

CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS & CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS ASSESSMENT SUMMARY

The assessment activities for *CPCCBC4010B Apply structural principles to residential low rise constructions* & *CPCCBC4011B Apply structural principles to commercial low rise constructions* cover all aspects of the unit of competency required. To demonstrate competence in this unit, a participant must undertake all tasks and complete them satisfactorily and consistently. For Apprentices and Trainees, this includes employer completion of the Employer Record Book (ERB).

Participants must read all the information given before starting any assessment task. The assessment tasks are intended to be equitable, fair and flexible. If a participant has any questions or requires alternative arrangements to be made such requests should be directed to their Trainer/Assessor, who should note such arrangements in the 'Assessor Comments' on the affected assessment. If a participant feels they are not yet ready to be assessed, they should discuss their options with their Trainer/Assessor.

To satisfactorily complete the assessment, the participant is required to answer all questions correctly and demonstrate their skills to industry standards. If a participant does not answer some questions or perform some tasks, they will be deemed 'Not Satisfactory' for the task and 'Not Yet Competent' for the unit of competency. The Trainer/Assessor is able to provide the participant with additional information on interpreting the assessment outcomes and provide guidance on the participant's options. Should a participant still be deemed 'Not Satisfactory' they will have the opportunity to undertake a supplementary assessment or appeal the result.

By signing the cover page for each assessment item, the participant acknowledges they understand the assessment instructions and requirements and consent to being assessed. The participant also verifies and assures the RTO that the work submitted is their own work.

Participant Name	Gordon Pirret
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Task	Assessment Results	
Theory Exam	☐ Satisfactory	☐ Not Yet Satisfactory
Practical Assessment	☐ Satisfactory	☐ Not Yet Satisfactory
Outcome for CPCCBC4010B	☐ Competent	☐ Not Yet Competent
Outcome for CPCCBC4011B	☐ Competent	☐ Not Yet Competent

Assessor Name	
Assessor Signature	
Unit Competence Determination Date	Click here to enter a date.

CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS & CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS

THEORY EXAM INSTRUCTIONS

- This exam will occur under standard assessment conditions.
 - An oral examination may be allowed under certain circumstances, whereby the Participant's answers will be documented by a party other than the Participant. This must be acknowledged in writing (e.g. FT001 and Assessor Comments)
- Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
- Please fill in the details below, providing your name, signature and date of assessment.
 - Your signature acknowledges that this is your own work.
- Assessors are to complete marking in pen of a different colour to the Participant.
- If a Participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
 - If a Participant changes their response in writing, they must put their initials next to the written change.
 - If a Participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name

Gordon Pirret

Participant signature



Date

18th March 2020

Assessor name

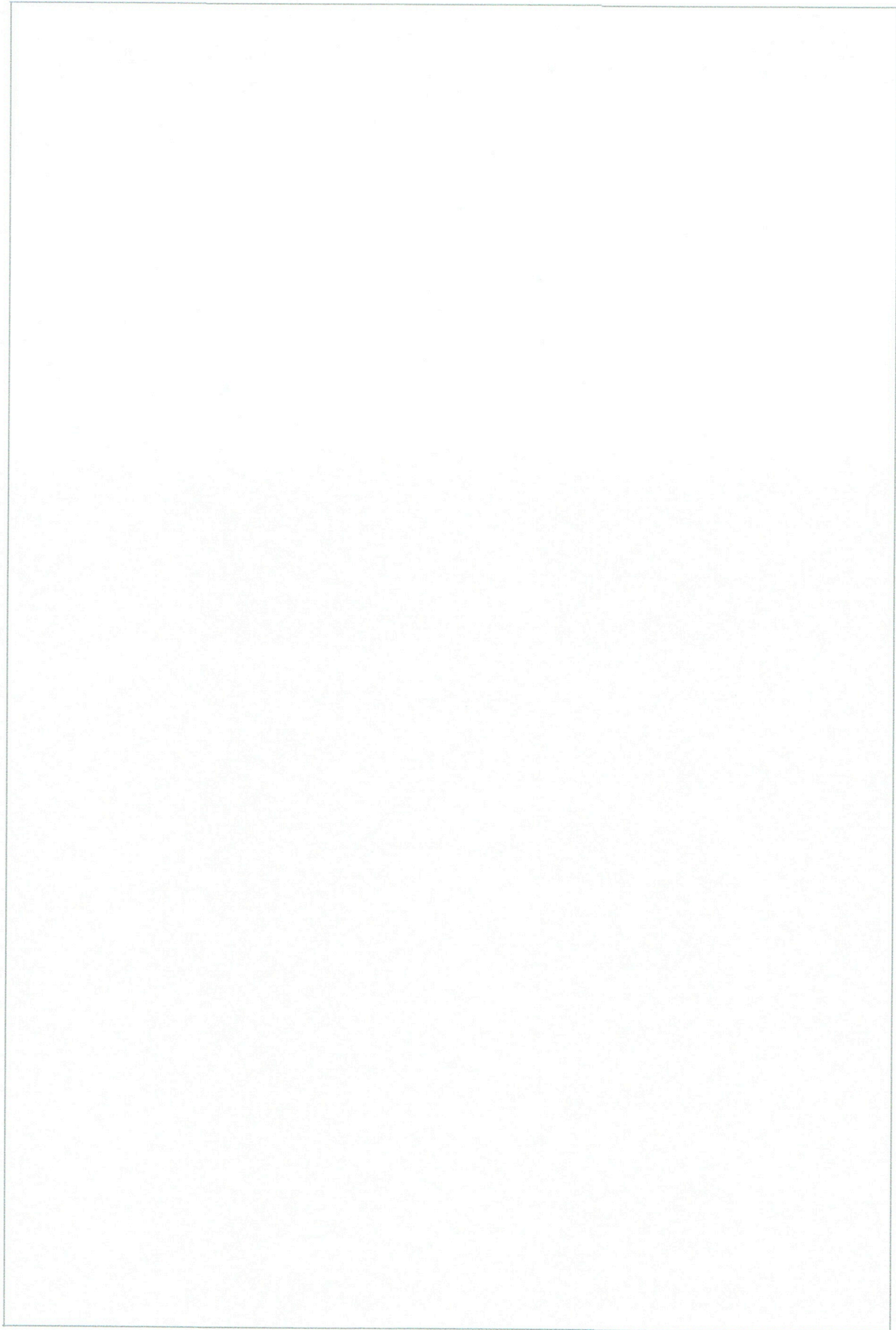
Assessor signature

Date

[Click here to enter a date.](#)

Number of questions	Number of questions answered correctly	Task outcome (Tick)	
93		Satisfactory	Not Yet Satisfactory
		☐	☐

ASSESSOR COMMENTS



1. What is the most important aspect in the design of buildings?
Tick your response.

Answer

Choice	Possible Answers
☐	Aesthetics
☐	Cost
☐	Location
☒	Stability

2. Where can the definitive properties of materials used in the building industry be found? Tick your response.

Answer

Choice	Possible Answers
☒	Australian Standards
☐	Building journals
☐	Practical learning on the job
☐	Textbooks on building

3. Which industry professional would you contact for structural advice?
Tick your response.

Answer

Choice	Possible Answers
☐	Architect
☐	Draftsperson
☒	Engineer
☐	Quantity surveyor

4. Which industry professional would you contact for the preparation of working drawings? Tick your response.

Answer

Choice	Possible Answers
☐	Building surveyor
☒	Draftsperson
☐	Quantity surveyor

☐

5. Briefly describe the role of an architect.

Answer

Architects are people who design buildings, and in many cases supervise their construction. Architects assist in setting a viable and realistic budget, guide a client through the planning process and obtain competitive quotes and manage consultants.

☐

6. What is the difference between a building surveyor and a land surveyor?

Answer

Building Surveyors provide professional advice on property and construction, spanning across residential, commercial, industrial, leisure and agriculture projects

Land Surveyors assess the surrounding terrain and landscape for the purpose of development.

☐

7. Which industry professional would you contact for matters relating to cost? Tick your response.

Answer

Choice	Possible Answers
☐	Architect
☐	Building surveyor
☐	Engineer
☒	Quantity surveyor

☐

8. A land surveyor is to reinstate survey pegs. Which of the following documents would the surveyor need? Tick your response.

Answer

Choice	Possible Answers
☒	Title
☐	Contour plans
☐	Project specifications

☐

9. When preparing a trench a builder digs through a gas pipe which was not shown on the plans. Which report should be used to prove the mistake was not the builder's? Tick your response.

Answer

Choice	Possible Answers
☐	Engineer's drawings
☒	Condition report
☐	Soil report

☐

10. Which two (2) of the following can be determined from the contour report? Tick your responses.

Answer

Choice	Possible Answers
✓	Extent of cut and fill
✓	Height of retaining walls
☐	Location of trees
☐	Location of windows

☐

11. The customer has requested a glass balcony. Which document would the builder refer to for information on structural members? Tick your response.

Answer

Choice	Possible Answers
☐	Building specifications
☐	Condition report
✓	Engineering report

☐

12. The builder is planning a project and requires information on the location of fixtures and fittings, windows and doors. Which plans show this information? Tick your response.

Answer

Choice	Possible Answers
☐	Cross sections
✓	Floor plans
☐	Footings designs

☐

13. After an inspection, the client believes that what was installed is different to what they had chosen in the contract. What document details the materials the builder was meant to use? Tick your response.

Answer

Choice	Possible Answers
✓	Building specifications

☐

☐	Plan of the subdivision
☐	Site plan

14. What key pieces of information can be found on a site plan?
Tick all that apply.

Answer

Choice	Possible Answers
✓	Location of street frontage
✓	Location of proposed building
✓	North point

☐

15. What is the purpose of a footing design?

Answer

A footing design provides details on;
• footing depths and widths
• Slabs and stiffening beams
• Type and positioning of steel reinforcement

☐

16. Why would a pre-commencement site inspection be conducted?
Tick your response.

Answer

Choice	Possible Answers
✓	To ensure all contract documentation clearly reflects the actual site
☐	It allows the supervisor to get some fresh air
☐	To ensure that the client actually owns the property
☐	So that levels can be taken to check the slope of the site

☐

17. What are the dead loads in a building? Tick your response.

Answer

Choice	Possible Answers
☐	All stationary materials
☒	Permanent materials
☐	Roofing materials
☐	Use for which the building is intended

☐

18. What is the formula for calculating a dead load?

Answer

Dead Load = Volume of member x Unit weight of materials(supplied)

☐

19. What are the live loads in a building? Tick your response.

Answer

Choice	Possible Answers
☒	Loads arising from the function of the structure
☐	Loads due to rain
☐	Loads due to wind
☐	Utility services

☐

Refer to the table shown below to respond to Q20. to Q21. These values are used to calculate live loads using the formula: Area of floor x Live load rating.

Live loads for floors as per building usage	Uniformly distributed load (kPa or kN/m ²)
Houses	1.5
Flats, motel bedrooms, apartments	2.0
Offices	3.0
Workshops	5.0
Parking, vehicle >2.5t	5.0
Hospitals, school assembly areas with fixed seating	3.0
Dance halls, bars, lounges	5.0

- 20. Calculate the live load of a guest house measuring 23m x 8m. Show your calculations.**

Answer

Area of Floor 23m x 8m = 184 m²

Live load rating of house = 1.5 kPa

Therefore Live Load of floor = 184 m² x 1.5 kPa = 276 kN



- 21. Calculate the live load of a commercial office premises floor measuring 33m x 11m. Show your calculations.**

Answer

Area of Floor 33 m x 11 m = 363 m²

Live Load Rating of Commercial Office Premises = 3.0 kPa

Therefore Live Load of Floor = 363 m² x 3.0 kPa = 1089 kN



Please refer to the information below in responding to Q22. to Q25.

There is a building 21m long x 10m wide x 8m high with a 25° pitched gable roof. The rafter line on the metal clad roof measures 5.5m on the rafter line (from the fascia/gutter line up to the ridge line).

The wind load is calculated as *Area of surface x Wind load rate*. The wind load rates are as follows:

- Windward wall is 21 metres long x 8 metres high with a wind load rate of +1.5kN/m²;
- Leeward wall is 21 metres long x 8 metres high with a wind load rate of -0.8kN/m²;
- Windward roof with a wind load rate of +0.8kN/m²; and
- Leeward roof with a wind load rate of -1.5kN/m²

22. What is the wind load of the windward wall? Tick your response.

Answer

Choice	Possible Answers
☐	-252kN
☐	134.4kN
☒	252kN
☐	86.4kN

☐

23. What is the wind load for the leeward wall? Tick your response.

Answer

Choice	Possible Answers
☒	-134.4kN
☐	-94.2kN
☐	252kN
☐	134.4kN

☐

24. What is the wind load for the leeward roof? Tick your response.

Answer

Choice	Possible Answers
☐	-173.25kN
☐	92.4kN
☒	173.25kN
☐	-134.4kN

☐

25. What is the wind load for the windward roof? Tick your response.

Answer

Choice	Possible Answers
☐	252kN
☐	-92.4kN
☐	-252kN
☒	92.4kN



26. Explain the term 'load path' in reference to a building.

Answer The load path is the direction in which each consecutive load will pass through connected members. ☐

The sequence commences at the highest point of the structure, working all the way down to the footing system - ultimately transferring the total load of the structure to the foundation. So the lowest structural member must be strong enough to support all the members above it.

27. Forces are represented as vectors and have three (3) properties. Name these properties.

Answer

- Magnitude - the size of the force
- Direction - the direction of the force
- Position - the place where the force acts

☐

28. Name five (5) structural members that a building may consist of.

Answer

- Roofing members/Trusses
- Walls
- Floors
- Footings
- Joists

☐

29. What should be considered when determining the shape and type of material to use?

- Answer
- Mechanical Properties - strength, toughness, elasticity, plasticity, ductility, malleability, brittleness, hardness
 - Section Properties - the mathematical properties of structural shapes



30. Match the mechanical properties and definitions below by writing the appropriate letter next to each number in the centre column.

Answer

Mechanical properties		Answers	Definitions	
1	Brittleness	1 - G	A	The resistance the structural member is able to offer the load that will just cause fracture.
2	Elasticity	2 - C	B	The resistance to a fracture point of a material by repeated bending or twisting after yield point has passed.
3	Ductility	3 - E	C	Present if a material deforms with loading and then returns to its original shape when the loads are removed.
4	Hardness	4 - H	D	If a material deforms when loaded and does not return to its original shape when the load is removed, causing permanent deformation.
5	Malleability	5 - F	E	Enables a material to be drawn out in the direction of its length.
6	Plasticity	6 - D	F	Can be hammered or otherwise worked into various shapes.
7	Strength	7 - A	G	Causes material to break or snap off without any noticeable lengthening.
8	Toughness	8 - B	H	The degree of resistance to indentation or abrasion.



31. Match the beam types and descriptions by writing the appropriate letter next to each number in the centre column.

Answer

Beam type	
1	Cantilevered
2	Continuously supported
3	Simply supported

Answers

1 - A
2 - C
3 - B

Description	
A	Overhang their supports.
B	Supported at each end only.
C	Supported by 3+ support points.



32. Match the column considerations and explanations by writing the appropriate letter next to each number in the centre column.

Answer

Column consideration	
1	Axially loaded column
2	Buckling
3	End fixity and effective length
4	Non-axially loaded column
5	Slenderness ratio

Answers

1 - A
2 - E
3 - C
4 - B
5 - D

Explanation	
A	The load is central to the centre of gravity axis.
B	The load is off-centre, resulting in bending and compressing stress being applied to the column.
C	The rigid connection to other members at the top and bottom affects the way a column buckles.
D	Affects the maximum load a column can be allowed to support.
E	Occurs at the weakness axis unless a lateral restraint is used to prevent it.



33. Explain how a column is in compression.

Answer

A column is in compression when buckling, due to deformation at right angles to the direction of the applied load. Buckling will always occur about the weakest axis unless some form of lateral restraint is used to prevent it.



34. Explain the letters 'CHS' and 'SHS' with reference to columns.

Answer CHS - The most efficient shape for a column is the circular hollow section
SHS - The second most efficient shape is the square hollow section



35. Match the retaining wall types and descriptions by writing the appropriate letter next to each number in the centre column.

Answer

Retaining wall		Answers	Description	
1	Cantilevered retaining wall	1 - B	A	Leans into the excavated soil and constructed at an angle between 45 and 80 degrees. Typically constructed from brickwork or pre-cast interlocking concrete units.
2	Gravity retaining wall	2 - C	B	Relies upon the correct placement of steel reinforcement and varying thickness of concrete to resist the soil pressure.
3	Inclined retaining wall	3 - A	C	Relies on its own weight to resist soil forces. Typically constructed from stone, brickwork or concrete.



36. What is a ground level concrete slab floor?

Answer Ground slabs are poured directly into excavated trenches in the ground and rely on the existing ground for support. The ground(or foundation) must be strong enough to support the concrete slab.



37. What should you consider when selecting the type of slab floor?

Answer Foundations with high moisture content will make soils reactive creating foundation expanding or contracting, which can damage the slab and other building materials, such as brickwork.



The ground must be strong enough to support the concrete slab.

38. True or False (Tick your response): Concrete slab floors are popular in the construction of structures because they take less time to construct.

Answer

☐	True
☒	False

☐

39. Match the following slab structural performance terms with the descriptions by writing the appropriate letter next to each number in the centre column.

Answer	Term	Answers	Description	☐
1	Foundation movement	1 - C	A Placed along the perimeter of the slab. Design is influenced by the reactivity of the soils.	
2	Slab bending	2 - B	B Movement is classified as dishing or doming.	
3	Stiffening beams	3 - A	C Addressed by regulating the moisture content of the soil.	

40. Which of these terms relate to a roof truss? Tick your response.

Answer	Choice	Possible Answers	☐
	☐	Chord, knee, web	
	☐	Spider, pitch, chord	
	☐	Ankle, heel, tar	
	☒	Web, heel, pitch	

41. What are important considerations when undertaking demolition work? Describe relevant legislation, regulations and/or Codes of Practice relating to planning requirements, environmental standards, and safe work practices.

Answer

The person who is conducting the business or undertaking is responsible for all aspects of the demolition work from the planning through to the clean up of the site. All demolition work must be in accordance with AS2601 and the method of the demolition process being utilised must be clearly stated in the SWMS and JHA prepared for the job. Consideration must be given to high risk work taking place (use of heavy machinery), protecting neighbouring buildings and structures along with trees and garden areas, protecting the frontline workers who are performing the demolition work, protecting the general public by giving them safe clearly marked walkways with warning signage. Consideration must also be given to identifying the services which would have to be disconnected prior to demolition work being undertaken like plumbing, electrical and gas connections, potential hazardous waste such as asbestos and identifying the relevant authorities which would need to be notified. The disposal of the demolished materials is of high importance as a lot of the materials could be utilised again so recycling guidelines have to be followed with regard to waste separation.



42. When demolition is being undertaken, which of the following items must be checked daily? Tick all that apply.

Answer

Choice	Possible Answers
✓	All boundaries are secured against unlawful entry
✓	All hazardous materials are removed or covered as required by OHS legislation
✓	All openings and elevated free edges are properly guarded
✓	All potential fire and safety hazards are eliminated and disconnected services are secured
☐	Asbestos is left on the nature strip for the garbage pickup
✓	Demolished materials have not been left on any floor or structure if their weight exceeds the safe carrying capacity of the floor or structure
✓	Emergency access routes are clear of debris
✓	Footpaths and public access are clear of demolished materials
☐	Neighbours have been notified not to hang out their washing
✓	No structure or part of a structure is left in such a condition that it may become dangerous, such as collapse due to wind or vibration



✓	Partly demolished elements are stabilised and loose materials are secured against bad weather
☐	Signs and balloons are in place for the garage sale
☐	Tell the demolisher to take a long lunch break as you don't need supervision
✓	Temporary hoardings, bracing, shoring and propping is tight and secure and in place as required to protect both workers and public

43. Identify two (2) requirements under the NCC with regards to construction in bushfire prone areas?

Answer Buildings located in a designated bushfire area are deemed acceptable if constructed in accordance with; ☐

- AS 3959, or
- NASH Standard - Steel framed construction in bushfire areas

44. What does AS3959 refer to?

Answer AS 3959 relates to the construction of buildings in bushfire prone areas - more specifically relating to the implementation of builders or landowners to undergo a BAL(Bushfire Attack Level) Assessment. ☐

45. Which of the following can assist with providing sufficient restraint to transfer wind forces to the ground to prevent collapse, uplift or sliding off the footing systems? Tick all that apply.

Answer ☐

Choice	Possible Answers
✓	Anchorage systems
✓	Bracing systems

✓	Connecting structural elements together
---	---

46. Which Australian Standard outlines the requirements of high wind areas?

Answer • AS 1170.2

☐

47. The acceleration coefficient is a number which indicates the expected severity of the earthquake ground movement. Which Australian Standard should be referenced for this information?

Answer • AS 1170.4

☐

48. True or False (Tick your response): Where the acceleration coefficient is greater than 0.15, there are additional NCC requirements than where the acceleration coefficient is 0.12.

Answer

☐	True
✓	False

☐

49. Which of the following areas require specific compliance in alpine areas? Tick all that apply.

Answer

Choice	Possible Answers
✓	Access bridges
✓	Access for emergency vehicles
✓	External doorways
✓	External ramps



50. Identify the Volume and Parts of the NCC that relate to each of the following areas for Classes 1 and 10, and Classes 2 to 9.

Answer

Topic	Classes 1 and 10	Classes 2 to 9
Bushfire	NCC 2019 Volume 2 Part 3.10.5	NCC 2019 Volume 1 Part G5
High wind	NCC 2019 Volume 2 3.0.3, 3.0.4	NCC 2019 Volume 1 Section B1.2
Earthquake	NCC 2019 Volume 2 Part 3.10.2	NCC 2019 Volume 1 Section B1.2
Alpine area	NCC 2019 Volume 2 Part 3.10.4	NCC 2019 Volume 1 Part G4
New technologies	NCC 2019 Volume 2 Parts A2.2 & A5	NCC 2019 Volume 1 Parts A2.2 & A5



51. How are emerging building technologies and methods assessed in the National Construction Code? Tick all that apply.

Answer

Choice	Possible Answers
✓	Using verification methods
✓	With 'deemed to satisfy' provisions



√	With documentary evidence
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52. True or False (Tick your response): Footings should be set out in accordance with the building plan.

Answer

✓	True
☐	False

☐

53. Name three (3) different types of footing systems for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
• Stump Pad and Footings • Strip Footings • Concrete Slab	• Pier and Beam • Concrete Slab • Damp proof coursing

☐

54. Identify the Volume and Parts of the NCC that relate to footings (including damp coursing and provision of termite barriers) for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
NCC 2019 Volume 2 Part 3.2	NCC 2019 Volume 1 Part F1.10-F1.12

☐

55. For each of the following identify two (2) Australian Standards that relate to footings.

Answer

Classes 1 and 10	Classes 2 to 9
AS 2870 AS 1170	AS 2870 AS 3600

☐

56. Name two (2) materials that may be used for damp proof coursing.

Answer

- Corrosion Resistant Metal(e.g. copper or zinc)
- Impact resistant plastics(e.g. polyethylene)

☐

57. Name two (2) termite resistant materials.

Answer

- Concrete
- Fibre-reinforced Cement

☐

58. Name three (3) different types of floor systems for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
• Concrete Slab • Timber flooring • Fibrous Concrete flooring	• Shallow composite Slabs • Deep composite slabs • Precast concrete slabs

☐

59. What should be considered when constructing a floor system?

Answer

You should consider;

- the type of floor
- the laying of pipes
- reinforcement

☐

60. Which Australian Standard is referenced in Volumes 1 and 2 of the NCC regarding the requirements for slabs and footings?

Answer AS 2870

☐

61. Name three (3) different types of materials used for wall systems or structures falling under Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
• Gypsum Plasterboard • Pine Weatherboards • Clay Bricks	• Solid Concrete • Sheet Metal • Prestressed Hollow Core Concrete Panel

☐

62. Identify the Volume and Parts of the NCC that relate to masonry wall systems for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
NCC 2019 Volume 2 3.3	NCC 2019 Volume 1 B1.4 Schedule 5

☐

63. Which Australian Standard is referenced in Volumes 1 and 2 of the NCC regarding masonry structures?

Answer AS 3700

☐

64. Explain the purpose of bracing.

Answer

• Bracing enables framework to resist horizontal forces particularly wind loads as buildings must transmit the load through the structure to the foundation.

☐

65. Explain the purpose of fixings and tie-downs.

Answer Fixings are necessary to ensure the structural adequacy of the interconnection of various framing members. Fixing includes straps, bolts, screws and framing anchors. ☐

Tie down fixings provide for structural connections to resist uplift and shear forces in floor, wall and roof framing. Where specific tie down fixings provide equal or better resistance to gravity or shear loads, nominal nailing is not required

66. Which Australian Standard relates to timber frames, bracing and fixings?

Answer AS 1684.2 ☐

67. For the Australian Standard in Q66. which part relates to cyclonic areas?

Answer AS 1684.3 ☐

68. Which of the following should be observed when checking the quality of the frame (whether, factory pre-cut and pre-nailed, factory pre-cut and assembled on site, or cut and assembled on site)? Tick all that apply.

Answer ☐

Choice	Possible Answers
☐	Fixings must be protected from corrosion
☐	Fixings must be protected from termites
☒	Provision has been made for plumbing services and fixtures
☐	Tie downs and nominal nailing must both be present
☒	Top and bottom plates have a tight fit on studs

☐	Top plate is to be reinforced when rafters land on top of plates
☐	Walls are tied together
☒	Walls are plumb
☒	Walls are square

69. True or False (Tick your response): Sarking is a substitute for cladding and is regarded as the principal means of weatherproofing.

Answer

☒	True
☐	False

☐

70. What is flashing?

Answer

Flashings are used at corners and vertical joints and around openings to ensure that water is prevented from penetrating the wall frame cavity. As flashing does not extend fully behind the cladding, non-permeable materials may be used.

☐

71. Identify the Volume and Parts of the NCC that relate to wall cladding material requirements for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
NCC 2019 Volume 2 3.5.4	NCC 2019 Volume 1 F1.5

☐

72. True or False (Tick your response): Timber can stand greater stresses than brickwork.

Answer

☒	True
☐	False

☐

73. True or False (Tick your response): Individual timber boards for cladding should be nailed together at the overlap.

Answer

☐	True
☒	False

☐

74. When should flashing materials be fixed to plywood cladding? Tick your response.

Answer

Choice	Possible Answers
☐	After the cladding is fixed
☒	Before the cladding is fixed
☐	While the cladding is being fixed
☐	At any convenient time

☐

75. What is the purpose of articulation joints? Tick your response.

Answer

Choice	Possible Answers
☐	They allow for shrinkage in a building
☐	They tie the brickwork to the frame
☒	They allow for movement in a building
☐	They seal the cavities

☐

76. When is the most appropriate time for the rough-in to occur for a brick veneer building constructed on a concrete slab Tick your response.

Answer

Choice	Possible Answers
☐	Before brickwork
☒	After brickwork

☐

☐	After plasterboard
☐	Any time

77. Apart from plumbing and electrical, name four (4) other services that should be considered at rough-in.

Answer

- Communication Systems
- Extractive Vacuum and exhaust systems
- Smoke control and containment systems
- Passive and active fire detection and prevention systems

☐

78. Identify the Volume and Parts of the NCC that relate to window installation for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
NCC 2019 Volume 2 3.6.0 to 3.12.3.3	NCC 2019 Volume 1 F1.13

☐

79. Name two (2) Australian Standards that relate to the installation of windows.

Answer AS 2047

☐

80. What is the purpose of a window schedule? Tick your response.

Answer

Choice	Possible Answers
☐	To help work out the appropriate type of window
☐	To work out the appropriate opening size of windows
☐	To work out whether to use a timber or aluminium frame
☒	To work out the height of a window

☐

81. Identify the Volume and Parts of the NCC that relate to door installation for Classes 1 and 10, and Classes 2 to 9.

Answer

Classes 1 and 10	Classes 2 to 9
NCC 2019 Volume 2 3.6.4.1	NCC 2019 Volume 1 B1.4

☐

82. What Australian Standard must the design of a timber roof truss adhere to?

Answer

AS 4440- 2004

☐

83. What is a roof system? Name three (3) roof types.

Answer

- Gable
- Hip
- Skillion

☐

84. True or False (Tick your response): Roof trusses can be modified on site to suite different needs.

Answer

☐	True
✓	False

☐

85. Devise a checklist for ensuring the quality of an installed roof frame.

Answer

- Check orientation and positioning of all marked members with reference to plans
- Check plan bracing orientation and placement with reference to plans
- Check spacing of all trusses
- Check measurements of all overhangs at external point for soffit details
- Check plumb of all trusses
- Check straight of all truss members at all ceiling areas
- Check all truss tie downs triple grips/hooped bar cyclone tie down/gang plates and nailing quantities
- Check roof lines for straight at valleys and hips
- Check all plumb cuts and straight for fascia connection
- Check for broken or split timbers or damaged nail plate joints

☐

86. Devise a checklist for ensuring the quality of an installed roof truss.

Answer

- Check orientation and positioning of all marked members with reference to plans
- Check plan bracing orientation and placement with reference to plans
- Check spacing of all trusses
- Check measurements of all overhangs at external point for soffit details
- Check plumb of all trusses
- Check straight of all truss members at all ceiling areas
- Check all truss tie downs triple grips/hooped bar cyclone tie down/gang plates and nailing quantities
- Check roof lines for straight at valleys and hips
- Check all plumb cuts and straight for fascia connection
- Check for broken or split timbers or damaged nail plate joints



87. Name three (3) roof cladding materials.

Answer

- Roof shingles
- Roof tiles
- Colorbond sheeting



88. What pitch of roof should roof tiles be applied? Are there exceptions?

Answer

- Not less than 15 degrees and not more than 35 degrees

Cyclonic areas would be the exception - areas with a high wind rating.



89. When installing corrugated metal roof sheeting, which is the preferred direction of laying sheets to improve side lap effectiveness for minimising leakage? Tick your response.

Answer

Choice	Possible Answers
☐	Away from the prevailing weather
☐	Towards the north
☒	Towards the prevailing weather

☐

90. True or False (Tick your response): Sarking is advisable under any roof.

Answer

☒	True
☐	False

☐

91. What Australian Standard relates to sarking?

Answer AS/NZS 4256

☐

92. Name three (3) items that may require roof penetration.

Answer

- Service Penetrations e.g. ducts, plumbing, electrical service line
- Skylights
- Roof Ventilation

☐

93. Identify the sections/parts of NCC Volume 1 that relate to the installation of skylights.

Answer

NCC 2019
Volume 1
Section B Part B1.4
Section C3 Part 3.6

☐

CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS & CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS

PRACTICAL ASSESSMENT INSTRUCTIONS

- The following practical assessment will require the Participant to complete work related activities.
- The Assessor will conduct observations of the Participant's work to determine whether they display sufficient practical skills and knowledge.
- Please fill in the details below – providing your name, signature and date of assessment.
 - The Participant's signature acknowledges that the Assessor provided clear instructions and the Participant understood what was required to complete this assessment.
- The Assessor may substitute a Practical Task with an alternate task of equal value.
 - Alternate tasks must be fully documented by the assessor in the Assessor Comments area.

Participant name

Gordon Pirret

Participant signature



Date

27th March 2020

Assessor name

Assessor signature

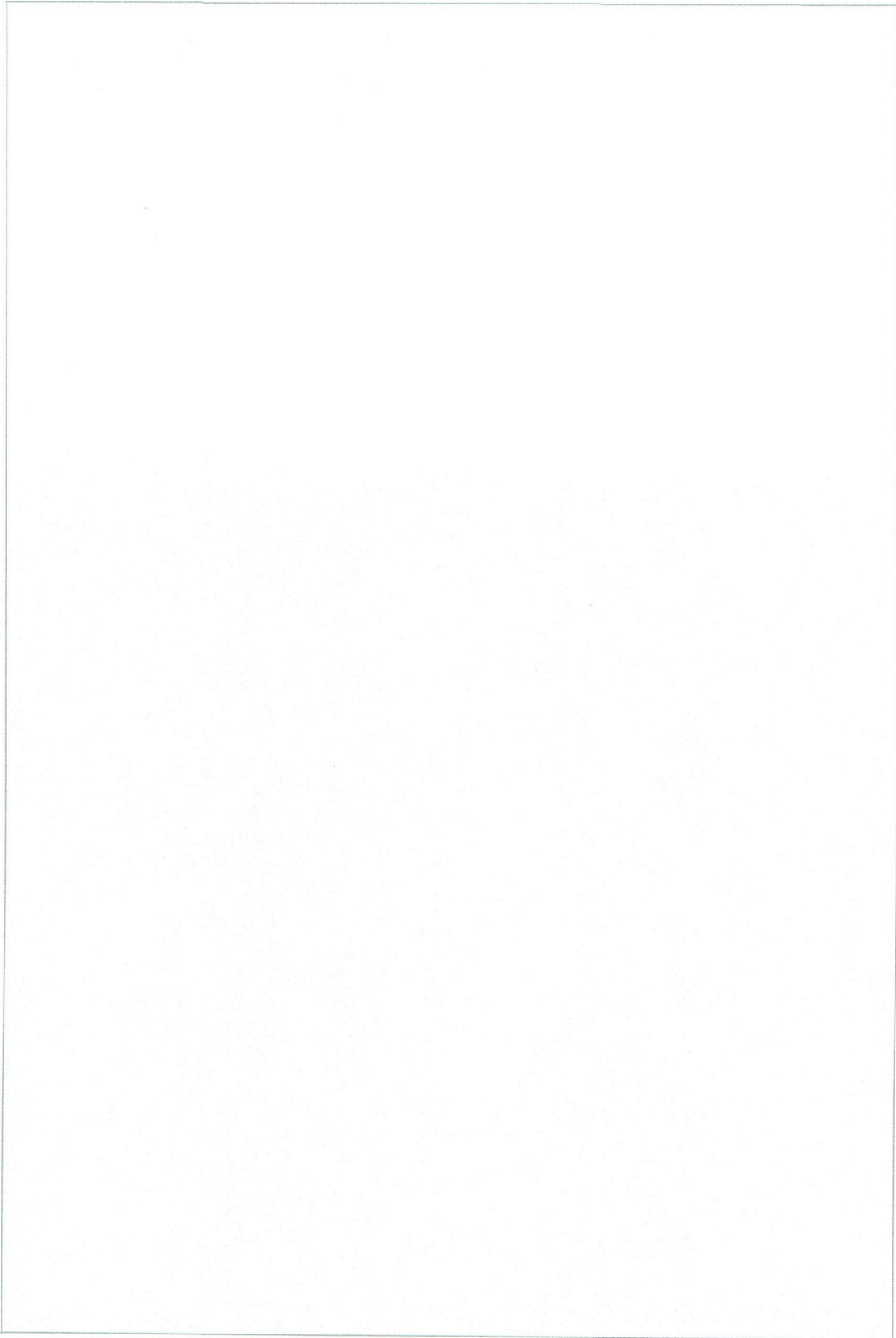
Date

[Click here to enter a date.](#)

Task	Task outcome (Tick)
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Task	Satisfactory	Not Yet Satisfactory
Task 1	☐	☐
Task 2	☐	☐

ASSESSOR COMMENTS



CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS

Practical Task 1

Description of task:

A suitable observer is to verify the participant's ability to apply structural principles to the erection and demolition of a low rise residential structure (Classes 1 and 10).

The participant is to gather evidence of how they have completed each component of the Practical Task, which is to be submitted with this Practical Assessment sheet. Evidence to be submitted may include:

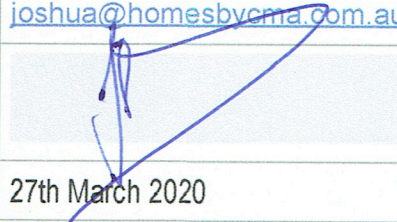
- Photographic evidence of projects, including detailed descriptions of all structural elements
- Documentation from a project structurally designed; for example a garage, small extension, etc. including:
 - A copy of the plans and/or specifications
 - Identification of site classification, uplift forces, wind ratings,
 - Component selection methods – for example; BCA references, Australian Standard references

The observer is to provide detailed comments on the tasks completed by the participant. The assessor is to verify the observer's comments in the Assessor Comments section, and provide the Practical Assessment outcome on the front cover of this document.

Resources required:

Plans, computer, suitable work area appropriate to the construction process.

Assessment of task

Name of participant:	Gordon Pirret	
Name of observer:	Josh Reed	
Role of observer (Confirm suitability to sign)	Construction Manager	
Email address of observer	joshua@homesbycma.com.au	
Signature of observer:		
Date:	27th March 2020	
When completing the task, did the participant:		Tick if satisfactorily completed. Provide comments if left unticked.
1 Apply structural principles to planning		
A.	Identify main structural principles that apply to the erection or demolition of the structure.	✓
B.	Describe structural performance in terms of the effect of section properties on various materials.	✓
C.	Explain structural performance characteristics of the slabs, floors, beams, columns and retaining walls – and apply to the planning of the construction work.	✓
D.	Coordinate demolition of existing structures in accordance with safe work practices, legislative, environmental and planning requirements.	✓

D.	Coordinate demolition of existing structures in accordance with safe work practices, legislative, environmental and planning requirements.	✓
2 Structural integrity of buildings		
A.	Consult relevant industry professionals to provide advice regarding the design process and structural integrity of the proposed building – using language and concepts appropriate to cultural differences (including non-verbal communication).	✓
B.	Collect and analyse project documentation to assist with the analysis of plans and specifications.	✓
C.	Analyse project documentation for compliance with National Construction Code requirements for bushfire, high wind, earthquake and alpine environments.	✓
D.	Assess new and emerging building technologies, techniques and materials for application to the construction process and their compliance with National Construction Code requirements and Australian standards.	✓
E.	Conduct pre-commencement site inspection to confirm analysis.	✓
3 Footing system		
A.	Set out footing systems in accordance with building plans.	✓
B.	Assess structural integrity of the footings specified in the plans for compliance with relevant codes and accepted industry construction principles.	✓
C.	Lay footings specified in building's plan, checking for compliance with project documentation.	✓
D.	Plan, implement and check damp coursing, provision of termite barriers and other relevant techniques in accordance with codes, standards and industry practice.	✓
4 Floor system		
A.	Assess floor system components specified in building plan for structural integrity and compliance with relevant codes and accepted industry construction principles.	✓
B.	Supervise laying of structural floor system specified in building's plan, checking for compliance with project documentation.	✓
5 Structural wall systems and wall cladding systems		
A.	Identify and analyse technical construction principles and performance characteristics of structural wall systems and wall cladding systems in the planning of the building and construction project.	✓
B.	Identify, implement and check processes for erecting wall systems and wall cladding systems for compliance with manufacturer specifications and relevant Australian standards and codes.	✓
C.	Identify and implement building plans and relevant standards and codes to ensure appropriate allowances were made for relevant services to be installed.	✓
D.	Install windows and external doors in compliance with relevant codes, manufacturer specifications and accepted industry construction principles.	✓
6 Structural roof systems and roof cladding systems		

A.	Assess structural integrity of the structural roof system and roof cladding system components specified in the building's plan for compliance with relevant codes and accepted industry construction principles.	✓
B.	Plan and implement and check construction of roof system and roof cladding system (including details of service penetrations, skylights and roof ventilators) according to building plan's requirements, type of roof being constructed, relevant codes and accepted industry construction principles.	✓
C.	Put processes in place to ensure quality of finished roof system.	✓
The Participant's performance was: ☒ Satisfactory ☐ Not Satisfactory		

OBSERVER COMMENTS

Gordon in his role as site supervisor is responsible for ensuring the safe and correct installation of all house frames and structural members. Gordon is required to identify the main structural components and ensure that they are installed correctly as per the drawings and to Australian standards. Gordon is confident and competent in his knowledge of explaining all structural performance characteristics and liaising this knowledge to his sub contractors and clients when required.

In conjunction with our external quality assurance inspector, Gordon has a clear communication path to outline structural integrity processes with all our builds. He regularly contacts the inspector detailing specific structural requests, e.g cantilevered roof systems and balconies on our two story homes. Gordon also queries, where necessary, in conjunction with our draftsman, the wind loading on some of our project locations.

Gordon has to consult with our construction team on a regular basis regarding set outs of slabs with reference to the documentation that he is provided with at the start of each job and analysing the plans prior to job commencement. Prior to any job commencement, Gordon is required to, weeks in advance of all projects, to perform initial site inspections. These entail, taking photographs of the block and analysing whether they will require retaining walls or piling. However, the latter, is generally determined with soil testing, which is provided to him prior to job commencement.

Gordon is required to, in conjunction with his sub contractors, organise and perform set outs of footings and slabs in relation to the plans he is provided with. Gordon receives engineering reports detailing the structural requirements of slabs and footings, he must ensure that these are followed by his sub contractors and organise inspections to receive certification for this process. Part of Gordon's QA process at slab stage is to ensure that all termite protection is installed and meets code. He has to document this on our company app and upload photographs to our internal servers for future reference and compliance. Gordon has to ensure on his two story builds, that the flooring system specified is adhered to and that plans are followed stringently.

Gordon is required to have his own checklist for structural and framing components prior to any cladding being fixed. He has to check for all tie downs and bracing of roof trusses and load bearing walls, ensuring that the fixing and installation is followed to the manufacturers specifications. Part of Gordon's checklists on timber frames is to ensure that the wall frames meet code and are plumb and straight. Gordon is also required to ensure that waterproof membrane is utilised correctly on all house slabs and left overhanging to be wrapped up at frame stage.

Gordon is required to, as part of his QA process, ensure the structural integrity of all roof trusses and identify potential faults, again prior to cladding, such as, splits at nail plate junctions or crush zones due to crane lifts at critical stress points. Gordon has to ensure all roofs are braced appropriately, truss members are plumb and overhangs for soffits are followed as per plans.