

Dwelling type: Dwelling configuration: Nature of works: Stage of inspection: Construction Type: Garage: Foundations: Builder: House and Garage. Single Story. New Building. Frame. Brick Veneer. Attached. Slab. Details hidden for privacy

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.

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.

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.

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 bottom of this page.

Please note: <u>A fee of \$225.00 per hour</u>, 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 XXXXXXX P/L and the builder.

An inspection was conducted at the above address on 04/08/2014 for the purpose of a general home inspection, requested by the client.

The inspection was conducted with the client present, and details exterior and interior.

The weather was fine and mild 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, <u>section 17</u> and 19. We act and make limited representations under the direction of the dwellings owners under these two acts.

Schedule of Defects:

Defects, observations and other related comments:

1. There is frame overhang to the slab edge of between 20 to 30 mm in various positions around the home. These areas have been highlighted with pink spray paint.

The Building Commission's Guide to Standards and Tolerances clause 4.08 Bottom Plates that Overhang Concrete Slabs, states 'Bottom plates that are at least 90mm wide and overhang concrete slabs are defective. An overhang of up to 10mm is permissible'.

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.





2. I checked a large number of intersecting wall block connections and noted that none had been nailed off.

Most builders leave this until lock up stage so that the walls can be easily straightened and plumbed at the connections, however the framing Standard requires this to be done to pass frame inspection.

It is my recommendation that the builder as a minimum secure all external walls only as per the Australian Standard at this time and this will allow the lockup carpenter to accomplish his task to all internal walls.

I refer all to AS 1684.2, clause 6.2.1.3.

6.2.1.3 Wall junctions

Studs at wall junctions and intersections shall be in accordance with one of the details shown in Figure 6.3. Studs shall be not less in size than common studs. All junctions shall have sufficient studs, which shall be located so as to allow adequate fixing of linings.

All intersecting walls shall be fixed at their junction with blocks or noggings fixed to each wall with 2/75 mm nails. Blocks or noggings shall be installed at 900 mm max. centres.



3. The dwelling has numerous 'short wall' sheets of hard board bracing ply measuring less than 900 mm.

As per the AS1684 bracing guidelines any type 'D or E' short wall bracing below 900mm in width is required to be screw fixed at its outer most corners top and bottom with M10 x 50mm screws. Or alternatively two full lengths of M12 treaded vertical rods.

Type A, B or C bracing cannot be any less than 900mm in width, if the sheeting is less than 900mm then it is to be installed as type 'D & E' short wall bracing and has to be installed as per section (n) of table 8.18.

The fact that the engineering does not detail how to attach Type 'D or E' short wall bracing does not mean it can be fixed as other standard bracing Type A, B or C.

The builder will need to install the corner bolts (type D) or full length threaded rods (type E) as per the AS 1684 - (n) 8.18 requirements

If the braced walls are less than 460mm then technicality these standards do not apply. The builder should apply an alternative engineered solution to this wall bracing width.

- (1) Hardboard Type A Hardboard shall comply with AS/NZS 1859.4. Hardboard shall be nailed to frame using minimum 30 × 2.8 mm Ø galvanized flat-head nails or equivalent. Nails shall be located a minimum of 10 mm from the vertical edges and 15 mm from the top and bottom edges. Maximum stud spacing - 600 mm. Bracing panel minimum width - 900 mm.
- (m) Hardboard Types B and C Hardboard shall comply with AS/NZS 1859.4.
 Hardboard shall be nailed to frame using minimum 30 × 2.8 mm Ø galvanized flat-head nails or equivalent.

Nails shall be located a minimum of 10 mm from the vertical edges and 15 mm from the top and bottom edges. Maximum stud spacing – 600 mm. Bracing panel minimum width – 900 mm.



TABLE 8.18 (continued)



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4. The wall at the meter box has studs spaced at 700mm. The maximum allowed stud spacing in the AS1684 standards is 600mm centres.



5. The 90 x 35 pine lintel above this meter box showing visible deflection directly under the girder trusses.

This double girder also intersects the main girder across the home.

This load point is carrying a very large amount of roof weight and will require a lintel much heavier than is currently installed.

The builder will need to justify this new lintel installation with reworked engineering documentation.



6. The timber frame wall at the meter box will need the installation of noggins at the bottom and top of the box to comply with the 1350 maximum spacing requirement.

I refer the builder to AS 1684.2, clause 6.2.1.5 which calls for all noggings to be installed at no greater than 1350 mm from top or bottom plate and no greater than 1350 centres.

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 6.6).

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 25 mm thick, or the nogging shall have a minimum cross-section of $50 \text{ mm} \times 38 \text{ mm}$ for unseasoned timber and $42 \text{ mm} \times 35 \text{ mm}$ 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 6.6 NOGGING



7. The timber sheet bracing installation is a vital structural member in the overall build of the dwelling. It stops the house from moving when racking forces, such as wind, are applied to a dwelling.

The installation of the timber sheet bracing on this house is defective for the following reasons:

- Many of the clouts fastening the sheet bracing have been over punched. When these clouts are punched so far into the sheet bracing it makes the fastening ineffective. Extra clouts will need to be installed to comply with the AS2684.2 bracing guidelines.
- The outer sheet edge must be secured at a maximum of 150 centres. This dwellings installation fails that requirement.
- The central studs must all be nailed off at 300 mm centres maximum. This has not been done.
- Complete or part lengths of the sheet have not been nailed off at all.
- Some of the intermediate studs have not been nailed off and as such the nailing is spaced at more than the allowed 600mm spacing.
- Some of the perimeter nailing is within the 10mm minimum distance from the edge of the sheet.

I refer the builder to AS 1684.2, table 8.18 on page 143. The requirements stated above are clearly defined and must be rectified prior to moving forward with the dwelling.



NOTE: For plywood fixed to both sides of the wall, see Clauses 8.3.6.5 and 8.3.6.10.





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8. Some of the angle braces and speed braces have only a single clout or none at all at the studs.

Two clouts are required at top and bottom plate and <u>each</u> stud for correct securing of the braces as per AS1680.2 - 2006





9. The LHS of the home has concrete boxing excess of approximately 25mm.

The edges of the floor slab have not been correctly boxed up prior to being poured, which has resulted in it protruding out past the pine wall frame by up to 25mm which will significantly reduce the required 40mm cavity width across to the back of the brickwork and compromise its ability to drain any water and moisture that collects in it away from the timber wall framing.

Part 3.3.4.2 Width of Cavity of the BCA/NCC, requires that 'In brick veneer construction, a cavity of not less than 25mm width must be provided between the inner and outer walls and the minimum cavity width is to be maintained between the outer masonry leaf and any services, insulation, sheet bracing or other element located within the cavity'. Additionally, the relevant Australian Standard, A.S.3700-2001 Masonry Structures, clause 11.4.13 Cavities in Walls, requires that 'Cavities shall be free from mortar droppings or other materials that might bridge the cavity and allow transmission of moisture'.

The builder should therefore, after consultation with the slabs design engineer, carefully trim back the edges of the slab to achieve the required minimum 25mm cavity width, at least down to below the damp-proof course/cavity flashing. Consideration should be given to not exposing the edge of the steel reinforcement or reducing its side cover; not reducing the throat of the edge beam; and also to any protrusion that may exist on the lower edge of the rebate out past the future finished face of the brickwork.





10. The polyethylene vapour barrier from beneath the concrete floor slab has not been turned up the external side faces of its edge beams. It must be prior to them being back filled up against, which will allow moisture ingress via slab edge dampness into the internal timber wall skins and/or the floor coverings if not done.

I refer the builder to the recent VCAT ruling on this type of defect by Senior Member Mr. Walker in VCAT case Zalega Vs Clarendon Homes (D217/2011) that ruled that also commented on this issue. See section 47 of that ruling.

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



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.

I also refer the builder to a recent Victorian Building Commission ruling on this defect (Dec 2011). That ruling is binding and states that the Vapour Barrier must be installed. See inserted below.

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nema		2600	e u

Item number

1

Description of item in dispute

seachibile	in or item in a	ispute	
Vapour	barrier - no	t extended t	to around level

Contract	Building Code of Austra	alia	Australian Standard		
Structural Engineering drawing No. 3	Clause 3.2.2.6(c)				
Guide to Standards and Tolerances		Other	n ar haran faraith in		
		Blanked out for	or privacy reasons		

- The vapour barrier under the reinforced concrete waffle slab finishes at the bottom of the edge beams.
- The typical Edge Beam detail on the Structural Engineering drawing shows the vapour barrier finishes up the side edge of the edge beam to the finished ground level.
- 4) The letter from Structural Works provides a detail showing the vapour barrier terminating at the bottom of the edge beam. The letter states that they are satisfied with this detail. However they do not refer to the requirement of the placement of the vapour barrier in the BCA.
- 5) The BCA states 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.
- 6) This is a defect because the vapour barrier does not extend under the edge beam to finish at ground level as required in the BCA.

Is the work of the builder defective?	Yes
Is building work recommended?	Yes

Building work recommended to rectify defective work of the builder

Extend the vapour barrier around the perimeter of the building so it finishes at ground level as shown in Figure 3.2.2.3 of the BCA.

The following is an approved rectification for this defect.

This is out of the Concrete Institute of Australia's current practice note on how to deal with slab edge dampness post construction and looks fairly easy to achieve. Note it is for a Waffle Pod Footing.







11. Garage - the front lintel support studs are currently overhanging the slab edge by about 30 mm.

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.



12. I was able to detect a small number of walls on the dwelling that exceeded the allowance of 4 mm tolerance over 2 m. These walls have been marked up with paint and OOP (out of plumb) painted on the floor.

As stated, the acceptable allowance is 4 mm over 2 m. The 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 on page 11.

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 meets 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

	Level	s 3 and 4	Level 5		
Substrate type	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	







13. Theatre - The robe opening measures at 3210mm and as such will require installation of a larger lintel than currently installed.

AS 1684.2-2010 states that when openings in NON-LOADBEARING WALLS over 1800mm occur, both internal and external, a lintel shall be installed and the size of the lintel will be determine by table 23, based on the top plate.

All openings over 1800mm will need to be fitted with lintels to comply with the code.

I refer the builder to the above standards book, page 79, section 6.3.6.5 second paragraph. Please note pictures and insert of the code directly from the book.

6.3.6.5 Lintels in non-loadbearing walls

The size of lintels in internal walls supporting ceiling joists only, or supporting hanging beams, shall be determined by using the hanging beam Span Table 23 (see Clause 7.3.7) or the counter beam (beams supporting hanging beams) Span Table 24 (see Clause 7.3.8) for these two applications respectively.

For internal walls where ceiling loads are not supported and wall openings are wider than 1800 mm, the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

Where wall openings wider than 1800 mm occur in non-loadbearing external walls, a lintel shall be provided and the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

5 1684.2 N1/	N2 Supp 8 -	2010		Wind classif	cation N1/N2	- Seasoned h	ardwood - Str	ess grad
TABLE	23	н	ANGING E	BEAMS - S	upporting	g ceiling l	oads	
	1			Ceiling Loa	d Width (mm)			
Size DxB	1800	2400	3000	3600	4200	4800	5400	6000
(mm)				Maximum B	eam Span (m	m)		
90x35	2300	2100	1900	1700	1600	1500	1400	1400
90x45	2500	2200	2000	1900	1800	1600	1600	1500
120x35	3100	2700	2500	2300	2200	2000	1900	1800
120x45	3300	3000	2700	2500	2300	2200	2100	2000
140x35	3500	3200	2900	2700	2500	2400	2200	2100
140x45	3800	3400	3100	2900	2700	2600	2400	2300
170x35	4300	3800	3500	3300	3100	2900	2700	2600
170x45	4600	4100	3800	3500	3300	3100	2900	2800
190x35	4700	4300	3900	3600	3400	3200	3000	2900
190x45	5100	4600	4200	3900	3700	3500	3300	3100
240x35	5900	5300	4900	4600	4300	4000	3800	3600
240x45	6300	5700	5300	4900	4600	4400	4100	3900
290x35	7000	6400	5900	5500	5100	4800	4600	4400
290x45	7200	6800	6300	5900	5500	5200	5000	4700

NOTES:

i)

ii) iv)

V) VI)

ES: Maximum spans are based on the support of a maximum ceiling mass of 12 kg/m². For guidance on roof and ceiling mass refer to Appendix B. Beam ends may be chamfered to a minimum depth of 100 mm or 1/3 of the beam depth, which ever is greater. Where ceiling joist spans are not the same each side of the beam, the average of the spans may be used. Roof load is shall not be strutted onto hanging beams. Merimum bearing length = 70 mm et and supports. Where the depth to bread thrate exceeds 7:1, GJ, strapping or similar restraint shall be provided to the top edge of the beam at support points. Refer to Clause 7.2.26. Ever devine parts refer to Elicine 7.20. vi)

vii) For design parameters refer to Figure 7.20.



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14. Theatre - the head of timber has not been installed to the internal lower side of the lintel, and as a result there is no support for plaster.



15. Living - The F17 lintel does not have a top plate carrying over the top of it as per AS1684.2 framing requirements.

The lintel is setup at a height that does not allow for the top plate to carry over the top of the lintel. The installed lintel could have been installed with a 35 mm top plate and enough room for the opening height below.

What the builder has caused is a point loading to a concentrated point at each truss connection. Having a top plate installed shares that point load over a more even surface.

This type of lintel installation creates a weak point in the frame. With wind loads can cause truss deflection and this can later lead to plaster cracking at these weakened points. AS per AS1684.2 - 2006, 6.3.6.1 the builder will need to install the top plate, or provide an engineered solution that will strengthen this junction point to alleviate ongoing plaster maintenance issues.

6.3.6 Lintels

6.3.6.1 General

Top plates shall be provided above lintels.

Adequate bearing for lintels shall be provided as required by the Notes to the Span Tables given in the supplements.



16. Living - the head trim has not been installed to the internal lower side of the lintel, as a result there is no support for plaster.



17. Laundry - The robe opening measures at 4270mm and as such will require installation of a larger lintel than currently installed.

AS 1684.2-2010 states that when openings in NON-LOADBEARING WALLS over 1800mm occur, both internal and external, a lintel shall be installed and the size of the lintel will be determine by table 23, based on the top plate.

All openings over 1800mm will need to be fitted with lintels to comply with the code.

I refer the builder to the above standards book, page 79, section 6.3.6.5 second paragraph. Please note pictures and insert of the code directly from the book.

6.3.6.5 Lintels in non-loadbearing walls

The size of lintels in internal walls supporting ceiling joists only, or supporting hanging beams, shall be determined by using the hanging beam Span Table 23 (see Clause 7.3.7) or the counter beam (beams supporting hanging beams) Span Table 24 (see Clause 7.3.8) for these two applications respectively.

For internal walls where ceiling loads are not supported and wall openings are wider than 1800 mm, the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

Where wall openings wider than 1800 mm occur in non-loadbearing external walls, a lintel shall be provided and the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

and the second										
TABLE 2	3		HANGING BEAMS – Supporting ceiling loads							
Size DuB	•	Ceiling Load Width (mm)								
(mm)	1800	2400	3000	3600	42.00	4800	5400	6000		
touny			Maximum Beam Span (mm)							
90x35	1400	1300	1300	1200	1200	1100	1100	1000		
90x45	1900	1700	1600	1500	1400	1400	1300	1200		
120x35	2600	2200	2000	1900	1800	1700	1600	1600		
120x45	3000	2700	2400	2200	2100	2000	1800	1800		
140x35	3200	2900	2600	2400	2200	2100	1900	1800		
1.40x45	3500	3100	2800	2600	2400	2300	2200	2100		
170x35	3900	3500	3200	2900	2700	2500	2300	2200		
170x45	42:00	3800	3400	3200	3000	2800	2600	2500		
190x35	4300	3900	3500	32.00	3000	2700	2600	2400		
190x45	4700	4200	3800	3500	3300	3100	2900	2700		
240x35	5400	4900	4300	3900	3600	3300	3100	2900		
240x45	5800	5200	4800	4400	4100	3800	3500	3300		
290x35	6500	5600	5000	4500	4200	3900	3600	3400		
290x45	6900	6300	5600	5100	4700	4400	4100	3800		

NOTES:

Maximum spans are based on the support of a maximum ceiling mass of 12 kg/m2. For guidance on roof and ceiling mass refer to Appendix A.

Beam ends may be chamfered to a minimum depth of 100 mm or 1/3 of the beam depth, whichever is greater.

Where ceiling joist spans are not the same each side of the beam, the average of the spans may be used.

Roof loads shall not be strutted onto hanging beams. Minimum bearing length = 70 mm at end supports. v)

vð

Where the depth to breadth ratio exceeds 7:1, G.I. strapping or similar restraint shall be provided to the top edge of the vi) beam at support points. Refer to Clause 7.2.26.

vii) For design parameters refer to Figure 7,20



18. Laundry - the sliding door frame has been installed protruding more than 20 mm inside the wall frame line.

The builder will need to rework this door installation to 10 mm inside of the timber frame.



19. General - many of the window openings are excessively high and are presenting with a large gap above the windows and doors.

The builder will need to install trimming timbers underneath the lintels as support for plaster and architraves.

Keeping in mind the necessity for a 20 mm gap as per the window manufacturer's installation instructions.



20. Bathroom - The bath waste recess is showing waffle pod Styrofoam and the steel reinforcement.

The builder will need to termite proof this hole in the slab before patching the concrete.

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The builder will also need to supply an amended termite certificate to the owner that certifies the compliance of this rectification.



21. Kitchen - The bulkhead has been constructed without a lintel.

The builder will need to support this opening with a lintel installation that complies with AS 1684.2 Clause 6.2.5.2 inserted below.

6.2.5.2 Internal walls—Trussed roofs

Non-loadbearing walls shall be kept a minimum of 10 mm below the underside of the bottom chord, or ceiling battens when used. Trusses shall be fixed to internal non-loadbearing walls as shown in Figure 6.11, or as required for bracing (see Clause 8.3.6.9).



FIGURE 6.11 FIXING OF TRUSSES TO A NON-LOADBEARING INTERNAL WALL

6.3.6.5 Lintels in non-loadbearing walls

The size of lintels in internal walls supporting ceiling joists only, or supporting hanging beams, shall be determined by using the hanging beam Span Table 23 (see Clause 7.3.7) or the counter beam (beams supporting hanging beams) Span Table 24 (see Clause 7.3.8) for these two applications respectively.

For internal walls where ceiling loads are not supported and wall openings are wider than 1800 mm, the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

Where wall openings wider than 1800 mm occur in non-loadbearing external walls, a lintel shall be provided and the size of the lintel shall be determined from Span Table 23 using a ceiling load width of 1800 mm.

I also refer the builder to the second requirement in the Australian Standards A.S. 4440 Installation of Nail-plated Timber Roof Trusses, state in section 2.2.2 Non Load-bearing Walls, that 'Non load-bearing walls, as designated, shall not carry any truss loading and shall not be packed to touch the underside of trusses (see Figure 2.1)'.



FIGURE 2.1 LOADBEARING AND NON-LOADBEARING WALLS

A.S. 4440 Installation of Nail-plated Timber Roof Trusses, also state in Appendix B2 Camber, that '*Trusses are built with camber to allow for the initial deflection at the take up of load and some creep (i.e. long-term deflection) as the timber settles*'.

TABLE 2	3		HANGING	BEAMS -	- Supportin	ig ceiling lo	bads	
Size DyB				Ceiling Load	Width (mm)			
(mm)	1800	2400	3000	3600	4200	4800	5400	6000
(mm)		a second		Maximum Bea	m Span (mm)			
90x35	1400	1300	1300	1200	1200	1100	1100	1000
90x45	1900	1700	1600	1500	1400	1400	1300	1200
120x35	2600	2200	2000	1900	1800	1700	1600	1600
120x45	3000	2700	2400	2200	2100	2000	1800	1800
140x35	3200	2900	2600	2400	2200	2100	1900	1800
140x45	3500	3100	2800	2600	2400	2300	2200	2100
170x35	3900	3500	3200	2900	2700	2500	2300	2200
170x45	4200	3800	3400	3200	3000	2800	2600	2500
190x35	4300	3900	3500	3200	3000	2700	2600	2400
190x45	4700	4200	3800	3500	3300	3100	2900	2700
240x35	5400	4900	4300	3900	3600	3300	3100	2900
240x45	5800	5200	4800	4400	4100	3800	3500	3300
290x35	6500	5600	5000	4500	4200	3900	3600	3400
290x45	6900	6300	5600	5100	4700	4400	4100	3800

NOTES:

 Maximum spans are based on the support of a maximum ceiling mass of 12 kg/m². For guidance on roof and ceiling mass refer to Appendix A.

ii) Beam ends may be chamfered to a minimum depth of 100 mm or 1/3 of the beam depth, whichever is greater.

iv) Where ceiling joist spans are not the same each side of the beam, the average of the spans may be used.

v) Roof loads shall not be strutted onto hanging beams.
 vi) Minimum bearing length = 70 mm at end supports.

vi) Minimum bearing length = 70 mm at end supports.
vi) Where the depth to breadth ratio exceeds 7:1, G.I. strapping or similar restraint shall be provided to the top edge of the beam at support points. Refer to Clause 7.2.26.

vii) For design parameters refer to Figure 7.20.



22. The concrete slab floors were checked using a 2.00m level. The majority of the floors are well within tolerance but a few are right on the 4 mm allowance.

2.08 Levelness of timber and concrete floors

Except where documented otherwise, new floors are defective if within the first 24 months they differ in level by more than 10 mm in any room or area, or more than 4 mm in any 2 m length. The overall deviation of floor level to entire building footprint shall not exceed 20 mm. Refer to clause I of this *Guide* where the new floor is to join an existing floor.

If the builder is installing large porcelain tiles or floating timber floors then the 4 mm tolerance is not sufficient to allow a perfectly flat floor area and as such further works will need to be carried out.





23. Bedroom three - the WC vanity waste pipe has been installed within bedroom three.

The builder will need to rework this plumbing installation to within the wall frame line, in a matter that does not interfere with carpet and skirtings in bedroom three.



24. Living - the trusses have been installed as load-bearing over the centre wall.

The trusses do not show any form of web support as per normal load-bearing truss designs.

That truss supplier will need to substantiate this truss design and current installation.



25. The central girder truss has been installed over the centre wall as load-bearing.It does not have double studs installed beneath this load bearing girder station.



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26. LHS - the plan documents show a central silt pit to the aggie drain at the side of the property.

This central silt pit has not been installed as yet.



27. LHS - The AG drain system installed by the builder protecting my clients dwelling from surface water runoff is non-functional in this position.

It appears that during the build the drain has been sealed by the site cleaners spreading and moving of soils.

The builder must dig through the soil and reinstate the AG rock to the surface level.

The AG drain system must be fully functional prior to handover. Please note that it is now on record that this protective drainage system was blocked during the time that the builder had possession and control of the site.

I refer the builder and my client to the soil report and reason why the AG drain had to be installed which clearly defines that site water management during construction is important to the longevity of the foundations. As stated above, that system has not been maintained.



28. Garage - the plans show a single downpipe to the garage rear internal corner.

The builder has installed two downpipes being about 3 m apart. The builder will need to rework this installation to a single downpipe as per the plans.



29. Ensuite - the plans stipulate frosted glass to the ensuite windows.

This has only been done to the upper panes of glass as there is still clear glass to the lower fixed panel.

The builder will need to install the correct glass to the lower panel.



Rectification Required YES

TERMS & CONDITIONS OF XXXXXXX P/L 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. 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 XXXXXXX P/L 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. XXXXXXX P/L 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. VCAT Suitability

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