

## **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 | Michael Lewis |
|------------------|---------------|

| Task                    | Assessment Results                    |                                               |
|-------------------------|---------------------------------------|-----------------------------------------------|
| Theory Exam             | <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Not Yet Satisfactory |
| Practical Assessment    | <input type="checkbox"/> Satisfactory | <input type="checkbox"/> Not Yet Satisfactory |
| Outcome for CPCCBC4010B | <input type="checkbox"/> Competent    | <input type="checkbox"/> Not Yet Competent    |
| Outcome for CPCCBC4011B | <input type="checkbox"/> Competent    | <input type="checkbox"/> Not Yet Competent    |

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



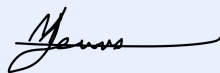
## **CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS & CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS**

### **THEORY EXAM INSTRUCTIONS**

1. This exam will occur under standard assessment conditions.
  1. 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)
2. Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
3. Please fill in the details below, providing your name, signature and date of assessment.
  1. Your signature acknowledges that this is your own work.
4. Assessors are to complete marking in pen of a different colour to the Participant.
5. If a Participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
  1. If a Participant changes their response in writing, they must put their initials next to the written change.
  2. If a Participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name Michael Lewis

Participant signature



Date 01/07/2021

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     |
|                     |                                        | <input type="checkbox"/> | <input type="checkbox"/> |

## ASSESSOR COMMENTS

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

|        |                                     |                  |                          |
|--------|-------------------------------------|------------------|--------------------------|
| Answer | Choice                              | Possible Answers | <input type="checkbox"/> |
|        | <input checked="" type="checkbox"/> | Aesthetics       |                          |
|        | <input checked="" type="checkbox"/> | Cost             |                          |
|        | <input checked="" type="checkbox"/> | Location         |                          |
|        | <input checked="" type="checkbox"/> | Stability        |                          |

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

|        |                                     |                               |                          |
|--------|-------------------------------------|-------------------------------|--------------------------|
| Answer | Choice                              | Possible Answers              | <input type="checkbox"/> |
|        | <input checked="" type="checkbox"/> | Australian Standards          |                          |
|        | <input type="checkbox"/>            | Building journals             |                          |
|        | <input type="checkbox"/>            | Practical learning on the job |                          |
|        | <input type="checkbox"/>            | Textbooks on building         |                          |

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

|        |                                     |                   |                          |
|--------|-------------------------------------|-------------------|--------------------------|
| Answer | Choice                              | Possible Answers  | <input type="checkbox"/> |
|        | <input type="checkbox"/>            | Architect         |                          |
|        | <input type="checkbox"/>            | Draftsperson      |                          |
|        | <input checked="" type="checkbox"/> | Engineer          |                          |
|        | <input type="checkbox"/>            | Quantity surveyor |                          |

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

|        |                                     |                   |                          |
|--------|-------------------------------------|-------------------|--------------------------|
| Answer | Choice                              | Possible Answers  | <input type="checkbox"/> |
|        | <input type="checkbox"/>            | Building surveyor |                          |
|        | <input checked="" type="checkbox"/> | Draftsperson      |                          |
|        | <input type="checkbox"/>            | Quantity surveyor |                          |

**5. Briefly describe the role of an architect.**

**Answer** Architects design buildings and structures that are functional as well as energy efficient, environmentally friendly, look good and are safe. ☐

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

**Answer** Land surveyors assess the surrounding terrain and landscape for the purpose of development. They commonly use specialised technology and equipment to do this as many of today's development, subdivision, building and tunnelling projects are so complex. ☐

Building surveyors provide professional advice on property and construction, which spans across residential, commercial, industrial, leisure and agriculture projects. They check that buildings comply with all building Codes.

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

**Answer** ☐

| Choice                              | Possible Answers  |
|-------------------------------------|-------------------|
| <input type="checkbox"/>            | Architect         |
| <input type="checkbox"/>            | Building surveyor |
| <input type="checkbox"/>            | Engineer          |
| <input checked="" type="checkbox"/> | 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       |
|-------------------------------------|------------------------|
| <input checked="" type="checkbox"/> | Title                  |
| <input checked="" type="checkbox"/> | Contour plans          |
| <input type="checkbox"/>            | 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    |
|-------------------------------------|---------------------|
| <input type="checkbox"/>            | Engineer's drawings |
| <input checked="" type="checkbox"/> | Condition report    |
| <input type="checkbox"/>            | Soil report         |

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

Answer ☐

| Choice                              | Possible Answers          |
|-------------------------------------|---------------------------|
| <input checked="" type="checkbox"/> | Extent of cut and fill    |
| <input checked="" type="checkbox"/> | Height of retaining walls |
| <input type="checkbox"/>            | Location of trees         |
| <input type="checkbox"/>            | 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        |
|-------------------------------------|-------------------------|
| <input type="checkbox"/>            | Building specifications |
| <input type="checkbox"/>            | Condition report        |
| <input checked="" type="checkbox"/> | 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 |                          |
|--------|-------------------------------------|------------------|--------------------------|
|        | <input type="checkbox"/>            | Cross sections   | <input type="checkbox"/> |
|        | <input checked="" type="checkbox"/> | Floor plans      |                          |
|        | <input type="checkbox"/>            | Footing 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        |                          |
|--------|-------------------------------------|-------------------------|--------------------------|
|        | <input checked="" type="checkbox"/> | Building specifications | <input type="checkbox"/> |
|        | <input type="checkbox"/>            | Plan of the subdivision |                          |
|        | <input type="checkbox"/>            | Site plan               |                          |

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

| Answer | Choice                              | Possible Answers              |                          |
|--------|-------------------------------------|-------------------------------|--------------------------|
|        | <input checked="" type="checkbox"/> | Location of street frontage   | <input type="checkbox"/> |
|        | <input checked="" type="checkbox"/> | Location of proposed building |                          |
|        | <input checked="" type="checkbox"/> | North point                   |                          |

15. What is the purpose of a footing design?

| Answer |                                                                                                                                              |  |                          |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------|
|        | Footing plans provide details on:<br>Footing depths and widths<br>Slabs and stiffening beams<br>Type and positioning of steel reinforcement. |  | <input type="checkbox"/> |

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

|               |                                     |                                                                       |                          |
|---------------|-------------------------------------|-----------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | Choice                              | Possible Answers                                                      | <input type="checkbox"/> |
|               | <input checked="" type="checkbox"/> | To ensure all contract documentation clearly reflects the actual site |                          |
|               | <input type="checkbox"/>            | It allows the supervisor to get some fresh air                        |                          |
|               | <input type="checkbox"/>            | To ensure that the client actually owns the property                  |                          |
|               | <input type="checkbox"/>            | 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.**

|               |                                     |                                        |                          |
|---------------|-------------------------------------|----------------------------------------|--------------------------|
| <b>Answer</b> | Choice                              | Possible Answers                       | <input type="checkbox"/> |
|               | <input type="checkbox"/>            | All stationary materials               |                          |
|               | <input checked="" type="checkbox"/> | Permanent materials                    |                          |
|               | <input type="checkbox"/>            | Roofing materials                      |                          |
|               | <input type="checkbox"/>            | Use for which the building is intended |                          |

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

|               |                                                         |                          |
|---------------|---------------------------------------------------------|--------------------------|
| <b>Answer</b> | Dead load = Volume of member x Unit weight of materials | <input type="checkbox"/> |
|---------------|---------------------------------------------------------|--------------------------|

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

|               |                                     |                                                  |                          |
|---------------|-------------------------------------|--------------------------------------------------|--------------------------|
| <b>Answer</b> | Choice                              | Possible Answers                                 | <input type="checkbox"/> |
|               | <input checked="" type="checkbox"/> | Loads arising from the function of the structure |                          |
|               | <input type="checkbox"/>            | Loads due to rain                                |                          |
|               | <input type="checkbox"/>            | Loads due to wind                                |                          |
|               | <input type="checkbox"/>            | Utility services                                 |                          |

**Refer to the table shown below to respond to 20 to 21. 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 <sup>2</sup> ) |
|-----------------------------------------------------|--------------------------------------------------------|
| 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** 23 x 8 = 184m<sup>2</sup>  
  
184m<sup>2</sup> x 1.5KPA = 276Kn ☐

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

**Answer** 33 x 11 = 363m<sup>2</sup>  
  
363m<sup>2</sup> x 3 = 1089Kn ☐

**Please refer to the information below in responding to 22 to 25**

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:

1. Windward wall is 21 metres long x 8 metres high with a wind load rate of +1.5kN/m<sup>2</sup>;
2. Leeward wall is 21 metres long x 8 metres high with a wind load rate of -0.8kN/m<sup>2</sup>;
3. Windward roof with a wind load rate of +0.8kN/m<sup>2</sup>; and
4. Leeward roof with a wind load rate of -1.5kN/m<sup>2</sup>

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

| Answer | Choice                              | Possible Answers | <input type="checkbox"/> |
|--------|-------------------------------------|------------------|--------------------------|
|        | <input type="checkbox"/>            | -252kN           |                          |
|        | <input type="checkbox"/>            | 134.4kN          |                          |
|        | <input checked="" type="checkbox"/> | 252kN            |                          |
|        | <input type="checkbox"/>            | 86.4kN           |                          |

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

| Answer | Choice                              | Possible Answers | <input type="checkbox"/> |
|--------|-------------------------------------|------------------|--------------------------|
|        | <input checked="" type="checkbox"/> | -134.4kN         |                          |
|        | <input type="checkbox"/>            | -94.2kN          |                          |
|        | <input type="checkbox"/>            | 252kN            |                          |
|        | <input type="checkbox"/>            | 134.4kN          |                          |

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

| Answer | Choice                              | Possible Answers | <input type="checkbox"/> |
|--------|-------------------------------------|------------------|--------------------------|
|        | <input checked="" type="checkbox"/> | -173.25kN        |                          |
|        | <input type="checkbox"/>            | 92.4kN           |                          |
|        | <input type="checkbox"/>            | 173.25kN         |                          |
|        | <input type="checkbox"/>            | -134.4kN         |                          |

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

| Answer | Choice                              | Possible Answers | <input type="checkbox"/> |
|--------|-------------------------------------|------------------|--------------------------|
|        | <input type="checkbox"/>            | 252kN            |                          |
|        | <input type="checkbox"/>            | -92.4kN          |                          |
|        | <input type="checkbox"/>            | -252kN           |                          |
|        | <input checked="" type="checkbox"/> | 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** Bearers  
Joists  
Lintels  
Load bearing walls  
Retaining walls



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

|               |                                                                                                                                                                                              |                          |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | Mechanical properties – strength, toughness, elasticity, plasticity, ductility, malleability, brittleness, hardness<br>Section properties - the mathematical properties of structural shapes | <input type="checkbox"/> |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

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

|               |                              |                |                                                                                                                                        |                          |
|---------------|------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | <b>Mechanical properties</b> | <b>Answers</b> | <b>Definitions</b>                                                                                                                     | <input type="checkbox"/> |
| 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.**

|               |                        |                |                                   |                          |
|---------------|------------------------|----------------|-----------------------------------|--------------------------|
| <b>Answer</b> | <b>Beam type</b>       | <b>Answers</b> | <b>Description</b>                | <input type="checkbox"/> |
| 1             | Cantilevered           | 1 - A          | A Overhang their supports.        |                          |
| 2             | Continuously supported | 2 - C          | B Supported at each end only.     |                          |
| 3             | Simply supported       | 3 - B          | 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 |                                 | Answers | Explanation |                                                                                                  | <input type="checkbox"/> |
|--------|----------------------|---------------------------------|---------|-------------|--------------------------------------------------------------------------------------------------|--------------------------|
|        |                      |                                 |         |             |                                                                                                  |                          |
|        | 1                    | Axially loaded column           | 1 - A   | A           | The load is central to the centre of gravity axis.                                               |                          |
|        | 2                    | Buckling                        | 2 - E   | B           | The load is off-centre, resulting in bending and compressing stress being applied to the column. |                          |
|        | 3                    | End fixity and effective length | 3 - C   | C           | The rigid connection to other members at the top and bottom affects the way a column buckles.    |                          |
|        | 4                    | Non-axially loaded column       | 4 - B   | D           | Affects the maximum load a column can be allowed to support.                                     |                          |
|        | 5                    | Slenderness ratio               | 5 - D   | E           | Occurs at the weakness axis unless a lateral restraint is used to prevent it.                    |                          |

**33. Explain how a column is in compression.**

|               |                                                                                                                                                                                                                                          |                          |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | <p>Compression members are structural elements that are pushed together or carry a load, more technically they are subjected only to axial compressive forces, In buildings, posts and columns are almost always compression members</p> | <input type="checkbox"/> |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

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

|               |                                                                         |                          |
|---------------|-------------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | <p>CHS = Circular hollow section</p> <p>SHS = Square hollow section</p> | <input type="checkbox"/> |
|---------------|-------------------------------------------------------------------------|--------------------------|

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 - C   | A<br>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. | <input type="checkbox"/> |
| 2      | Gravity retaining wall      | 2 - B   | B<br>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<br>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. | <input type="checkbox"/> |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

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

|        |                                                                 |                          |
|--------|-----------------------------------------------------------------|--------------------------|
| Answer | The stability of the ground or if the block is in a flood zone. | <input type="checkbox"/> |
|--------|-----------------------------------------------------------------|--------------------------|

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

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | 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. | <input type="checkbox"/> |
| 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     |  |
|--------|-------------------------------------|----------------------|--|
|        | <input type="checkbox"/>            | Chord, knee, web     |  |
|        | <input type="checkbox"/>            | Spider, pitch, chord |  |
|        | <input type="checkbox"/>            | Ankle, heel, tar     |  |
|        | <input checked="" type="checkbox"/> | 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 | <p>Work Health and Safety Regulations 2011 (Qld)</p> <p>Demolition Code of Practice 2013 (Qld)</p> <p>AS 2601: The demolition of structures</p> <p>Remove loose or attached fittings and built-in fixtures, internally and externally.</p> <p>Remove external wall cladding, attached chimneys, outbuildings and lean-to structures.</p> <p>Remove internal linings.</p> <p>Make sure the building is adequately braced during the removal of cladding.</p> <p>Remove plumbing and electrical wires and pipes.</p> <p>Remove roof covering and restraining and loose materials to avoid possibility of materials being airborne.</p> <p>Remove roof structure and provide temporary bracing and shoring as required.</p> <p>Remove wall panel or framing and provide temporary bracing and shoring as required.</p> <p>Remove floor structure.</p> <p>Remove footings.</p> <p>Clean up site.</p> | <input type="checkbox"/> |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

Fill in excavations.  
Check for any hazards.  
Clean site entry points and infrastructure where necessary.

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

Answer

| Choice                              | Possible Answers                                                                                                                               |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | All boundaries are secured against unlawful entry                                                                                              |
| <input checked="" type="checkbox"/> | All hazardous materials are removed or covered as required by OHS legislation                                                                  |
| <input checked="" type="checkbox"/> | All openings and elevated free edges are properly guarded                                                                                      |
| <input checked="" type="checkbox"/> | All potential fire and safety hazards are eliminated and disconnected services are secured                                                     |
| <input type="checkbox"/>            | Asbestos is left on the nature strip for the garbage pickup                                                                                    |
| <input checked="" type="checkbox"/> | Demolished materials have not been left on any floor or structure if their weight exceeds the safe carrying capacity of the floor or structure |
| <input checked="" type="checkbox"/> | Emergency access routes are clear of debris                                                                                                    |
| <input checked="" type="checkbox"/> | Footpaths and public access are clear of demolished materials                                                                                  |
| <input type="checkbox"/>            | Neighbours have been notified not to hang out their washing                                                                                    |
| <input checked="" type="checkbox"/> | 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        |
| <input checked="" type="checkbox"/> | Partly demolished elements are stabilised and loose materials are secured against bad weather                                                  |
| <input type="checkbox"/>            | Signs and balloons are in place for the garage sale                                                                                            |
| <input type="checkbox"/>            | Tell the demolisher to take a long lunch break as you don't need supervision                                                                   |
| <input checked="" type="checkbox"/> | 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** ☐ A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the— (a) potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and (b) intensity of the bushfire attack on the building.

**44. What does AS3959 refer to?**

**Answer** ☐ Construction of buildings in bushfire-prone areas

**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                        |
|-------------------------------------|-----------------------------------------|
| <input checked="" type="checkbox"/> | Anchorage systems                       |
| <input checked="" type="checkbox"/> | Bracing systems                         |
| <input checked="" type="checkbox"/> | 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

AS1170.4

☐

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

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | False |

☐

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

Answer

| Choice                              | Possible Answers              |
|-------------------------------------|-------------------------------|
| <input checked="" type="checkbox"/> | Access bridges                |
| <input checked="" type="checkbox"/> | Access for emergency vehicles |
| <input checked="" type="checkbox"/> | External doorways             |
| <input checked="" type="checkbox"/> | 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         | Volume 2 Part 3.10.5 | Volume 1 Part G5     |
| High wind        | Volume 2 Part 3.0    | Volume 1 Part B1.2 C |
| Earthquake       | Volume 2 Part 3.10.2 | Volume 1 Part B1.2   |
| Alpine area      | Volume 2 Part 3.10.4 | Volume 1 Part G4     |
| New technologies | Volume 2 Part A5     | Volume 1A2.2         |

☐

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

Answer

| Choice                              | Possible Answers                    |
|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> | Using verification methods          |
| <input checked="" type="checkbox"/> | With 'deemed to satisfy' provisions |
| <input checked="" type="checkbox"/> | With documentary evidence           |

☐

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

Answer

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | 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                                          |
|------------------------------------------------|---------------------------------------------------------|
| Pad footing<br>Stump footing<br>Strip Footings | Piers and beams<br>Strip footings<br>Stump pad footings |

☐

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 |
|-----------------------|----------------|
| Volume 2 Part 3.2.2.6 | Volume 1 F1.10 |

☐

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 2159 | AS 2870        |

☐

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

**Answer** Mortar with waterproofing compound, butyl rubber

☐

**57. Name two (2) termite resistant materials.**

**Answer** Steel or concrete

☐

**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                                          |
|--------------------------------------------------------------------------|---------------------------------------------------------|
| Timber Bearers & Joists<br>Concrete Slab<br>Steel Frame Bearers & Joists | Concrete Slab<br>Suspended slabs<br>Pre tensioned slabs |

☐

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

**Answer** When constructing the floor system it is important to take into consideration the type of flooring, the laying of pipes and reinforcement. Is the flooring system a concrete slab, or require bearers and joists. Also take into consideration is the ventilation area underneath.

☐

**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.**

| <b>Answer</b> | Classes 1 and 10                                | Classes 2 to 9                                           | <input type="checkbox"/> |
|---------------|-------------------------------------------------|----------------------------------------------------------|--------------------------|
|               | Steel Framing<br>Timber Framing<br>Cavity brick | Un reinforced masonry<br>Steel framing<br>Timber Framing |                          |

**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.**

| <b>Answer</b> | Classes 1 and 10    | Classes 2 to 9  | <input type="checkbox"/> |
|---------------|---------------------|-----------------|--------------------------|
|               | Volume 2 Part 3.3.5 | Volume 1 B1.4 A |                          |

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

|               |         |                          |
|---------------|---------|--------------------------|
| <b>Answer</b> | AS 3700 | <input type="checkbox"/> |
|---------------|---------|--------------------------|

**64. Explain the purpose of bracing.**

|               |                                                                                                                                                                                                                                                                                                                                                      |                          |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Answer</b> | Bracing is attached to studs to provide lateral support to wall framing. Metal straps, timber or sheet bracing can be used for bracing<br><br>Bracing enables framework to resist horizontal forces (load resistance of live, dead, wind loads) particularly wind loads as buildings must transmit the load through the structure to the foundation. | <input type="checkbox"/> |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

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

**Answer** ☐ Fixings are necessary to ensure the structural adequacy of the interconnection of the various framing members. Fixings include 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 66 which part relates to cyclonic areas?**

**Answer** ☐ AS1684.3

**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                                                 |
|-------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/>            | Fixings must be protected from corrosion                         |
| <input type="checkbox"/>            | Fixings must be protected from termites                          |
| <input checked="" type="checkbox"/> | Provision has been made for plumbing services and fixtures       |
| <input checked="" type="checkbox"/> | Tie downs and nominal nailing must both be present               |
| <input checked="" type="checkbox"/> | Top and bottom plates have a tight fit on studs                  |
| <input checked="" type="checkbox"/> | Top plate is to be reinforced when rafters land on top of plates |
| <input checked="" type="checkbox"/> | Walls are tied together                                          |
| <input checked="" type="checkbox"/> | Walls are plumb                                                  |
| <input checked="" type="checkbox"/> | 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

|                                     |       |
|-------------------------------------|-------|
| <input type="checkbox"/>            | True  |
| <input checked="" type="checkbox"/> | 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 |
|-------------------|----------------|
| Volume 2 Part 3.5 | Volume 1 F1.5  |

☐

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

Answer

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | False |

☐

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

Answer

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | False |

☐

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

| Choice                              | Possible Answers                  |
|-------------------------------------|-----------------------------------|
| <input type="checkbox"/>            | After the cladding is fixed       |
| <input checked="" type="checkbox"/> | Before the cladding is fixed      |
| <input type="checkbox"/>            | While the cladding is being fixed |
| <input type="checkbox"/>            | At any convenient time            |

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

| Choice                              | Possible Answers                       |
|-------------------------------------|----------------------------------------|
| <input type="checkbox"/>            | They allow for shrinkage in a building |
| <input type="checkbox"/>            | They tie the brickwork to the frame    |
| <input checked="" type="checkbox"/> | They allow for movement in a building  |
| <input type="checkbox"/>            | 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.**

| Choice                              | Possible Answers   |
|-------------------------------------|--------------------|
| <input checked="" type="checkbox"/> | Before brickwork   |
| <input type="checkbox"/>            | After brickwork    |
| <input type="checkbox"/>            | After plasterboard |
| <input type="checkbox"/>            | Any time           |

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

|                                                                                                                                                      |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Answer<br>Smoke control and containment systems<br>Dusting for heating and cooling<br>Communication systems<br>Extractive vacuum and exhaust systems | <input type="checkbox"/> |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|

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

| <b>Answer</b> | Classes 1 and 10  | Classes 2 to 9               | <input type="checkbox"/> |
|---------------|-------------------|------------------------------|--------------------------|
|               | Volume 2 Part 3.6 | Volume 1 J3.4, FV1., F1.13 1 |                          |

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

|               |                 |                          |
|---------------|-----------------|--------------------------|
| <b>Answer</b> | AS1288 & AS2047 | <input type="checkbox"/> |
|---------------|-----------------|--------------------------|

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

| <b>Answer</b> | Choice                              | Possible Answers                                       | <input type="checkbox"/> |
|---------------|-------------------------------------|--------------------------------------------------------|--------------------------|
|               | <input checked="" type="checkbox"/> | To help work out the appropriate type of window        |                          |
|               | <input checked="" type="checkbox"/> | To work out the appropriate opening size of windows    |                          |
|               | <input checked="" type="checkbox"/> | To work out whether to use a timber or aluminium frame |                          |
|               | <input checked="" type="checkbox"/> | 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.**

| <b>Answer</b> | Classes 1 and 10                     | Classes 2 to 9                    | <input type="checkbox"/> |
|---------------|--------------------------------------|-----------------------------------|--------------------------|
|               | Volume 2 Part 3.12.3.3, 3.6.0, 3.6.1 | Volume 1 B1.4, FV1.1, F1.13, F3.4 |                          |

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

|               |          |                          |
|---------------|----------|--------------------------|
| <b>Answer</b> | AS1720.1 | <input type="checkbox"/> |
|---------------|----------|--------------------------|

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

**Answer**

A roof system is the structure that forms the roof of a building.

Gable

Hip

Skillion

☐

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

**Answer**

|                                     |       |
|-------------------------------------|-------|
| <input type="checkbox"/>            | True  |
| <input checked="" type="checkbox"/> | False |

☐

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

**Answer**

Rise and pitch of roof against plan  
Correct propping of ridge hips, valleys, rafter and under purlins at correct centres  
Adequate collar ties  
Line of rafter, hips and valleys  
Support of strutting beams  
Fasia and barge boards  
All tie downs and fixings  
Ceiling joist and alignment with rafters  
Hanging beams  
Trimmers for location  
Trimming to manhole

☐

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

**Answer**

Truss layout plan  
Manufacturers specifications for tie downs, bracing and lateral stability  
Roof truss certification  
Adequacy of supporting structure  
Dimension, overall width and length of wall for fit  
Support to girder truss  
Plum and spacings  
All tie downs and fixings  
Location of specialised trusses  
Trusses have not been modified on site  
Eave overhangs  
Trimming to manhole

☐

**87. Name three (3) roof cladding materials.**

**Answer**

Tile, Sheeting & shingles

☐

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

**Answer**

15 degrees or greater

☐

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.

| Choice                              | Possible Answers                 |
|-------------------------------------|----------------------------------|
| <input type="checkbox"/>            | Away from the prevailing weather |
| <input type="checkbox"/>            | Towards the north                |
| <input checked="" type="checkbox"/> | Towards the prevailing weather   |

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

|                                     |       |
|-------------------------------------|-------|
| <input checked="" type="checkbox"/> | True  |
| <input type="checkbox"/>            | False |

91. What Australian Standard relates to sarking?

|        |               |
|--------|---------------|
| Answer | AS/NZS 4200.1 |
|--------|---------------|

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

|        |                                            |
|--------|--------------------------------------------|
| Answer | Whirly birds, Steel posts & plumbing vents |
|--------|--------------------------------------------|

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

|        |                                                                     |
|--------|---------------------------------------------------------------------|
| Answer | Roof light, for the purposes of Section J and Part F4 in Volume One |
|--------|---------------------------------------------------------------------|

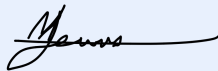
## CPCCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS & CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS

### PRACTICAL ASSESSMENT INSTRUCTIONS

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

Participant name Michael Lewis

Participant signature



Date 01/07/2021

Assessor name Kieran Lewis

Assessor signature



Date 01/07/2021

| Task   | Task outcome (Tick)                 |                          |
|--------|-------------------------------------|--------------------------|
|        | Satisfactory                        | Not Yet Satisfactory     |
| Task 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Task 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

### ASSESSOR COMMENTS

## CPCBC4010B APPLY STRUCTURAL PRINCIPLES TO RESIDENTIAL LOW RISE CONSTRUCTIONS

| Practical Task 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>Description of task:</b><br>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).<br><br>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:<br>98. Photographic evidence of projects, including detailed descriptions of all structural elements<br>99. Documentation from a project structurally designed; for example a garage, small extension, etc. including: <ol style="list-style-type: none"> <li>1. A copy of the plans and/or specifications</li> <li>2. Identification of site classification, uplift forces, wind ratings,</li> <li>3. Component selection methods – for example; BCA references, Australian Standard references</li> </ol> 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. |                                                                                             |
| <b>Resources required:</b><br>Plans, computer, suitable work area appropriate to the construction process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                             |
| Assessment of task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                             |
| <b>Name of participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Michael Lewis                                                                               |
| <b>Name of observer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Kieran Lewis                                                                                |
| <b>Role of observer<br/>(Confirm suitability to sign)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Director                                                                                    |
| <b>Email address of observer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | kieran@jdlconstruction.com.au                                                               |
| <b>Signature of observer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                             |
| <b>Date:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 01/07/2021                                                                                  |
| <b>When completing the task, did the participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Tick if<br/>satisfactorily<br/>completed.<br/>Provide comments<br/>if left unticked.</b> |
| 1 Apply structural principles to planning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                             |
| 1. Identify main structural principles that apply to the erection or demolition of the structure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input checked="" type="checkbox"/>                                                         |
| 2. Describe structural performance in terms of the effect of section properties on various materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input checked="" type="checkbox"/>                                                         |
| 3. Explain structural performance characteristics of the slabs, floors, beams, columns and retaining walls – and apply to the planning of the construction work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/>                                                         |
| 4. Coordinate demolition of existing structures in accordance with safe work practices, legislative, environmental and planning requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/>                                                         |
| 2 Structural integrity of buildings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                             |
| Q1. 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).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/>                                                         |

|                                                                                                                           |                                                                                                                                                                                                                                     |                                     |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Q2.                                                                                                                       | Collect and analyse project documentation to assist with the analysis of plans and specifications.                                                                                                                                  | <input checked="" type="checkbox"/> |
| Q3.                                                                                                                       | Analyse project documentation for compliance with National Construction Code requirements for bushfire, high wind, earthquake and alpine environments.                                                                              | <input checked="" type="checkbox"/> |
| Q4.                                                                                                                       | 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.                     | <input checked="" type="checkbox"/> |
| Q5.                                                                                                                       | Conduct pre-commencement site inspection to confirm analysis.                                                                                                                                                                       | <input checked="" type="checkbox"/> |
| <b>3 Footing system</b>                                                                                                   |                                                                                                                                                                                                                                     |                                     |
| 2.7A.                                                                                                                     | Set out footings in accordance with building plans.                                                                                                                                                                                 | <input checked="" type="checkbox"/> |
| 2.7B.                                                                                                                     | Assess structural integrity of the footings specified in the plans for compliance with relevant codes and accepted industry construction principles.                                                                                | <input checked="" type="checkbox"/> |
| 2.7C.                                                                                                                     | Lay footings specified in building's plan, checking for compliance with project documentation.                                                                                                                                      | <input checked="" type="checkbox"/> |
| 2.7D.                                                                                                                     | Plan, implement and check damp coursing, provision of termite barriers and other relevant techniques in accordance with codes, standards and industry practice.                                                                     | <input checked="" type="checkbox"/> |
| <b>4 Floor system</b>                                                                                                     |                                                                                                                                                                                                                                     |                                     |
| 1.3A.                                                                                                                     | Assess concrete slab or bearers and joists specified in building plan for structural integrity and compliance with relevant codes and accepted industry construction principles.                                                    | <input checked="" type="checkbox"/> |
| 1.3B.                                                                                                                     | Supervise laying of floor system specified in building's plan, checking for compliance with project documentation.                                                                                                                  | <input checked="" type="checkbox"/> |
| <b>5 Structural and non-structural wall systems</b>                                                                       |                                                                                                                                                                                                                                     |                                     |
| 2.1A.                                                                                                                     | Identify and analyse technical construction principles and performance of materials to be used in the construction in the planning of the building and construction project.                                                        | <input checked="" type="checkbox"/> |
| 2.1B.                                                                                                                     | Plan, implement and check application of bracing requirements, tie-downs, tolerance, allowances and fixing and installation of components for compliance with relevant Australian standards, codes and manufacturer specifications. | <input checked="" type="checkbox"/> |
| 2.1C.                                                                                                                     | Select structural timber members for low rise buildings to conform to AS1684 requirements.                                                                                                                                          | <input checked="" type="checkbox"/> |
| 2.1D.                                                                                                                     | Put processes in place to ensure quality of the frame – whether factory pre-cut and pre-nailed, factory pre-cut and assembled on site, or cut and assembled on site.                                                                | <input checked="" type="checkbox"/> |
| 2.1E.                                                                                                                     | Attach and check vapour permeable sarking or a waterproof membrane relevant to the construction method.                                                                                                                             | <input checked="" type="checkbox"/> |
| <b>6 Roof system</b>                                                                                                      |                                                                                                                                                                                                                                     |                                     |
| 2.2A.                                                                                                                     | Assess structural integrity of roof system components specified in building plan for compliance with relevant codes and accepted industry construction principles.                                                                  | <input checked="" type="checkbox"/> |
| 2.2B.                                                                                                                     | Plan, implement and check erection of roof trusses in accordance with requirements of building plan, type of roof being construction, relevant codes and accepted industry construction principles.                                 | <input checked="" type="checkbox"/> |
| 2.2C.                                                                                                                     | Put processes in place to ensure quality of the manufactured roof trusses or hand-cut roof system.                                                                                                                                  | <input checked="" type="checkbox"/> |
| 2.2D.                                                                                                                     | Plan roof sarking and cladding and supervise installation for compliance with codes, standards and industry practice.                                                                                                               | <input checked="" type="checkbox"/> |
| <b>7 External wall cladding</b>                                                                                           |                                                                                                                                                                                                                                     |                                     |
| 2.3A.                                                                                                                     | Assess structural performance of cladding to be used for bracing in the frame construction for compliance with relevant codes, manufacturer specifications and accepted industry construction principles.                           | <input checked="" type="checkbox"/> |
| 2.3B.                                                                                                                     | Supervise installation of cladding as specified in building plan, and check for compliance with standards and accepted industry construction principles.                                                                            | <input checked="" type="checkbox"/> |
| 2.3C.                                                                                                                     | Supervise installation of windows and external doors to ensure compliance with relevant codes, manufacturer specifications and accepted industry construction principles.                                                           | <input checked="" type="checkbox"/> |
| <b>The Participant's performance was:</b> <input type="checkbox"/> Satisfactory <input type="checkbox"/> Not Satisfactory |                                                                                                                                                                                                                                     |                                     |



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## CPCCBC4011B APPLY STRUCTURAL PRINCIPLES TO COMMERCIAL LOW RISE CONSTRUCTIONS

| Practical Task 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| <b>Description of task:</b><br>A suitable observer is to verify the participant's ability to apply structural principles to the erection and demolition of a low rise commercial structure (Classes 2 to 9 with a gross floor area not exceeding 2000m <sup>2</sup> , but not including Type A or Type B construction).<br><br>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:<br>5. Photographic evidence of projects, including detailed descriptions of all structural elements<br>6. Documentation from a commercial works structurally designed; including:<br>1. A copy of the plans and/or specifications<br>2. Identification of site classification, uplift forces, wind ratings<br>3. Component selection methods – for example; BCA references, Australian Standard references<br><br>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. |                                                                                     |
| <b>Resources required:</b><br>Plans, computer, suitable work area appropriate to the construction process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                     |
| Assessment of task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     |
| <b>Name of participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Michael Lewis                                                                       |
| <b>Name of observer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Kieran Lewis                                                                        |
| <b>Role of observer<br/>(Confirm suitability to sign)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Director                                                                            |
| <b>Email address of observer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | kieran@jdlconstruction.com.au                                                       |
| <b>Signature of observer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| <b>Date:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 01/07/2021                                                                          |
| <b>When completing the task, did the participant:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Tick if satisfactorily completed.<br/>Provide comments if left unticked.</b>     |
| 1 Apply structural principles to planning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                     |
| 1. Identify main structural principles that apply to the erection or demolition of the structure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/>                                                 |
| 2. Describe structural performance in terms of the effect of section properties on various materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input checked="" type="checkbox"/>                                                 |
| 3. Explain structural performance characteristics of the slabs, beams, columns and retaining walls – and apply to the planning of the construction work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input checked="" type="checkbox"/>                                                 |
| 4. Coordinate demolition of existing structures in accordance with safe work practices, legislative, environmental and planning requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input checked="" type="checkbox"/>                                                 |

| <b>2 Structural integrity of buildings</b>                                                                                |                                                                                                                                                                                                                                                                                                        |                                     |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 1.                                                                                                                        | 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).                                                       | <input checked="" type="checkbox"/> |
| 2.                                                                                                                        | Collect and analyse project documentation to assist with the analysis of plans and specifications.                                                                                                                                                                                                     | <input checked="" type="checkbox"/> |
| 3.                                                                                                                        | Analyse project documentation for compliance with National Construction Code requirements for bushfire, high wind, earthquake and alpine environments.                                                                                                                                                 | <input checked="" type="checkbox"/> |
| 4.                                                                                                                        | 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.                                                                                        | <input checked="" type="checkbox"/> |
| 5.                                                                                                                        | Conduct pre-commencement site inspection to confirm analysis.                                                                                                                                                                                                                                          | <input checked="" type="checkbox"/> |
| <b>3 Footing system</b>                                                                                                   |                                                                                                                                                                                                                                                                                                        |                                     |
| 1.                                                                                                                        | Set out footing systems in accordance with building plans.                                                                                                                                                                                                                                             | <input checked="" type="checkbox"/> |
| 2.                                                                                                                        | Assess structural integrity of the footings specified in the plans for compliance with relevant codes and accepted industry construction principles.                                                                                                                                                   | <input checked="" type="checkbox"/> |
| 3.                                                                                                                        | Lay footings specified in building's plan, checking for compliance with project documentation.                                                                                                                                                                                                         | <input checked="" type="checkbox"/> |
| 4.                                                                                                                        | Plan, implement and check damp coursing, provision of termite barriers and other relevant techniques in accordance with codes, standards and industry practice.                                                                                                                                        | <input checked="" type="checkbox"/> |
| <b>4 Floor system</b>                                                                                                     |                                                                                                                                                                                                                                                                                                        |                                     |
| 1.                                                                                                                        | Assess floor system components specified in building plan for structural integrity and compliance with relevant codes and accepted industry construction principles.                                                                                                                                   | <input checked="" type="checkbox"/> |
| 2.                                                                                                                        | Supervise laying of structural floor system specified in building's plan, checking for compliance with project documentation.                                                                                                                                                                          | <input checked="" type="checkbox"/> |
| <b>5 Structural wall systems and wall cladding systems</b>                                                                |                                                                                                                                                                                                                                                                                                        |                                     |
| 1.                                                                                                                        | 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.                                                                                                  | <input checked="" type="checkbox"/> |
| 2.                                                                                                                        | Identify, implement and check processes for erecting wall systems and wall cladding systems for compliance with manufacturer specifications and relevant Australian standards and codes.                                                                                                               | <input checked="" type="checkbox"/> |
| 3.                                                                                                                        | Identify and implement building plans and relevant standards and codes to ensure appropriate allowances were made for relevant services to be installed.                                                                                                                                               | <input checked="" type="checkbox"/> |
| 4.                                                                                                                        | Install windows and external doors in compliance with relevant codes, manufacturer specifications and accepted industry construction principles.                                                                                                                                                       | <input checked="" type="checkbox"/> |
| <b>6 Structural roof systems and roof cladding systems</b>                                                                |                                                                                                                                                                                                                                                                                                        |                                     |
| 1.                                                                                                                        | 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.                                                                                       | <input checked="" type="checkbox"/> |
| 2.                                                                                                                        | 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. | <input checked="" type="checkbox"/> |
| 3.                                                                                                                        | Put processes in place to ensure quality of finished roof system.                                                                                                                                                                                                                                      | <input checked="" type="checkbox"/> |
| <b>The Participant's performance was:</b> <input type="checkbox"/> Satisfactory <input type="checkbox"/> Not Satisfactory |                                                                                                                                                                                                                                                                                                        |                                     |

