or greater and overhang concrete slabs by more than 10mm are defective.
In each instance, these permissible overhangs, are subject to the minimum edge distance for both the bottom plate and the concrete slab fixing locations being satisfied and minimum cavity widths as required by the Building Code of Australia also being maintained.

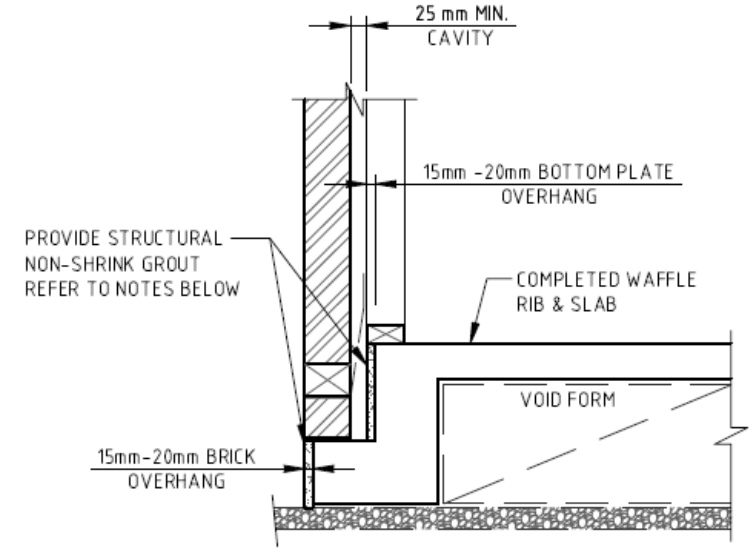
DIAGRAM 4.08 BOTTOM PLATES THAT OVERHANG CONCRETE SLABS



I recommend contacting the project engineer and confirm in writing a design resolution.

Intrax Consulting Group

Alternative Edge Rib Detail For Brick & Frame Overhang, Maximum Overhang 20mm



PROVISIONAL ALTERNATIVE EDGE RIB DETAIL FOR BRICK & FRAME OVERHANG (11mm TO 20mm)
N.T.S.

Recommendation
Contact a qualified professional.

NOTES:

1. THE EDGES OF THE EXISTING CONCRETE SLAB ARE TO BE SCABBLED OR ACID WASHED AND THEN RINSED TO PROVIDE A COARSE SURFACE TO ACCEPT THE NON-SHRINK GROUT.
2. APPLY A BONDCRETE OR BONDIT PRODUCT TO THE EDGES OF THE CONCRETE SLAB TO RECEIVE THE NON-SHRINK GROUT, IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
3. WHILE THE SLURRY MIX IS STILL WET, PROVIDE HIGH-STRENGTH NON-SHRINK GROUT TO BENEATH OF THE OVERHANG. (SUCH AS LANKO 702 DURABED OR SIMILAR APPROVED) INSTALLED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. BENEATH THE OVERHANG THE THICKNESS OF THE GROUT MUST BE CONSISTENT WITH THE OVERHANG & GROUT MUST BE AT LEAST 150mm DEEP.
4. THE ABOVE DETAIL IS ONLY APPLICABLE FOR BRICK VENEER, (UP TO TWO STORIES RESIDENTIAL BUILDING) WITH NOMINAL FIXINGS TO THE SLAB, MAXIMUM OVERHANG LENGTH NOT TO EXCEEDING 20mm.
5. BOTTOM WALL PLATE TO BE FIXED TO CONCRETE SLAB IN ACCORDANCE WITH TIMBER FRAMING MANUAL.
6. IF ONE OF THE FOLLOWING CONDITION ARE MET TO THE OVERHANG, BUILDER SHOULD SUBMIT DETAILS TO INTRAX CONSULTING ENGINEERS, PRIOR COMMENCE ANY CONSTRUCTION WORKS.
   - BRACED WALL WITH SPECIFIED FIXING, OTHER THAN NOMINAL FIXING;
   - UNDER CONCENTRATED LOADS (DOUBLE/TRIPLE STUDS OR STEEL COLUMNS);
   - VOIDS ON SURFACE OF EXTERNAL RIBS (DUE TO POOR COMPACTION/VIBRATION);
   - LENGTH OF OVERHANG EXCEEDS 2000mm
   - TIMBER FRAMING WALL IS LESS THAN 90mm WIDE
   - TIMBER FRAMING WALL IS GREATER THAN 2700mm HIGH
   - WIND CLASSIFICATION OF N3 OR ABOVE


Garage Exterior Wall


Garage Exterior Wall


Garage Exterior Wall


Garage Exterior Wall


Laundry Exterior Wall (West)


Laundry Exterior Wall (South)


Bedroom 2 Exterior Wall

5.1.2 Slab Edge Detail

Major Defect / Safety Hazard

BOTTOM PLATES OVERHANG CONCRETE SLAB (21MM - 30MM)

SEE PHOTOGRAPHS FOR LOCATIONS

The bottom plates of the external wall frames were overhanging the slab in excess of the maximum 10mm allowance and is deemed to be defective.

See photographs attached in Site Section for locations.

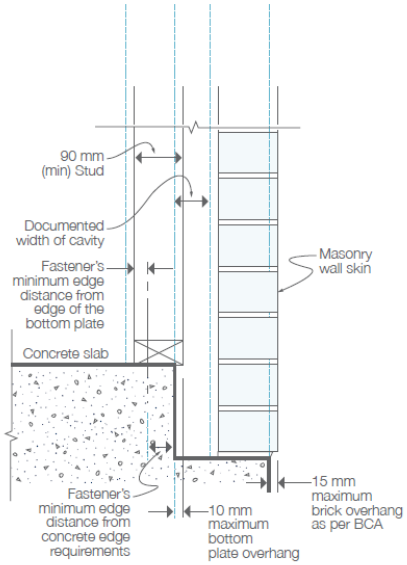
Victorian Building Authority, Guide to Standards and Tolerances 2015 (below)

4.08 Bottom Plates that Overhang Concrete Slabs

Bottom plates that are less than 90 mm wide and overhang concrete slabs are defective.
Bottom plates that are 90 mm wide or greater and overhang concrete slabs by more than 10mm are defective.

In each instance, these permissible overhangs, are subject to the minimum edge distance for both the bottom plate and the concrete slab fixing locations being satisfied and minimum cavity widths as required by the Building Code of Australia also being maintained.

DIAGRAM 4.08 BOTTOM PLATES THAT OVERHANG CONCRETE SLABS



Overhang, Maximum Overhang 30mm

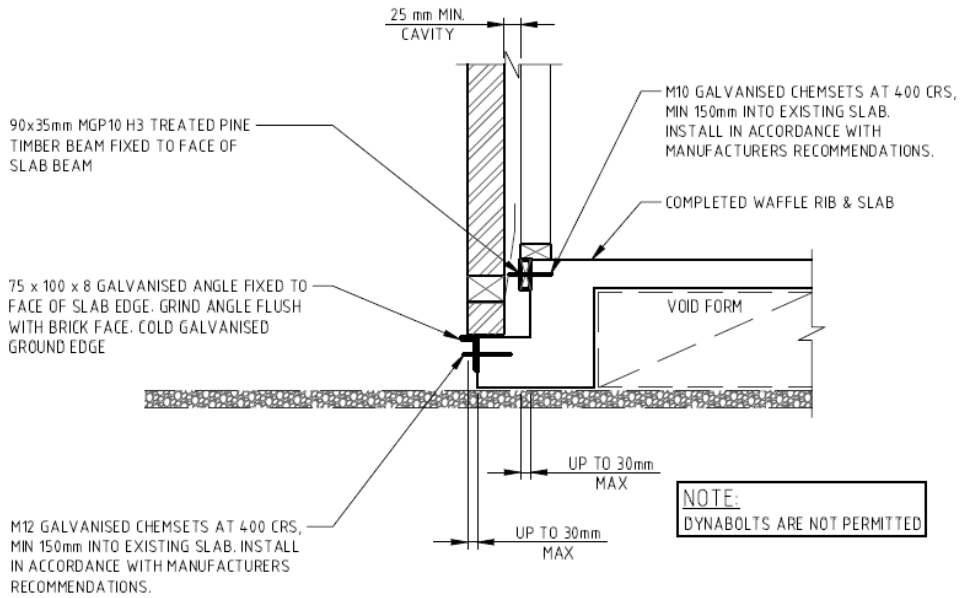
I recommend contacting the project engineer and confirm in writing a design resolution.

Intrax Consulting Group

Alternative Edge Rib Detail For Brick & Frame

Recommendation

Contact a qualified professional engineer



PROVISIONAL ALTERNATIVE EDGE RIB DETAIL FOR BRICK & FRAME OVERHANG (MAX O/H 30mm)

N.T.S.

NOTES:

BOTTOM WALL PLATE TO BE FIXED TO CONCRETE SLAB IN ACCORDANCE WITH TIMBER FRAMING MANUAL

NOTES:

REFER TO ENGINEERING DRAWINGS FOR EXISTING FOOTING SPECIFICATIONS. EXTERNAL RIB TO ACHIEVE MIN DIMENSIONS SPECIFIED . IF NOT, THIS OFFICE IS TO BE CONTACTED

NOTES:

BRICK VENEER CAVITY WIDTH/WALL TIES TO BE AS PER BCA REQUIREMENTS

NOTES:

IF ONE OF THE FOLLOWING CONDITION ARE MET TO THE OVERHANG, BUILDER SHOULD SUBMIT DETAILS TO INTRAX CONSULTING ENGINEERS, PRIOR COMMENCE ANY CONSTRUCTION WORKS

- BRACED WALL WITH SPECIFIED FIXING, OTHER THAN NOMINAL FIXING
- UNDER CONCENTRATED LOADS (DOUBLE/TRIPLES STUDS OR STEEL COLUMN)
- VOIDS ON SURFACE OF EXTERNAL RIBS (DUE TO POOR COMPACT/VIBRATION)
- LENGTH OF OVERHANG EXCEEDS 2000mm
- TIMBER FRAMING WALL IS LESS THAN 90mm WIDE
- TIMBER FRAMING WALL IS GREATER THAN 2700mm HIGH
- WIND CLASSIFICATION OF N3 OR ABOVE


Garage Exterior Wall


Garage Exterior Wall


Garage Exterior Wall


Laundry Exterior


Laundry Exterior


Laundry Exterior


Laundry Exterior


Master Bedroom Exterior


Master Bedroom Exterior


Master Bedroom Exterior


Master Bedroom Exterior

5.2.1 Wall Framing

NOGGINGS

SEE PHOTOGRAPHS FOR LOCATIONS

Major Defect / Safety Hazard

It was observed that some noggings have been not been installed as required by **AS1684.2:2010** or they have been removed.

See Photographs for locations.

Australian Standard 1684.2:2010

Section 6 - Wall Framing

Part 6.2.1.5 - Nogging

Where required, wall studs shall have continuous rows of noggings, located on flat or on edge, at 1350 mm maximum centres (see Figure 6.5).
Noggings are not required to be stress graded.

Unless otherwise specified, the minimum nogging size shall be the depth of the stud minus 25 mm by 25mm thick, or a nogging shall have a minimum cross-section of 50 mm × 38 mm for unseasoned timber and 42 mm × 35 mm for seasoned timber, and shall be suitable, where required, for the proper fixing of cladding, linings, and bracing.
Where required to provide fixing or support to cladding or lining or for joining bracing sheets at horizontal joints, noggings shall be installed flush with one face of the stud.
Where required to permit joining bracing sheets at horizontal joints, noggings shall be the same size as the top or bottom plate required for that bracing wall.
In other cases, noggings may be installed anywhere in the depth of the stud. Stagger in the row of noggings shall be not greater than 150 mm.

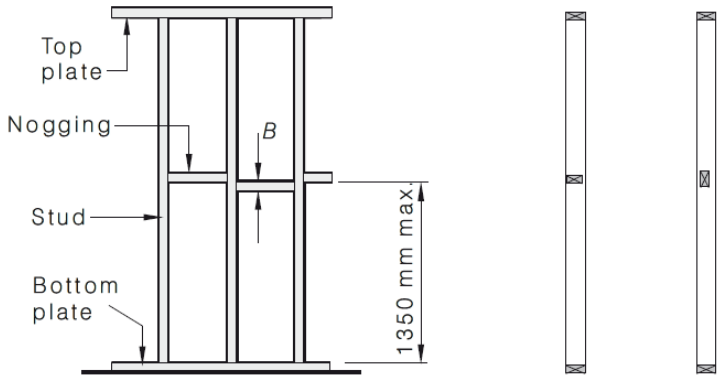


FIGURE 6.5 NOGGING

Section 9 - Fixings and Tie-Down Design

Part 9.5

Table 9.3

Noggings to studs are to be fixed with 2/75 x 3.05mm nail skewed or through nailed.

I recommend all noggings are installed to ensure compliance with Australian Standard 1684.2:2010

Recommendation

Contact your builder.

5.2.2 Wall Framing

BOTTOM PLATE FIXINGS (SLAB)

Major Defect / Safety Hazard

Bottom plate - insufficient fixing to slab.

Fixings must be placed at maximum 1200 centres and at the ends of wall plates.

It was identified that there are instances where the bottom plate is not sufficiently fixed to the slab. Depending on factors like the type of concrete nail / masonry anchor used the required pull out force and wind category the distance of the fixing from the edge of the slab must be between 50 to 70mm minimum for standard 20Mpa concrete. Taking into account these factors it is considered to not meet the AS1684 Residential Timber Framed Construction.

Recommendation

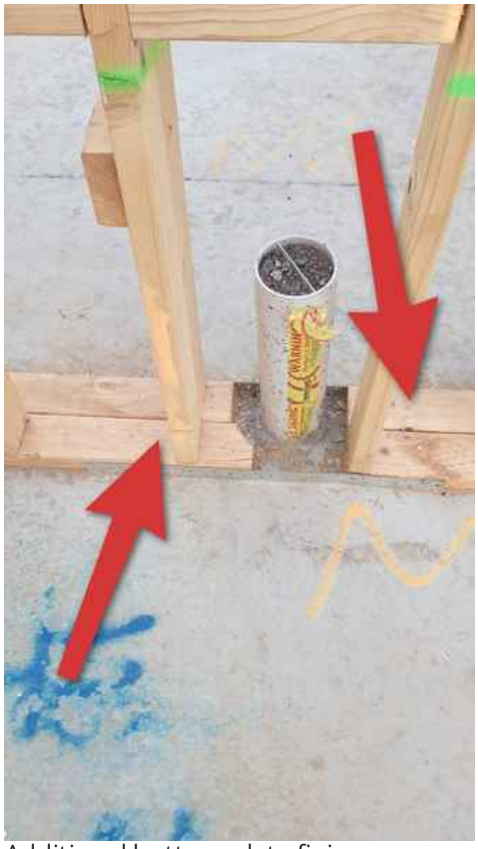
Contact your builder.

West Garage External Wall

Additional bottom plate fixings required

Additional bottom plate fixings required


Additional bottom plate fixings required


Additional bottom plate fixings required

5.2.3 Wall Framing

Major Defect / Safety Hazard

STUD LAMINATION

SEE PHOTOGRAPHS FOR LOCATIONS

It was noted that laminated studs in one or more locations, have not been laminated in compliance with Australian Standard 1684.4:2010 which requires studs to be nail laminated at a maximum 600mm centres.

AS1684.4:2010

Part 2.4 Stud Lamination

The required size may be built up by using two or more laminations of the same timber type, stress grade and moisture content condition, provided the achieved width is at least that of the nominated size. Studs up to 38 mm thick shall be nailed together with one 75 mm nail at maximum 600 mm centres. Studs over 38 mm but not exceeding 50 mm thick
shall be nailed with one 90 mm nail at maximum 600 centres (see Figure 2.9, below).

Where screws are used in lieu of nails, they shall be minimum No. 10 screws. They may be at the same spacing and pattern, provided they penetrate a minimum of 75% into the thickness of the final receiving member.

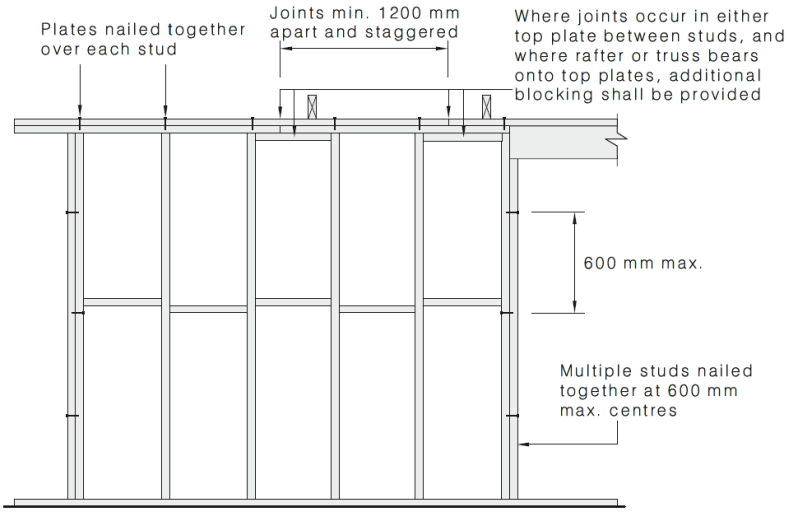
Posts shall not be nail-laminated.

I recommend checking all stud laminations throughout the dwelling and ensure they are all fully fixed as required see diagram below from AS1684.4:2010

Figure 9.

Recommendation

Contact your builder.



NOTE: Refer to Section 9 for other nominal fixing requirements including plates to studs.

FIGURE 2.9 STUD OR PLATE LAMINATION

West Garage External Wall

Garage Wall, Studs Laminated at approx 800mm centres, 600mm is the requirement.

5.2.4 Wall Framing

TOP PLATE JOINTING

Major Defect / Safety Hazard

It was observed that the Top Plate(s) in one or more locations, have not been joined in compliance with Australian Standard 1684.2:2010

AS1684.2:2010

Section 6 - Wall Framing

Part 6.2.2.4 *Joints in top plates*
Top plates shall be joined using one of the methods given in Section 9 for the relevant wind classification.

Section 9 - Fixings and Tie-Down Design

Part 9.2.8

Top plates in walls shall be joined by one of the methods shown in Figure 9.2. (See below)

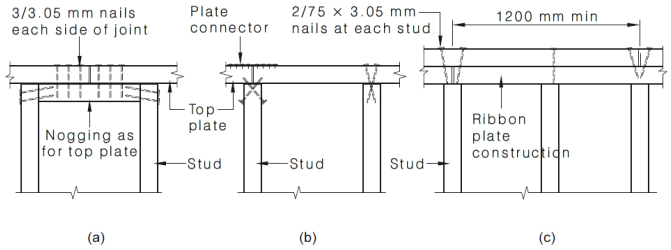


FIGURE 9.2 JOINING OF TOP PLATES

I recommend joining all Top Plate(s) as required by AS1684.2:2010

Garage / Laundry Wall Junction. Provide Top Plate Jointing as Required by AS1684.2:2010 Part 6.2.2.4 and Section 9

Recommendation

Contact your builder.

5.2.5 Wall Framing

WALL INTERSECTIONS (BLOCKING)

IN GENERAL THROUGHOUT

Major Defect / Safety Hazard

Blocking at intersecting walls

Insufficient or non-existant wall blocking was observed at intersecting walls in the nominated locations throughout the structure.

Three blocks are required at intersecting walls (minimum length 200mm) at spacings not exceeding 900mm and each stud must be fixed to the block with 2/75mm nails.

Where wall junctions are within a deemed wet area, blocks must be installed at a maximum of 600mm centres .

In particular the standard notes that all walls must be installed with noggings at a spacing not exceeding 1350mm and wall intersections don't negate this requirement.

Australian Standard 1684.2:2010 (AS1684.2:2010)

Section 6, Part 6.2.1.3

Studs at wall junctions and intersections shall be in accordance with one of the details shown in Figure 6.2.

Studs shall be not less in size than common studs. All junctions shall have sufficient studs, which shall be located so as to allow for adequate fixing of linings.

Internal and external walls shall be fixed together with a minimum of 2/75 mm nails at 900 mm centres.

I recommend fixing all wall junctions in compliance with AS1684.2:2010

See typical wall junction details below.

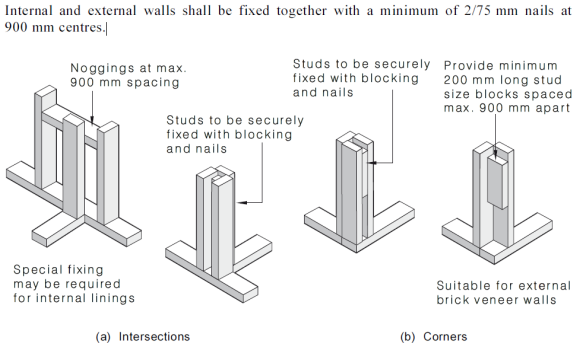


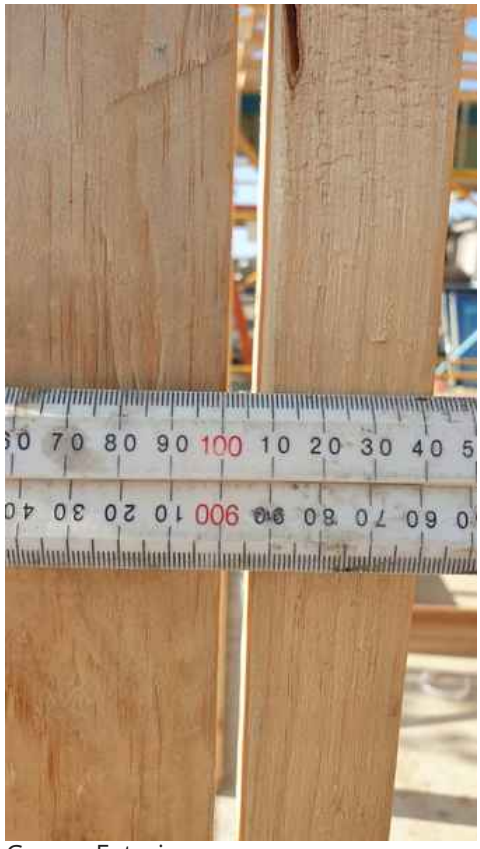
FIGURE 6.2 TYPICAL WALL JUNCTIONS

Recommendation

Contact your builder.


Garage Exterior, Wall Junction not tight and securely fixed. This workmanship can lead to cracking plasterboard of the internal junctions.


Garage Exterior, Wall Junction not tight and securely fixed. This workmanship can lead to cracking plasterboard of the internal junctions.


Garage Exterior


Garage Exterior


Garage Exterior


Garage / Laundry Exterior


Garage / Laundry Exterior


Laundry Interior


Laundry Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Garage Interior


Leisure Exterior


Leisure Exterior


Bedroom 4 Exterior


Bedroom 4 Exterior


Bedroom 4 Exterior


Bedroom 4 Exterior


Entry Exterior


Entry Exterior


Entry Exterior


Entry Exterior


Entry Exterior


Laundry Interior


Laundry Interior


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs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Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs


Internal wall Junction Sample Photographs

5.2.6 Wall Framing

Major Defect / Safety Hazard

WALLS NOT TIED

GENERAL THROUGHOUT

Blocking at and fixing of intersecting walls - External as a minimum.

It appears the external walls on the dwelling have been nailed off.

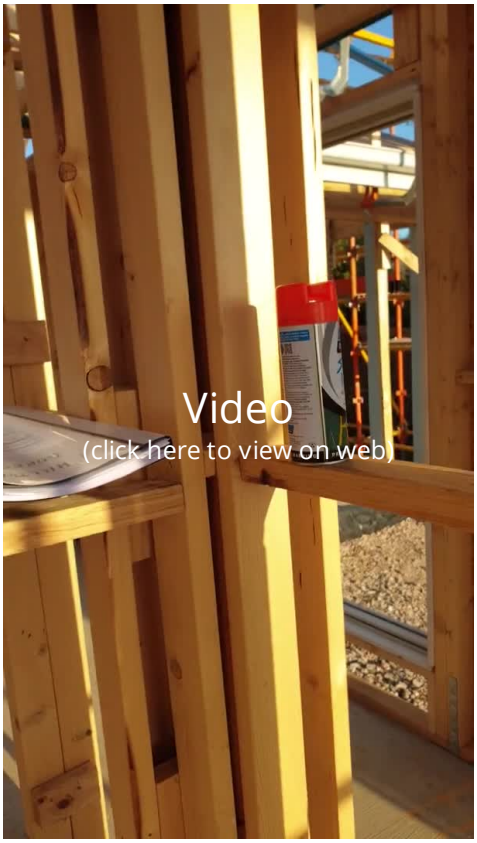
Section 9.5 and table 9.4 of AS1684.2. and section 6.2.1.3 of the same document states all connecting walls must be secured and nailed in accordance with both clauses.
The builder may claim that the internal connections will be undertaken at lockup stage, however, this procedure fails to take into account, what holds the dwelling up in the time between now and lockup stage completion?
As a minimum the builder must nail off all of the external walls and internal bracing walls to ensure that the dwelling can resist the racking forces that AS 1684.2 mandates.
The internal non-bracing walls can then be finished off at lockup stage.

See photographs of examples below.

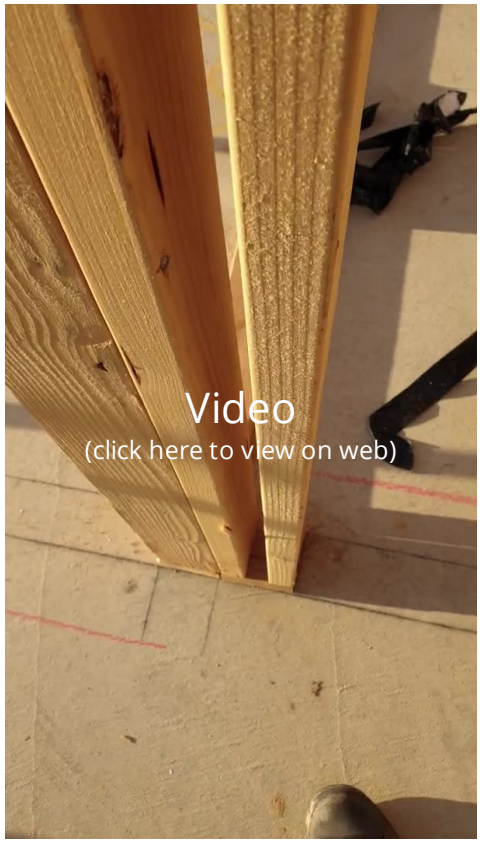
I recommend fixing all wall junctions as required by AS1684.2:2010

Recommendation

Contact your builder.


Video
(click here to view on web)


Video
(click here to view on web)


Video
(click here to view on web)






0 70 80 900 10 20 30 40
60 70 80 90 100 10 20 30 40












Video
(click here to view on web)


5.2.7 Wall Framing

Major Defect / Safety Hazard

STUD CENTRES

Stud spacing in one or more locations was was observed to be greater than the maximum of 600mm centres.

I recommend installing extra studs as required to reduce spacings to a maximum of 600mm centres.

See photographs for locations

Under Bed 2 Window

Recommendation

Contact your builder.

5.2.8 Wall Framing

Minor Defect

POOR WORKMANSHIP

GENERAL

I observed some areas of the wall frames that have poor workmanship and will require rectification to prevent possible issues arriving further in the future. (Cracking in the plasterboard or worse)

See photographs of examples below.

Recommendation

Contact your builder.









5.2.9 Wall Framing

UNSUPPORTED LOAD BEARING STUDS

Major Defect / Safety Hazard

A section of wall framing was found to be inadequately support and fixed to the concrete slab.

This section of wall framing is located under load bearing window jamb studs.

I recommend fully supporting the bottom plates with particular care taken at concentrated load bearing points.

Pack and provide support.

Recommendation

Contact your builder.

Bedroom 2 Exterior

Bedroom 3 Exterior

Bedroom 3 Exterior

5.2.10 Wall Framing

SPEEDBRACING / STRAP BRACING (EXTERNAL WALLS)

SEE PHOTOGRAPHS FOR LOCATIONS

Major Defect / Safety Hazard

Laundry Exterior Wall

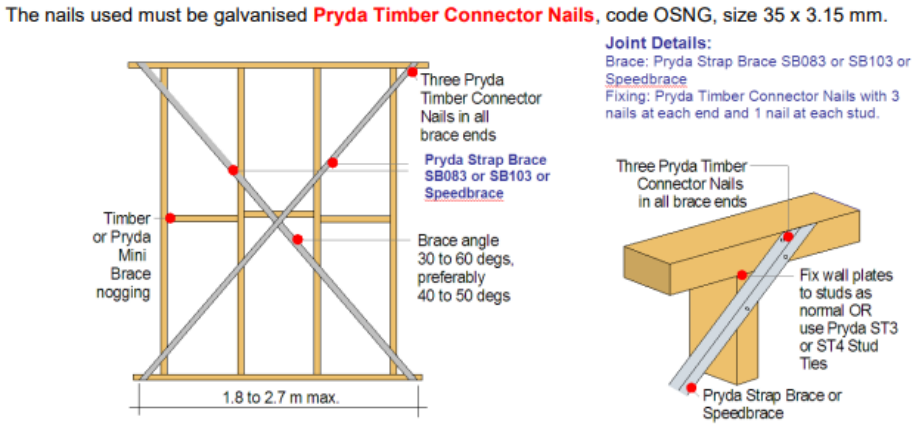
The Speedbracing or Strap bracing used on the external wall frames is poorly fixed in one or more locations.

Pryda Timber Connectors Bracing Guide (Sept 2016)

Strap Brace/Speedbrace Type A Unit (Racking Capacity = 1.5 kN/m)

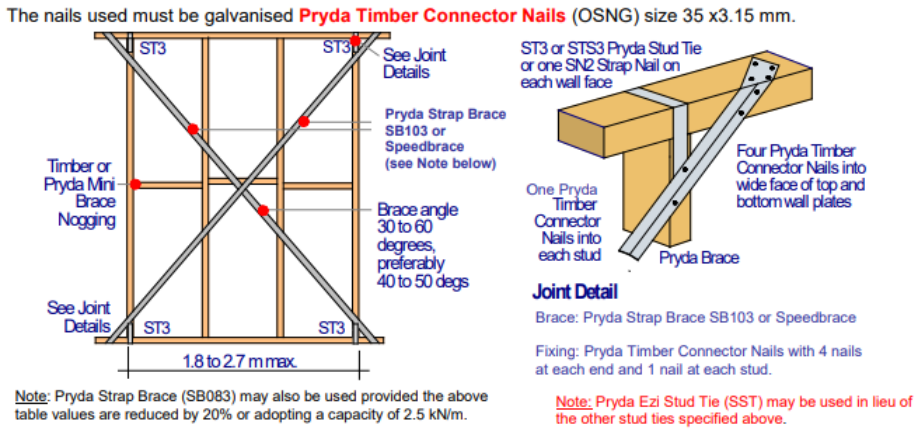
This bracing unit comprises one section of the wall, with cross-over braces of Pryda Strap Brace or Pryda Speedbrace as shown below. The minimum recommended Strap Brace size (SB083) fully complies with AS1684.2:2010 and AS1684.3:2010 specifications. Maximum wall height in AS1684 is 3.0 m (except at gable or skillion ends).

Design capacity is 1.5 kN/m for wall heights up to 2.7 m and 1.35 kN/m for 3.0 m height



Strap Brace/Speedbrace Type B Unit (Racking Capacity = 3.0 kN/m)

This Type B bracing unit uses Pryda Strap Brace (SB103) or Pryda Speedbrace, a steel brace thicker than the one used for Type A units. Note: Pryda Strap Brace (SB083) may also be used provided the below table values are reduced by 20%. Maximum wall height in AS1684 is 3.0 m (except at gable or skillion ends). Design capacity is 3.0 kN/m for wall heights up to 2.7 m and 2.7 kN/m for 3.0 m height.



I recommend fixing bracing units in compliance with AS1684.4:2010 and the manufacturers installation guide.

See photographs for locations.

Recommendation

Contact your builder.

5.2.11 Wall Framing

OPENINGS (JACK STUDS)

Major Defect / Safety Hazard

GENERAL THROUGHOUT STRUCTURE

It was observed that openings framed with Jamb studs and lintels, had "Jack" studs installed with an incorrect orientation or not installed at all.

Australian Standard 1684.2:2010 requires that "Jack" studs, be sized, spaced and orientated as the common studs.

See Photographs for general observations.

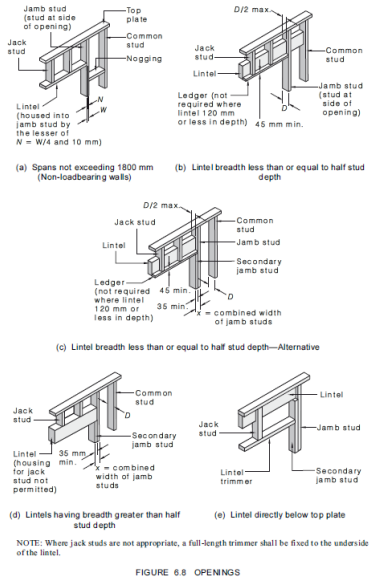
See below for requirements.

Australian Standard 1684.2:2010

Section 6 - Wall Framing

Part 6.2.3 - Openings

Openings shall be framed with jamb studs and lintels (heads) as shown in Figure 6.8. Where required, jack studs shall be the same size, spacing, and orientation as the common studs, as shown in Figure 6.9 but may be made up by horizontal nail lamination. A minimum clearance of 15 mm shall be provided between the underside of the lintel or lintel trimmer and the top of the window frame.



I recommend installing jack studs in compliance and as required by AS1684.2:2010 throughout the structure.

Recommendation

Contact your builder.

Missing Jack Studs

5.2.12 Wall Framing

TIE-DOWN FIXING (INCOMPLETE)

Major Defect / Safety Hazard

Tie-down fixing was observed to be incomplete in one or more locations.

I recommend completing tie-down fixing in compliance with AS1684.2:2010.

See photographs for locations

Recommendation

Contact your builder.

Garage

Garage

Garage lintel not tied to stud

5.2.13 Wall Framing

MITEK BRACKETS (TRIP-L-GRIPS, MULTIGRIP ETC)

Major Defect / Safety Hazard

The nail brackets used to fasten truss details have not been installed in compliance with the manufacturers recommendations and technical reports.

I recommend installing all MiTek Brackets in strict compliance with the manufacturers recommendations.

See below for details.

Mitek Universal Trip-L-Grips are required to have a minimum of 10 (5 per side) MiTek 30 x 2.8mm hot dipped galvanized reinforced head nails in positions shown according to connector.

Furthermore, MiTek Technical Report, Connections - 01, Gun Nailing of MiTek Straps and Connectors states that "Coil Gun Nails are unsuitable for fixing Trip-L-Grip, Universal Trip-L-Grip, MultiGrip, MiniGrip and JoistHanger bracket.

See body of Technical Report Below.

MiTek Technical Report: Connections - 01 Gun Nailing of MiTek Straps and Connectors

MiTek straps and connectors are generally designed to be fitted with **blue MiTek 30x2.8mm dia. reinforced head nails.** Where pneumatically driven gun nails are used instead of hand driven blue MiTek nails, they shall meet the following conditions:

Gun Nail Prerequisites

1. The nails shall be flat head, galvanized, and meet the requirements of Australian Standard AS 2334 “Steel Nails—Metric Series”.

2. An equal number of gun nails to blue MiTek nails shall be pneumatically driven by a gun with sufficient air pressure to fully drive the nails flush against the steel surface, and not be so excessive as to punch through the steel.

3. The user shall assess the suitability of connector for gun nailing, hazard risks, and meet WHS requirements regarding the use of nail guns in this application.

The following additional conditions shall apply when coil nail guns are used:

Coil Nail Guns

This type of nail gun employs plastic or wire collated coil nails, as shown in the photo below. They do not have protruding nails to accurately aim and target them into pre-punched holes. These nails shall not be targeted at pre-punched holes but shall instead be driven into un-punched steel in between them.
To achieve the published capacity of blue MiTek nails, the equivalent* coiled gun nails shall be Australian Standards compliant **32x2.5mm dia. screw shank hard-ened nails.**

(*Note: The QBCC blog which stipulates applying 20% more gun nails, does not apply to MiTek, but is directed at non-MiTek products which depend on larger hand driven nails to achieve their capacities.)

All gun nails shall be fitted between pre-punched holes in a similar distribution^ and spacing as the holes, and shall not be clustered closely together, nor be too close to pre-punched holes, or steel edges, or timber edges.
These are the minimum edge and end distances:

Minimum Edge/End Distances:

Distance from timber edge: 10mm

Distance from timber cut end: 40mm

Distance from steel edge/pre-punched hole: 5mm

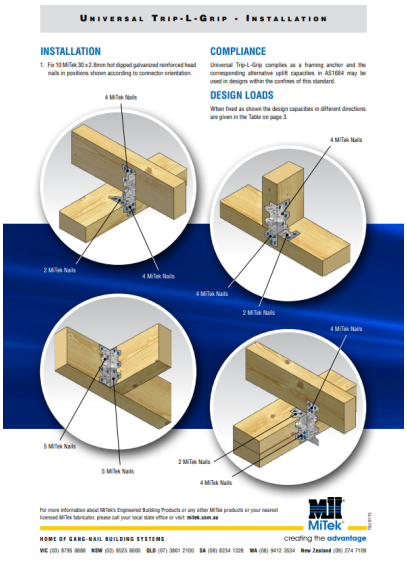
Not all building products are suitable for gun nailing and an assessment should be made in each case, or advice sought.

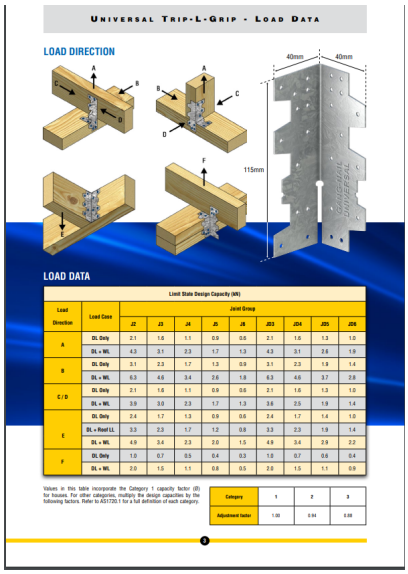
Examples of suitable products for coil nail guns: BlockFast, WallStrap, CycloneTie, Structural Bracing-Strap, CreeperConnector, and Boomerang Connector.

Examples of unsuitable products for coil nail guns:
Trip-L-Grip, Universal Trip-L-Grip, MultiGrip, MiniGrip, and JoistHanger.

(^Note: Some MiTek products are specially dedicated for use with gun nails, by providing target rings and/or crosshairs for that purpose, e.g. CT180 CycloneTie, WallStrap, and BlockFast. This alleviates the user from having to make instant decisions on the distribution and spacing in different products.)

I recommend fixing all brackets in strict compliance with the manufacturers recommendations.





Recommendation

Contact your builder.

Non-compliant Fixing of Brackets

Non-compliant Fixing of Brackets

Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets


Non-compliant Fixing of Brackets

5.2.14 Wall Framing

GABLE END WALL BINDERS

Major Defect / Safety Hazard

The garage and Porch lintels have not been tied into the roof frame and are free to move.

I recommend tying the garage lintel to the roof structure as required the truss manufacturer installation guide and by Australian Standard 4440:2004

See photograph(s)

Recommendation

Contact your builder.

Porch Lintel

5.2.15 Wall Framing

Major Defect / Safety Hazard

MISSING STUD

A stud has not been installed to pick up plasterboard in the internal corner of the Sitting Room.

See photograph below

Recommendation

Contact your builder.

5.2.16 Wall Framing

Minor Defect

OPENING LINTEL

The opening in the Sitting room is supported by hanging from the trusses located above.

I recommend installing a lintel into this opening so that the opening is not reliant on the roof truss.

Recommendation

Contact your builder.

Install Lintel To Opening

Install Lintel to Opening

5.3.1 Stirrup Post Anchor

Major Defect / Safety Hazard

CORROSION PROTECTION OF BOLTS / FIXINGS

SEE PHOTOGRAPHS FOR LOCATIONS

The corrosion protection of bolts used to fasten the stirrup(s) into concrete in one or more locations is not in compliance with the manufactures recommendations.

Yellow Zinc fixings have low anti-corrosion properties, they are generally used as a temporary fixing or in an internal (protected environment) and are not suitable for use for external conditions.

I recommend replacing all external bolts / fixings with either a fixing suitable for use in external conditions such as "Hot Dipped Galvanised" or "Stainless Steel" fixings.

Recommendation

Contact your builder.


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room

Grand Outdoor Room

5.3.2 Stirrup Post Anchor

Major Defect / Safety Hazard

POORLY INSTALLED STIRRUP FIXINGS

The "Dynabolts" used to fix the post anchor stirrups have been poorly installed and are not in contact with the fixture as recommended by Ramset.

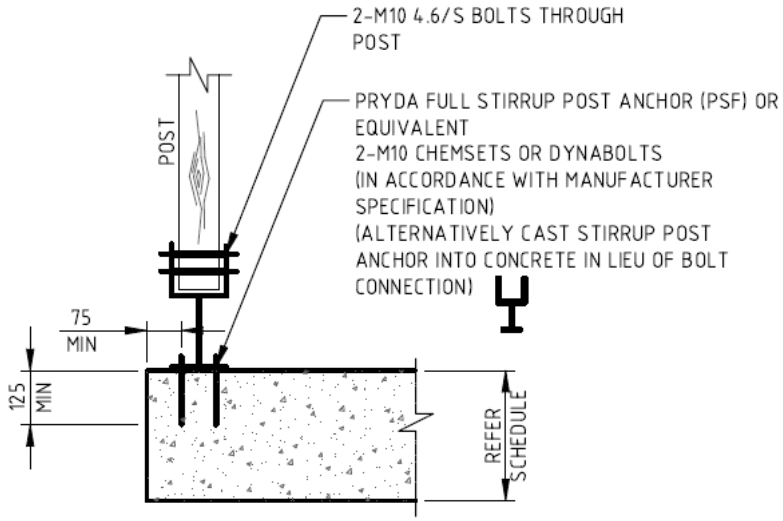
As per the manufacturers recommendations, the DynaBolt™ Plus is to be inserted through the fixture and driven with a hammer until the washer contacts the fixture.
The DynaBolt™ Plus is to be tightened, allowing the sleeve to twist and pull down the fixture firmly onto the substrate.

For optimum performance, a torque wrench should be used.

I recommend installing fixings that are suitable for external use and installed as per the manufacturers installation guide.

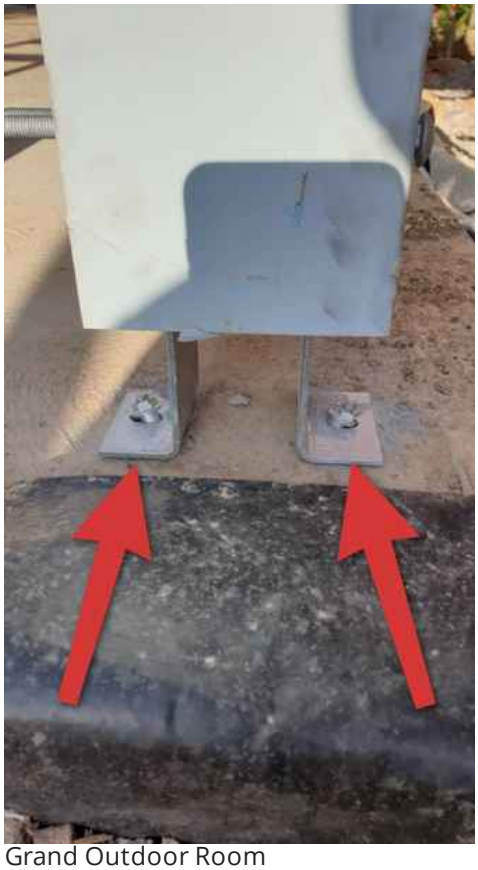
Recommendation

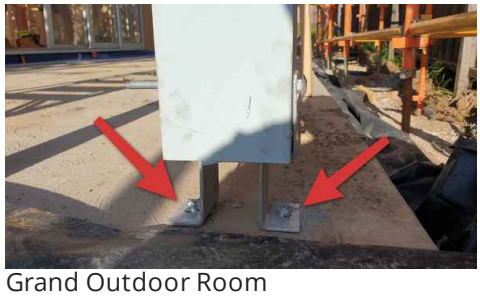
Contact your builder.



TYPICAL TIMBER FULL STIRRUP POST ON CONCRETE SLAB/FOOTING DETAIL
SCALE = 1:20


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room


Grand Outdoor Room

6: ROOF FRAMING

		IN	NI	NP	O
6.1	Roof Trusses	X			X

IN = Inspected NI = Not Inspected NP = Not Present O = Observations

Information

Roof Trusses: General

General Roof Photographs

Observations

6.1.1 Roof Trusses

MULTI-GRIP

Major Defect / Safety Hazard

See MiTek Bracket comment in wall frame section.

Recommendation

Contact your builder.

6.1.2 Roof Trusses

BOTTOM CHORD LATERAL RESTRAINTS

Major Defect / Safety Hazard

The bottom chords of the trusses in the Family, Dining and Grand Outdoor Room area have not temporary or permanent bottom chord lateral restraints.

Bottom chord restraints are required to be installed in compliance with the truss makers recommendations and AS4440:2004

I recommend installing bottom chord restraints to prevent possible structural and plasterboard failure in the future.

Recommendation

Contact your builder.


Requires Bottom Chord Restraints


Requires Bottom Chord Restraints


Requires Bottom Chord Restraints


Requires Bottom Chord Restraints


Requires Bottom Chord Restraints