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TIMBER FRAME INSPECTION

1234 MAIN STREET
SYDNEY
02/05/2023

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Purpose of This Report

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 at the completion of the framing 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.

Particulars of Our 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.

In preparing this report I have referred to:

- National Construction Code (NCC) noting that the Building Code of Australia (BCA) forms Volumes 1 and 2 of the NCC
- The plans, engineers drawings and documentation supplied to me by the client
- Australian Standards (AS) and Australian & New Zealand Standards (AS/NZS), which the NCC adopts by reference;
- Australian Standards and Australian & New Zealand Standards that provide guideline information eg. not adopted by reference to the NCC; and
- NSW Fair Trading Guide to Standards and Tolerances 2017 (FTG).

In this report all references:

- to the NCC are references to the NCC Volume 2 Class 1 and Class 10 BuildingsAmendment 2019
- to AS and AS/NZS are references to Standards adopted by NCC Amendment 2019 or (if containing guideline information) to Standards current at the time of the Works.

SUMMARY

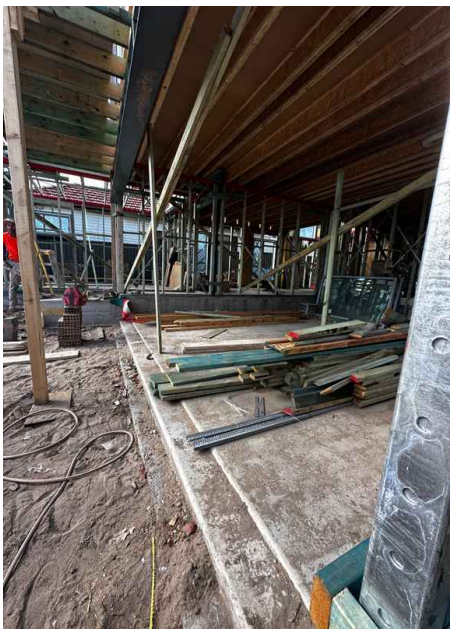
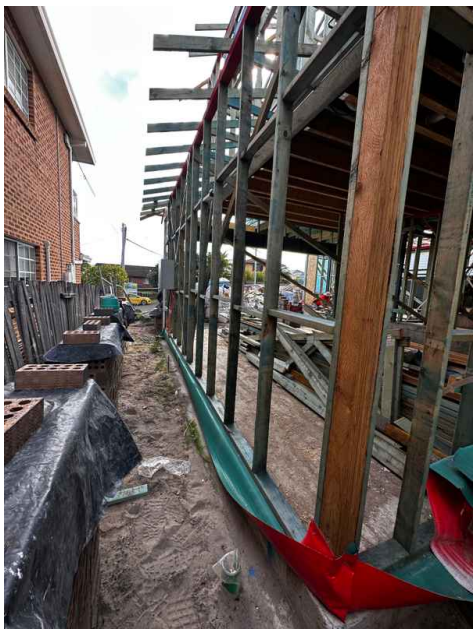
25

RECOMMENDATION

1: GENERAL

Information

General: Photos around site

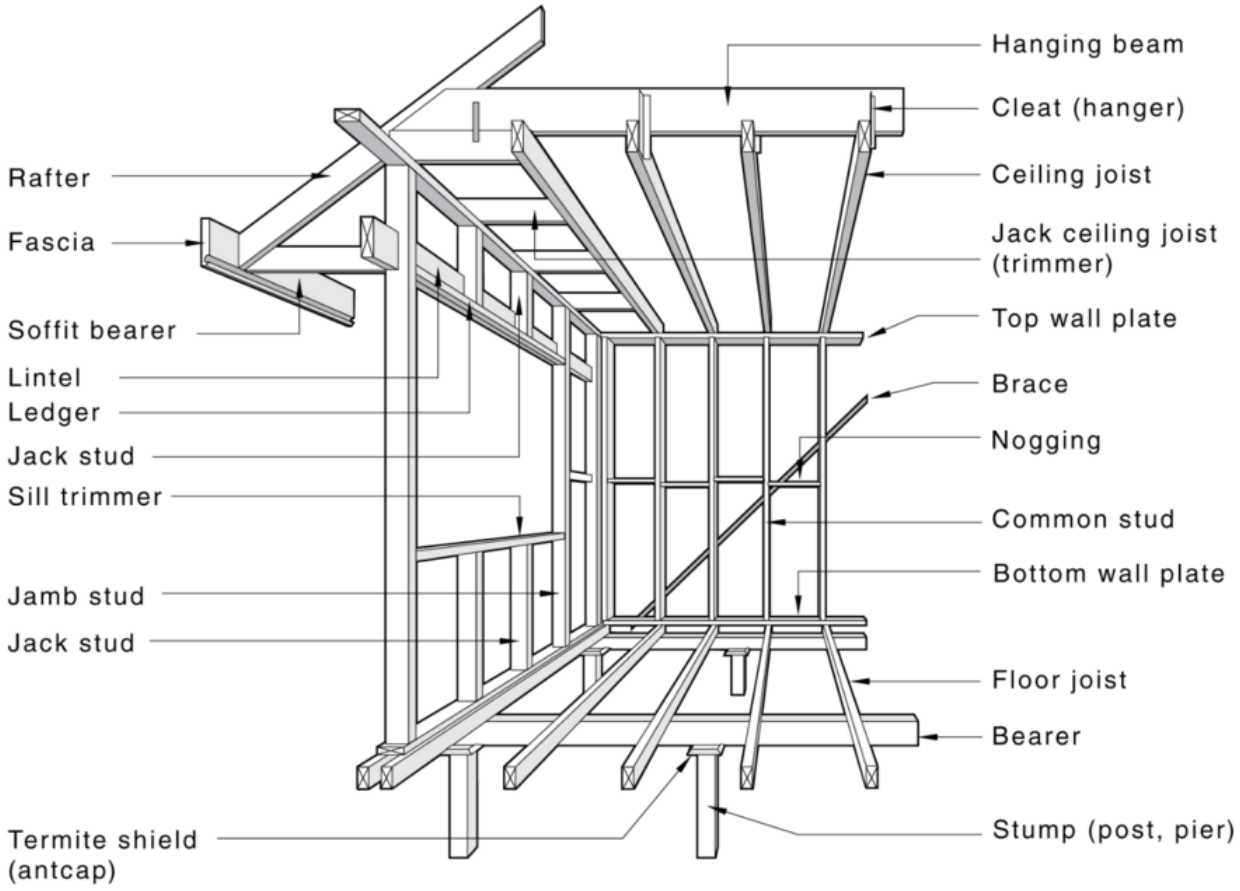






General: Component names

Please see screenshot below of framing components. This is to be referenced throughout the report to help the reader to understand terminology and components being used in this report

Figure 2.1 — Framing members — Floor, wall and ceiling



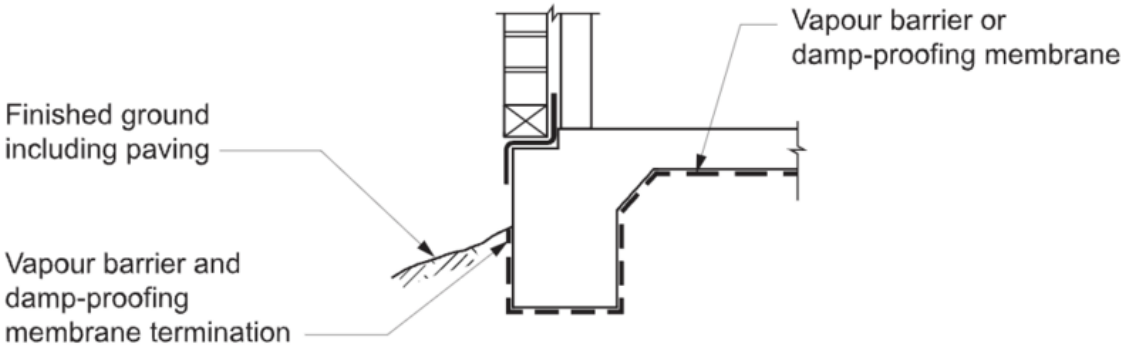
Non-compliant

1.2.1 Vapour barrier

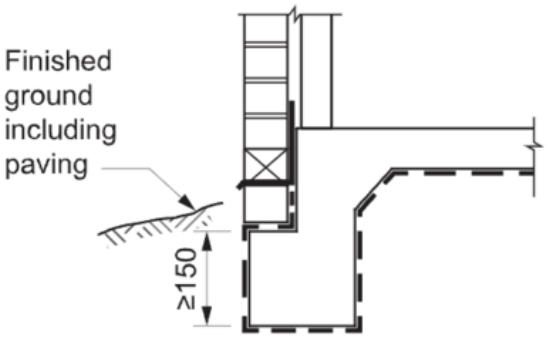
All of the existing loose fill that has been placed up against the slabs edge beams will need to be removed and the polyethylene vapour barrier properly extended up the external side faces of the edge beams to at least the height of future finished ground level or paving i.e. 75mm below the damp-proof course and bottoms of the weepholes, after which any termite barriers that are in place, if required, will also need to be properly instated.

Below Image taken from the NCC - Volume 2

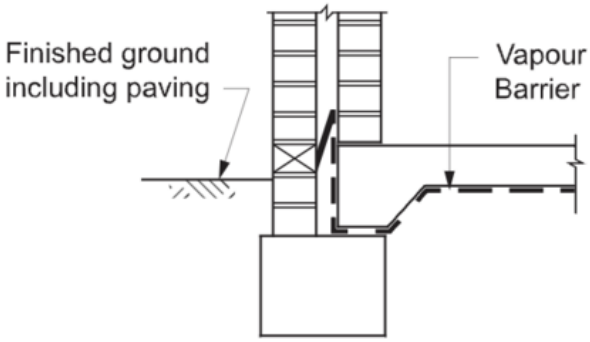
Figure 3.2.2.3 Acceptable vapour barrier and damp-proofing membrane location



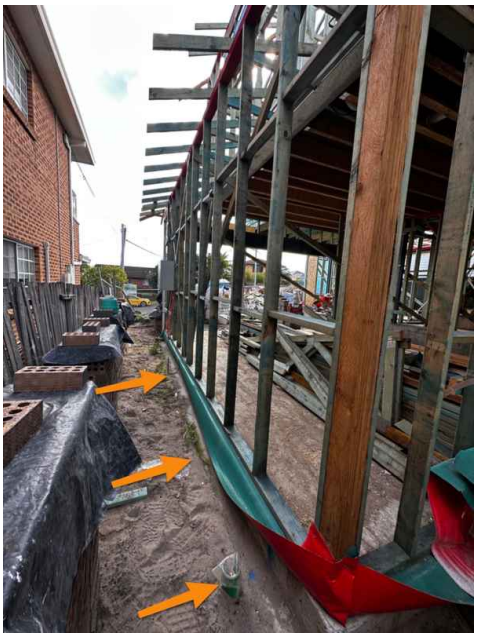
(a) Minimum rebate for cavity masonry or veneer wall

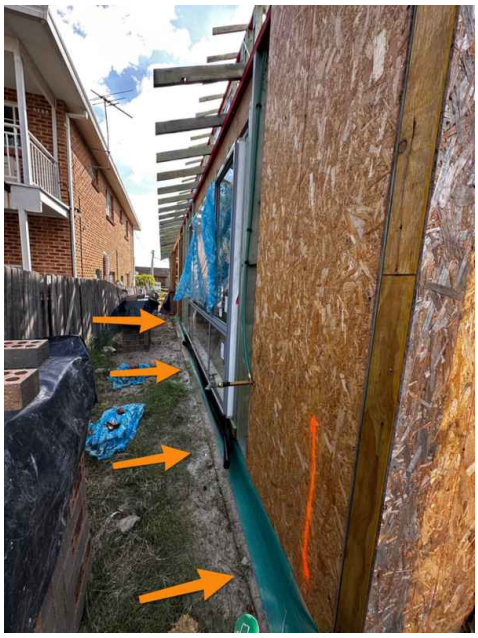


(b) Deep edge rebate alternative



(c) Masonry alternative





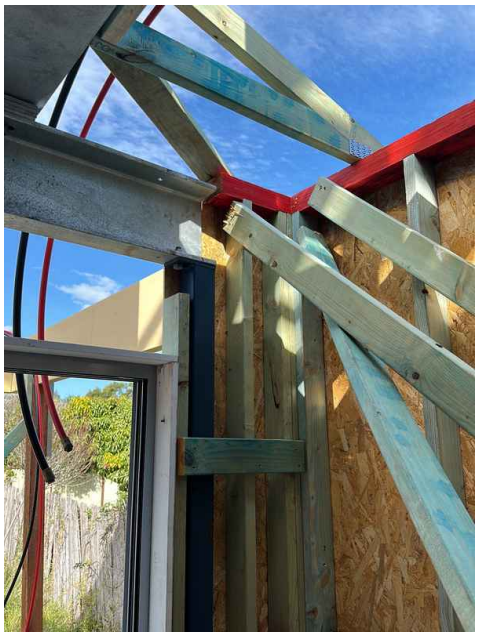
2: WALL FRAMES

Limitations

Check outs/Notches & holes

TOP PLATES CUT

There was no detail or section showing how cut top plates should tie into posts or steel beams. This should be reviewed after receiving documentation


Non-compliant

2.2.1 Bearing

FRAME EXCEEDS MINIMUM BEARING ON SLAB

The maximum allowed overhang of a 90mm bottom plate is 10mm. The works below are non compliant.

This overhanging bottom plate will need to be supported by an appropriately designed and certified engineered system so that it complies with As 1684.2, clause 6.3.3, and the BCA.

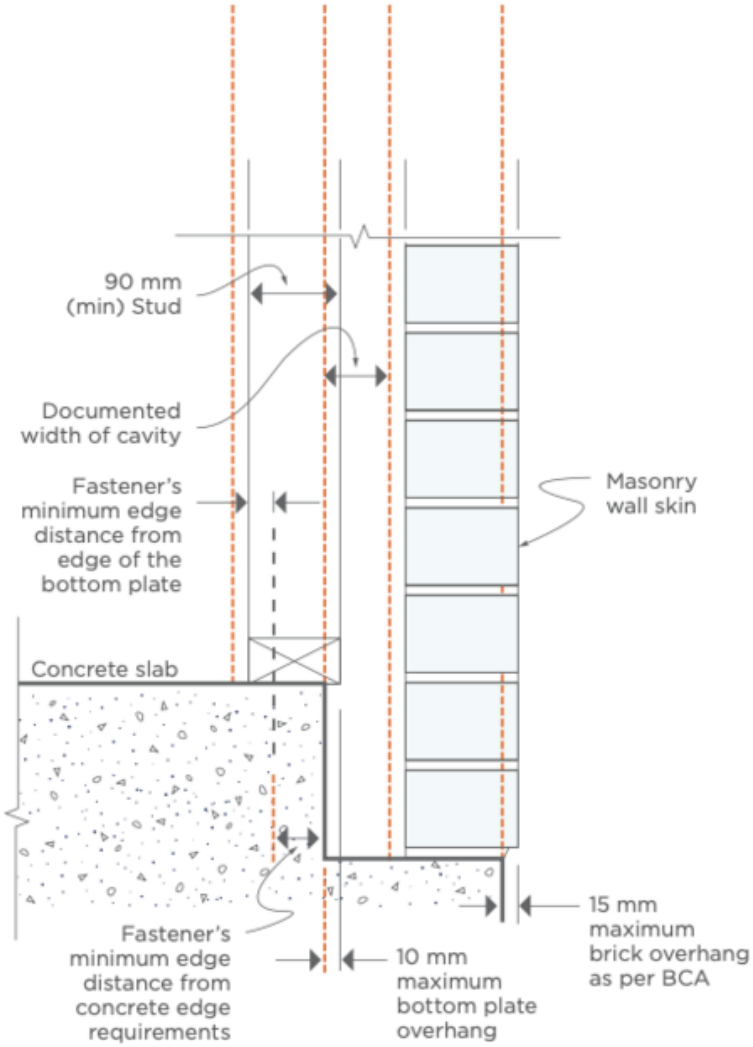
4.8 Bottom plates that overhang concrete slabs

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 10 mm are defective.

Minimum cavity widths as required by the Building Code of Australia shall be maintained.

DIAGRAM 4.08 BOTTOM PLATES THAT OVERHANG CONCRETE SLABS




25mm Frame overhang


60mm Frame overhang

2.4.1 Noggings

NOGGINGS ARE NON-COMPLIANT

Noggings are non-compliant due to reasons below

6.2.1.5 Noggings

Where required, wall studs shall have continuous rows of noggings, located on flat or on edge, at 1 350 mm maximum centres, see Figure 6.6.

Noggings need not be stress-graded.

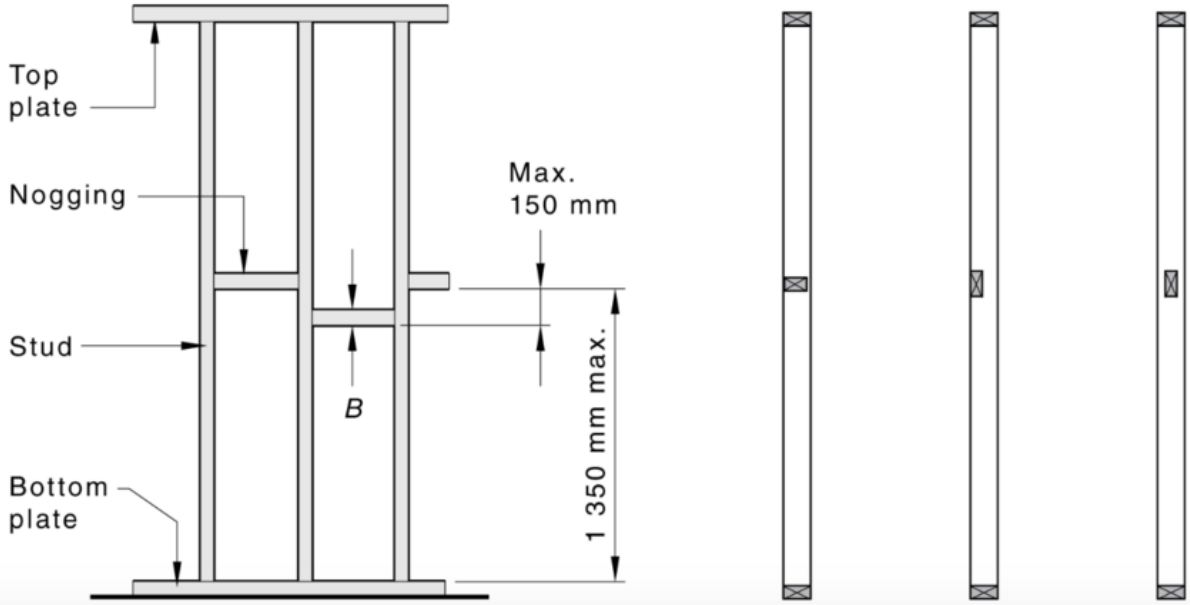
Unless otherwise specified, the nogging shall have either a minimum size of the depth of the stud minus 25 mm × 25 mm thick, or a minimum cross-section of 50 mm × 38 mm for unseasoned timber and 42 mm × 35 mm for seasoned timber. The nogging shall be suitable, where required, for the fixing of cladding, 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.

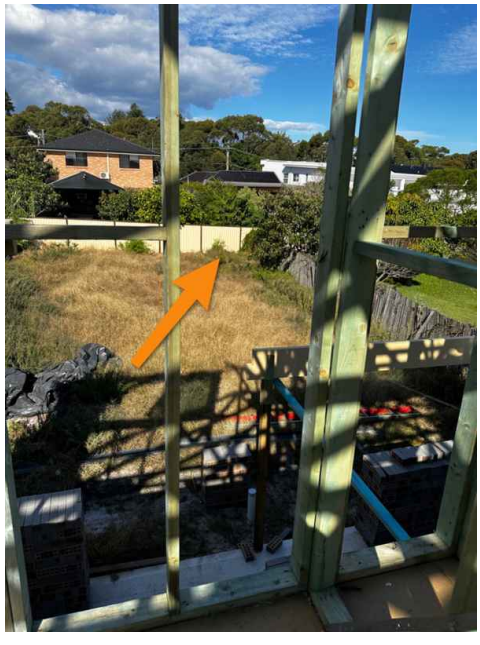
In other cases, noggings may be installed anywhere in the depth of the stud. Stagger in the row of noggings shall be not greater than 150 mm.

Figure 6.6 — Noggings



Missing

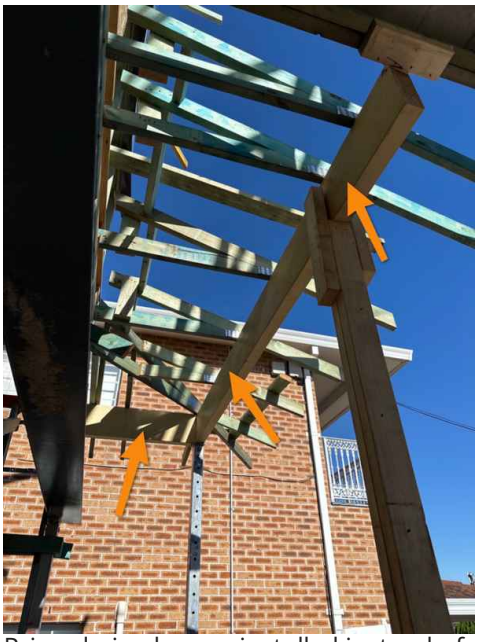
Missing



2.5.1 Items not installed as per the drawings

PLAN SPECIFIES LVL

The plan specifies an LVL to be installed. Instead a primed pine beam has been installed. This does not follow the engineering documentation. It is recommended that an engineer check.



Primed pine beams installed instead of the required LVL's

2.6.1 Incomplete

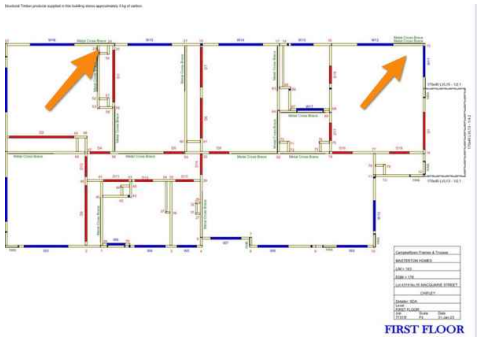
FRAMING INCOMPLETE

Sections of framing are incomplete

2.8.1 Bracing

METAL BRACING NOT INSTALLED

Metal bracing has not been installed in sections



Arrows show areas where bracing has not been installed

2.8.2 Bracing

TIE DOWN CONNECTIONS

Tie down connections have not been installed to timbers where the load is transferred to the below timbers. Continuity of tie down shall be provided from the roof sheeting to the foundations. This is a requirement set out in AS1684.2:2022. Below tables show examples of tie downs.

Table 9.19(f) — Uplift capacity of floor joist tie-down connections

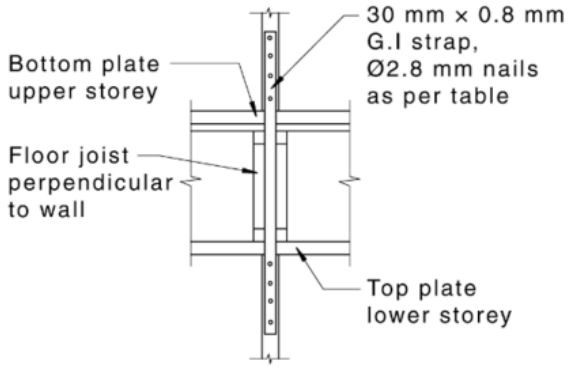
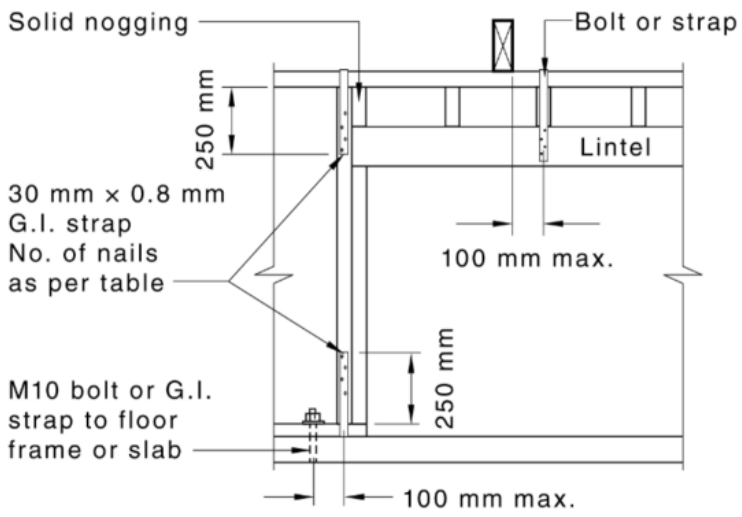
Position of tie-down connection		Uplift capacity, kN					
		Unseasoned timber			Seasoned timber		
Floor joists to bearers or top plates		**J2**	**J3**	**J4**	**JD4**	**JD5**	**JD6**
(f) 	No. of nails each end of strap	Straps nailed to timber framing					
	4	4.9	3.5	2.5	3.5	2.9	2.2
	6	6.5	4.7	3.3	4.7	3.8	2.9
	8	6.5	5.9	4.2	5.9	4.9	3.7
	12	6.5	6.5	5.9	6.5	6.5	5.2
NOTE 6.5 kN is the maximum tensile capacity of the steel strap.							

Table 9.20(a) — Uplift capacity of beam/lintel tie-down connections

Position of tie-down connection	Uplift capacity, kN					
	Unseasoned timber			Seasoned timber		
Beams/lintels/ring beams to studs/posts/floor	**J2**	**J3**	**J4**	**JD4**	**JD5**	**JD6**
(a) 	4/2.8 mm ⌀ nails each end of strap					
	8.3	5.9	4.2	5.9	4.9	3.7
	6/2.8 mm ⌀ nails each end of strap					
	12	8.4	5.9	8.4	6.9	5.2
	The top plate shall be fixed or tied to the lintel within 100 mm of each rafter/truss, or the rafter/truss fixed directly to the lintel with a fixing of equivalent tie-down strength to that required for the rafter/truss.					

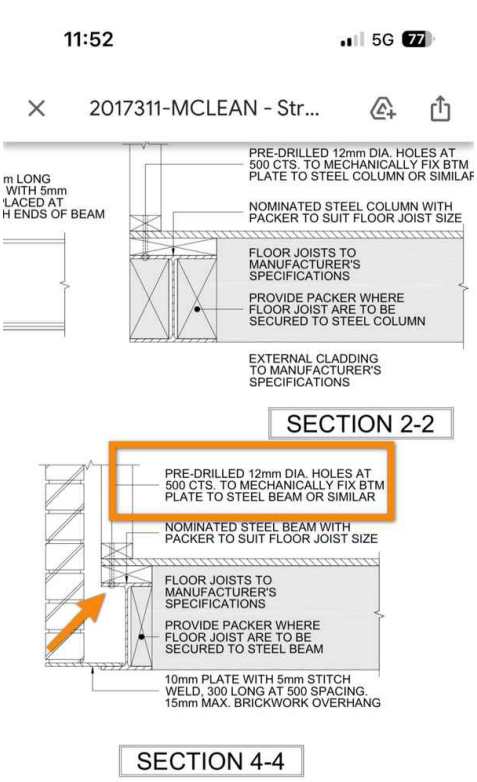
3: FLOOR FRAMES

Non-compliant

3.2.1 Fixings and anchors

INADEQUATE ANCHORS

Inadequate anchors between bottom plate and steel beam as required by the engineers plans. It is required to be Mechanically fixed at 500mm centres. Currently the bugles have been installed at 600mm centres with some not finished. This is common throughout the build. It is recommended these sections be bolted as the bugle may not reach the bottom plate.



3.2.2 Fixings and anchors

INADEQUATE NAILS IN HANGERS

Only 4 nails were installed on each side of the hanger. As per the manufactures guide, 6 nails should be installed on either side. Please see screenshot of the manufactures guide below.

PRODUCT CODE	MATERIAL	QTY	HEIGHT	WIDTH	FACE NAILS REQ. (TCS12-35 SCREWS REQ.)	TOP NAILS REQ. (TCS12-35 SCREWS REQ.)	1.2G + 1.5QF (DEAD & FLOOR LIVE) DESIGN CAPACITY, ΦNJ (KN) FOR SUPPORTING BEAM WITH JOINT GROUP		
							JD5	JD4	JD3
LF235/180	G300 Z275 Galvanised Steel	10	235	180	10 (6)	N/A	6.4*	7.8*	10.9*
LF235/90		25	235	90					
LF290/65		25	290	65	12 (8)		7.7*	9.3*	13.1*
LF290/70			288	70					
LF290/90			290	90					
LF300/45			296	46					
LF300/53			296	53					
LF350/90			350	90	14 (8)		8.8*	10.9*	14.2*

4: ROOF FRAMES

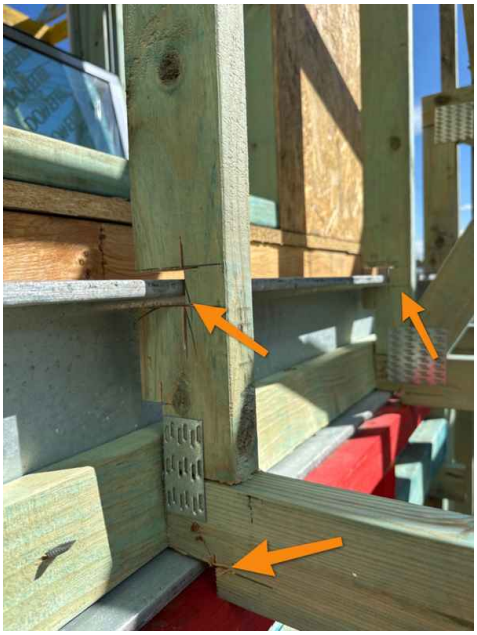
Non-compliant

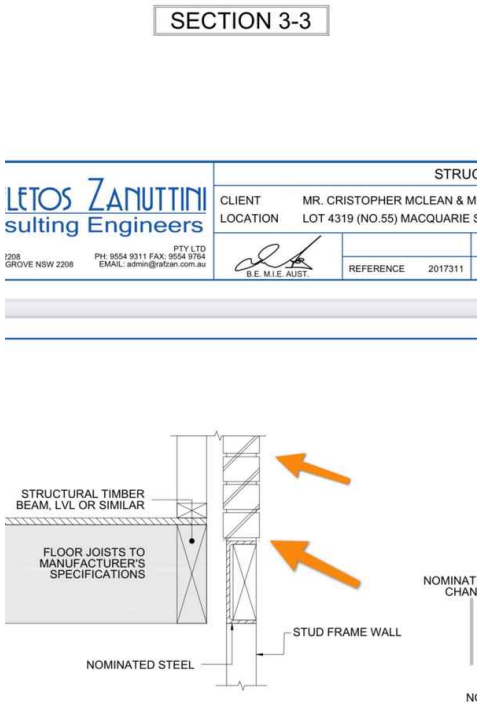
4.1.1 Trusses

TRUSSES CUT

Trusses have been notched out around a steel beam. Trusses should not be altered or notched out once on site. These trusses also appear to be installed in an incorrect position as they should not be cut around the beam. This beam is installed to provide support for the brick veneer wall. With the trusses in the way there is not enough room for bricks to be installed.

3.9 Truss modification - AS4440-2004
Under no circumstances shall a truss be modified by cutting, drilling, or by any other method that may interfere with its structural integrity, without being approved.

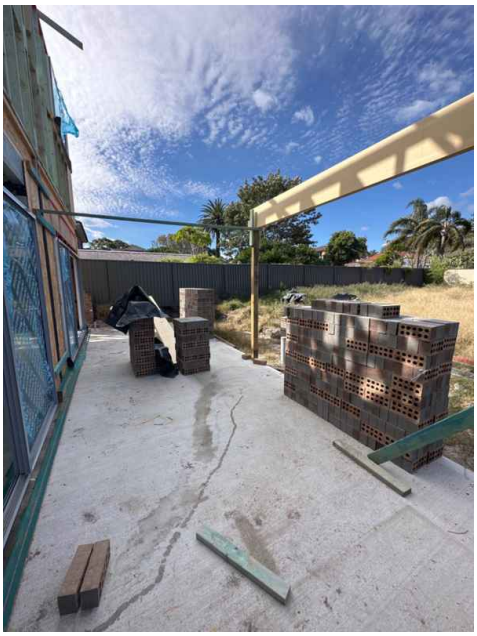


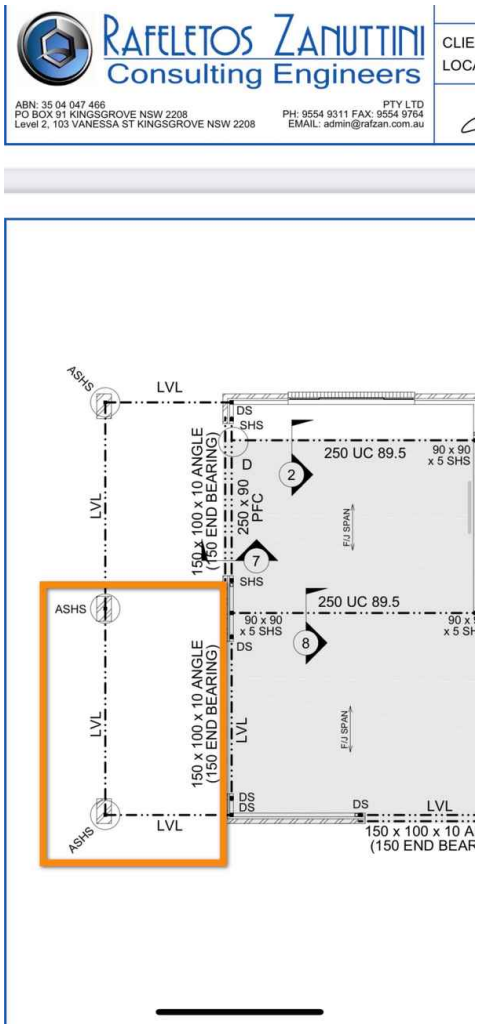


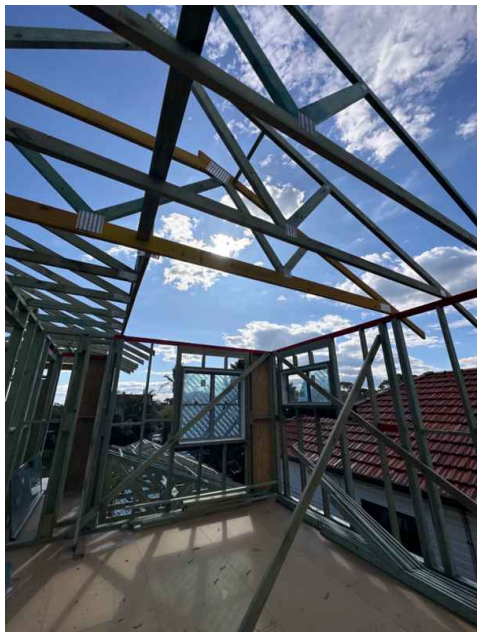
4.2.1 Incomplete

FRAMING INCOMPLETE

Some sections of framing are yet to be completed. It is recommended this be re-inspected once completed





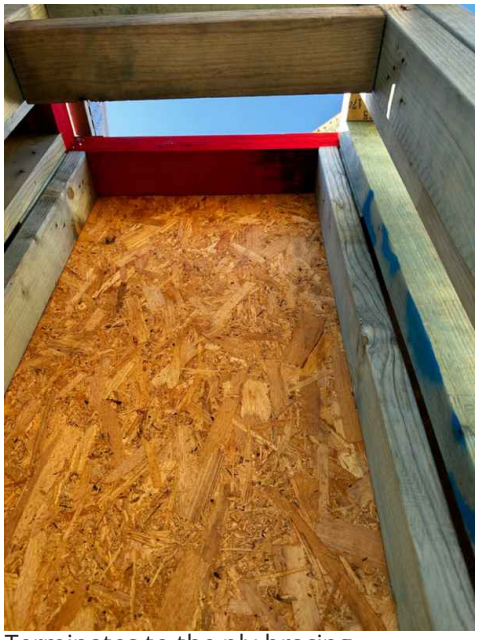


4.3.1 Bracing

ROOF BRACING TIE OFF

The roof bracing should termite to the underside of the top plate


Loose nails


Terminates to the ply bracing


Example of how it should be done

4.3.2 Bracing

TRUSS ANCHORS

Truss anchors have not been installed. Anchors should be installed on all connections between the trusses and the top plate. See table from AS1684.2:2002 below

Roof framing		
Roof trusses to top plates/ring beams	Standard trusses	See Clause 1.12; One framing anchor with three nails to each leg; OR 1/30 mm × 0.8 mm G.I. strap over truss with strap ends fixed to plate with 3/2.8 mm dia. nails plus 2/75 mm skew nails
	Girder trusses	In accordance with Clause 9.6.4

5: STEEL MEMBERS

Limitations

Joins, fixings and bearing

NO DETAIL FOR TYPICAL ADJUSTABLE STEEL POSTS

No detail provided for the typical adjustable steel posts. It is recommended this detail be provided to make sure installation is correct.

Non-compliant

5.1.1 Joins, fixings and bearing

INADEQUATE BEARING

Steel posts has inadequate bearing. The steel plates have excessive overhangs to the concrete slab. These area required to have full bearing on the slab. This should be assessed by the structural engineer to determine a solution.

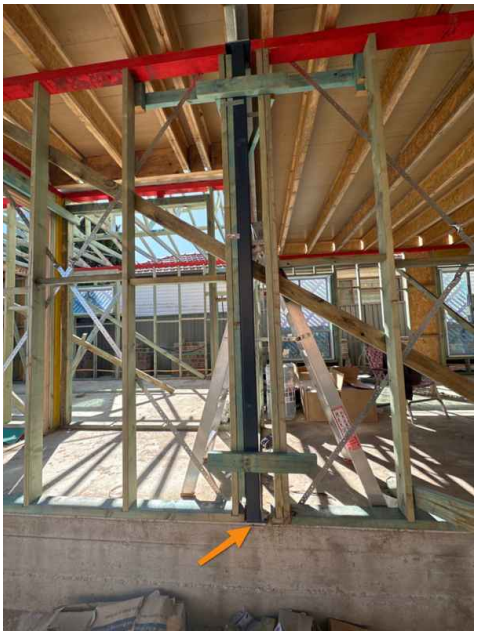



70mm overhang


Structural load not designed to bear on timber, this has been done as it appears the slab edge was poured short


45mm overhang from concrete slab with no fixings into the concrete slab


20mm over hang with only a single fixing

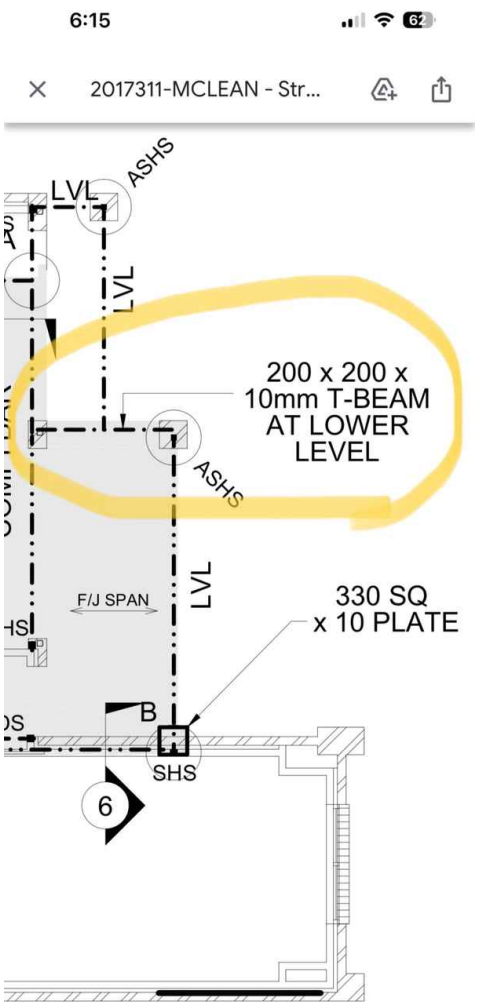


5.1.2 Joins, fixings and bearing

NOT INSTALLED

The plans shows a steel beam should be installed.

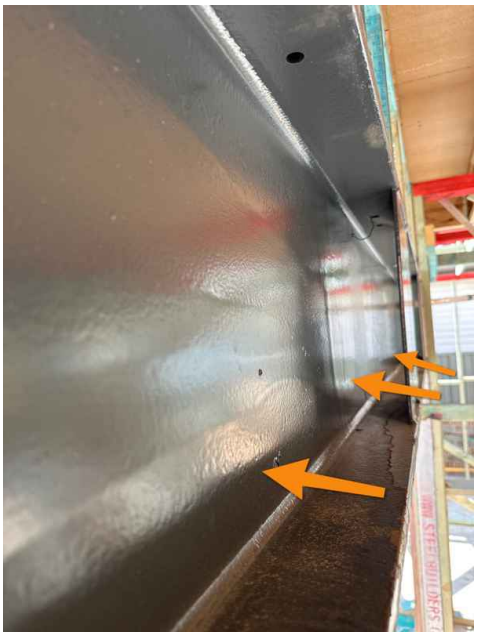
Plan shows a 200x200x10 T-beam should be installed around the highlighted area. No section or drawings available to show how this connects.

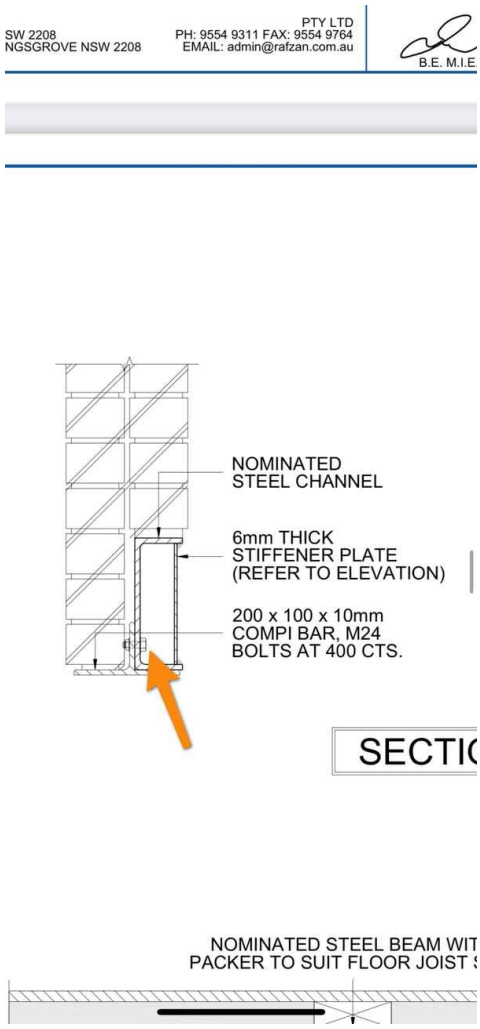


5.1.3 Joins, fixings and bearing

NO BOLTS INSTALLED

The engineers documents specify M24 bolts at 400 centres. These have not been installed.

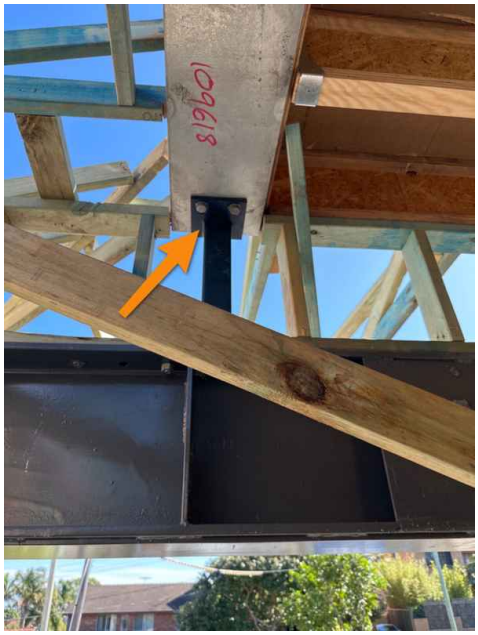




5.1.4 Joins, fixings and bearing

INCORRECT PLATE

The engineer plans specify a 200mm long 10mm thick plate. What has been installed is inadequate



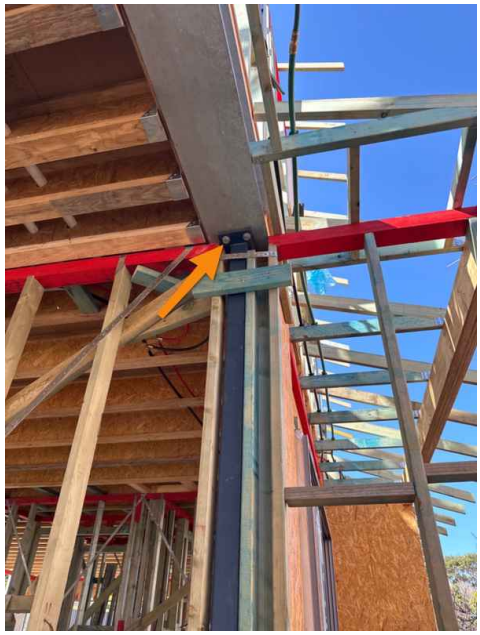
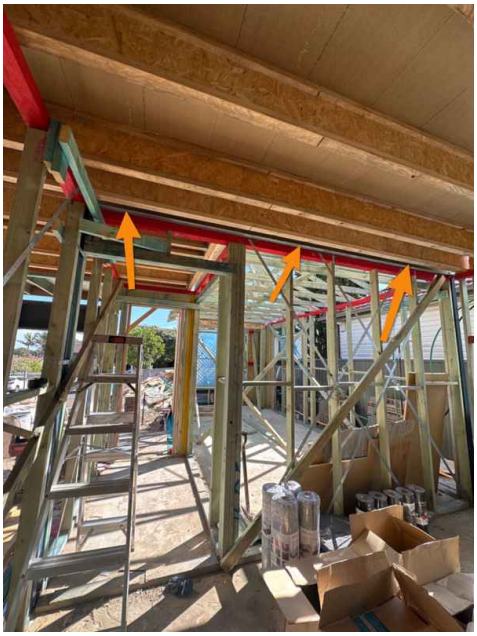


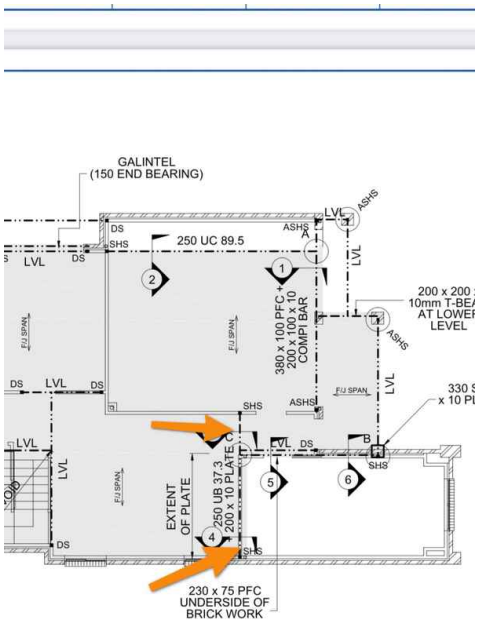
Plate is only 150mm

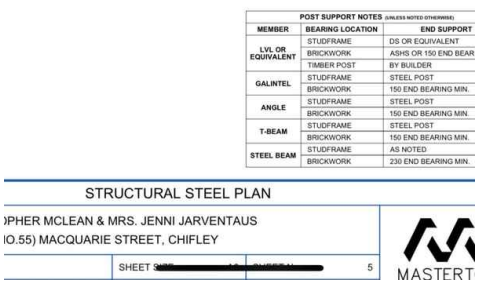
5.1.5 Joins, fixings and bearing

INCORRECT BEAM

The engineers plans show a 250UBx200x10 installed. What has been installed is a 250UBx150x10







POST SUPPORT NOTES (UNLESS NOTED OTHERWISE)		
MEMBER	BEARING LOCATION	END SUPPORT
LVL OR EQUIVALENT	STUDFRAME	DS OR EQUIVALENT
	BRICKWORK	ASHS OR 150 END BEAR
	TIMBER POST	BY BUILDER
GALINTEL	STUDFRAME	STEEL POST
	BRICKWORK	150 END BEARING MIN.
ANGLE	STUDFRAME	STEEL POST
	BRICKWORK	150 END BEARING MIN.
T-BEAM	STUDFRAME	STEEL POST
	BRICKWORK	150 END BEARING MIN.
STEEL BEAM	STUDFRAME	AS NOTED
	BRICKWORK	230 END BEARING MIN.

STRUCTURAL STEEL PLAN

)PHER MCLEAN & MRS. JENNI JARVENTAUS
)O.55) MACQUARIE STREET, CHIFLEY

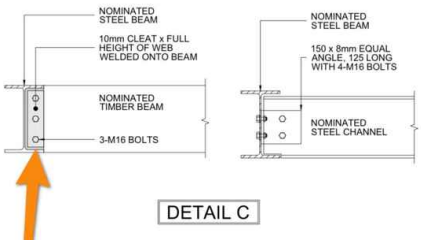
SHEET [redacted] 5

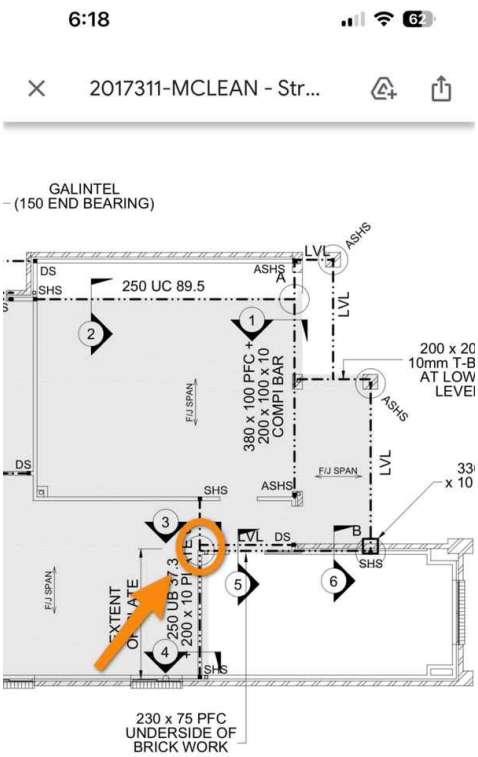
MASTERT

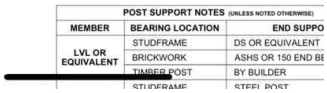
5.1.6 Joins, fixings and bearing

INCORRECT CONNECTION

The connection between the steel beam and the timber does not match the engineers plans. The plate should be the full height of the steel beam web and and 3xM16 bolts installed as per the drawings



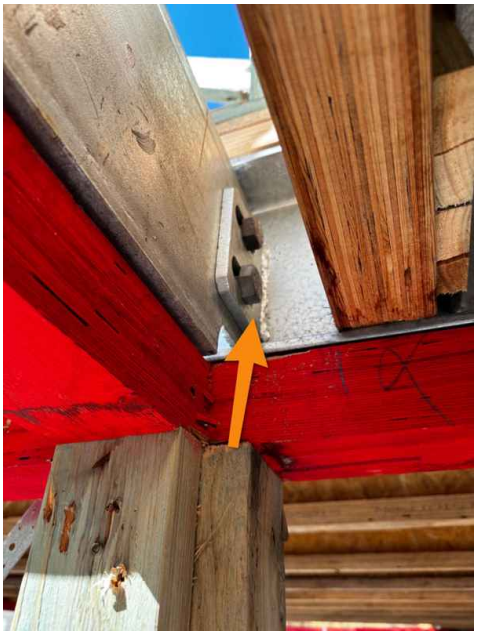


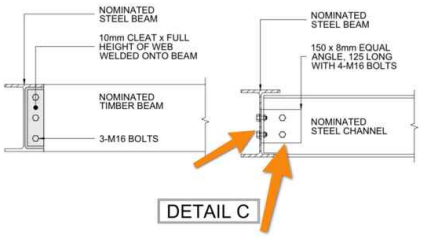


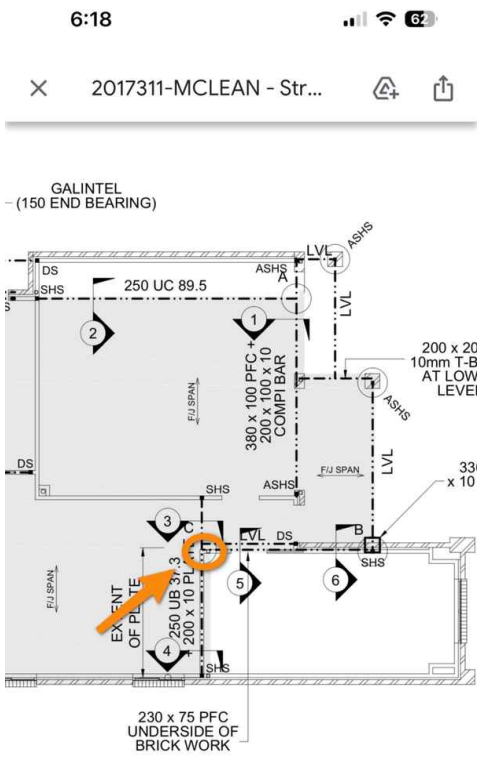
5.1.7 Joins, fixings and bearing

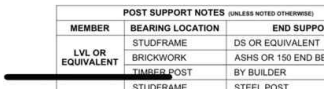
INCORRECT CONNECTION 2

The connection between 2 steel beams doesn't not follow the engineers documentation. Currently there is only a single plate 100mm long. It is required that a 125mm EQUAL ANGLE be installed as per drawings.





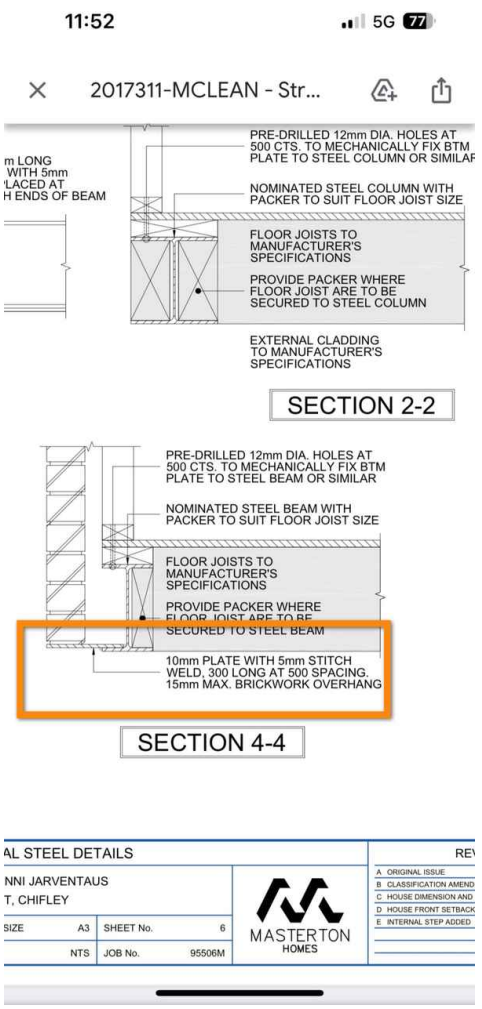


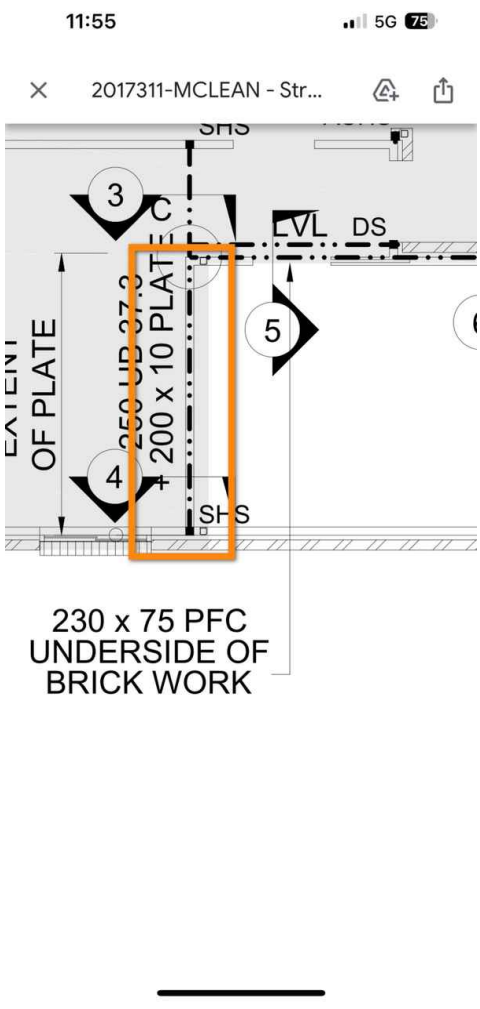


5.1.8 Joins, fixings and bearing

WELDING

Welding does not following the engineers plans. Plans show welds should be 300mm long at 500mm spacing





5.1.9 Joins, fixings and bearing

REQUIRES STRUCTURAL GROUT

Steel post is sitting on plastic packers. It is required this be replaced with structural grout.

Structural grout and addition bolts require

5.1.10 Joins, fixings and bearing

BOLTS MISSING

Bolts are missing from steel plates on almost all connections. This significantly weakens the tie down capacity of the structure.

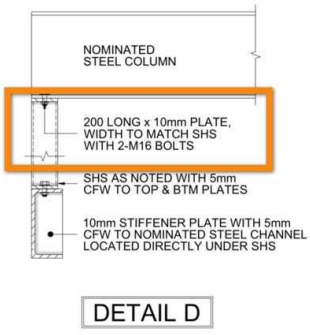
5.1.11 Joins, fixings and bearing

BEAM INADEQUATE BEARING

Steel beams has inadequate bearing according to the engineers plans. The engineer needs to assess these areas and provide updated documentation and solutions before proceeding.

Post plate has been cut short and now only allows a single bolt

Beam should have 200mm of bearing. Currently the last packer is only 100mm wide. This connection is not as it specified by the engineers drawings



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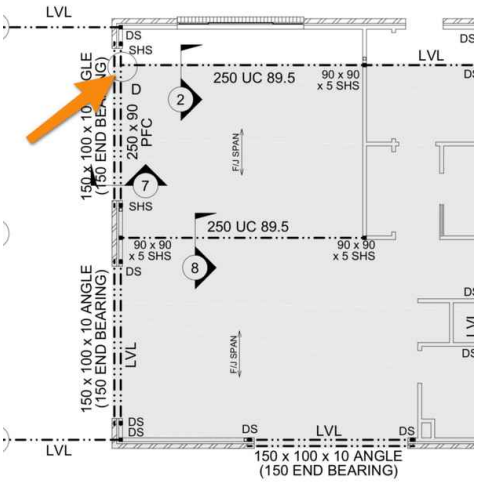

6: TERMS, CONDITIONS & DISCLAIMERS

STANDARDS OF PRACTICE

Terms, Conditions & Disclaimers

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.

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 1200mm 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

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9. Report Reproduction

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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. Homesafe Inspections PTY LTD 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.

12. NCAT Suitability

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