CPCCBC6016
ASSESS CONSTRUCTION FAULTS IN LARGE BUILDING PROJECTS
ASSESSMENT SUMMARY

The assessment activities for *CPCCBC6016 Assess construction faults in large building projects* cover all aspects of the unit of competency. For Apprentices/Trainees, this includes supervisor completion of the Apprentice/Trainee Record (ATR).

Participants must read all the information given before starting any assessment task. The assessment tasks are intended to be fair, flexible, valid and reliable. 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 all questions or perform all tasks, they will be deemed 'Not Satisfactory' for the task and 'Not Yet Competent' for the unit of competency.

The Trainer/Assessor can provide the Participant with additional information on interpreting the assessment outcomes and guide the Participant's options. If a Participant is still deemed 'Not Satisfactory' they will have the opportunity to undertake a supplementary assessment or appeal the result as per the process in the Student Handbook.

By signing below, the Participant acknowledges:
- They understand the assessment instructions and requirements, and consent to being assessed.
- The work submitted is to be their own work – with the work of/with others needing to be clearly acknowledged and documented.
- They consent to any photo/video recording of their work that occurs during assessment.

Participant name	Ryan Hay
Participant signature	Ryan Hay Digitally signed by Ryan Hay DN: E=rhay@besixwatpac.com, CN=Ryan Hay, OU=BNE, OU=Construction, OU=User Accounts, OU=Watpac Group, DC=watpac, DC=local Date: 2024.05.08 17:00:42+10'00'

Pre-requisite unit(s) to be achieved and authenticated prior to undertaking assessment
☐ Not applicable

Task	**Date completed**	**Assessment Results**	
Theory Exam	Select Date.	☐ Satisfactory	☐ Not Satisfactory
Practical Assessment	Select Date.	☐ Satisfactory	☐ Not Satisfactory
Outcome for CPCCBC6016	Select Date.	☐ **Competent**	☐ **Not Yet Competent**

Evidence requirements checklist (ticked by assessor and evidence supplied to RTO)	
☑ Theory Exam	☑ Practical Assessment
	☑ Rectification report with detailed sketches

Assessor name	
Assessor signature	

CPCCBC6016
ASSESS CONSTRUCTION FAULTS IN LARGE BUILDING PROJECTS

THEORY EXAM

Participant name	Ryan Hay

FOR THE PARTICIPANT
Instructions

• You will complete written questions as outlined on the following pages. You must attempt all questions and provide enough detail in your responses to demonstrate your knowledge.
• It is anticipated that you should complete this assessment within two (2) hours, but additional time may be allowed upon negotiation with the Assessor.
• You must complete all questions unassisted by the Assessor or other personnel but may refer to reference material as needed. All questions must be answered correctly for a 'Satisfactory' assessment outcome to be awarded.
  o An oral examination may be allowed under certain circumstances, whereby your answers will be documented by another party.
  o Any written questions that are incomplete, or not answered satisfactorily will need to be completed again after further training support.
  ▪ If you answer a question incorrectly but modify your response, put your initials next to the written change (or the Assessor must initial a verbal change).

Resources required
Pen

FOR THE ASSESSOR
Instructions
• Where oral examination has occurred, ensure that this is acknowledged in writing (e.g. FT001 and Assessor Comments) • All questions must be satisfactorily demonstrated by the Participant for a Satisfactory determination (indicated by an Assessor tick to the right of the question). • Assessors are to complete marking in pen of a different colour to the Participant. • If the Participant verbally modifies their response, write in the modified response verbatim and put your initials next to the written change.

ASSESSOR COMMENTS
As necessary, outline: • Details on reattempts, alternative arrangements or reasonable adjustments made. • Where a Participant is deemed 'Not Satisfactory', provide recommendations for future training.

Q1. **Explain the purpose of the Building Act 1975.**

Answer

An Act to regulate building development approvals, building work, building classification, building certifiers and pool safety inspectors, and to provide for particular matters about swimming pool safety and sustainable buildings, and for other purposes

Q2. **Explain the purpose of the Plumbing and Drainage Act 2018.**

Answer

Main purpose of Act
(1) The main purpose of this Act is to regulate the carrying out of plumbing or drainage work in a way that reduces risks to—
(a) public health and safety; and [Current as at 1 February 2024 Authorised by the Parliamentary Counsel
(b) the environment.

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Q3. **a) What is the name of the Environmental Protection Act in your State/Territory?**
b) What is the purpose of this Act and its regulations?

Answer

a) The Environmental Protection Act 1994

b) The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends

Q4. **What are the requirements for compliance and conformance according to National Construction Code (NCC)?**

Answer

That all products and materials must be fit for purpose and that evidence of suitability is used to demonstrate that the materials, design and construction meets the performance requirement or deemed to satisfy provision.

☐

Q5. **Discuss the purpose of Work Health and Safety 'Codes of Practice'.**

Answer

To provide practical guidance for a business on how to achieve health and safety standards required under the Work Health and Safety Act (WHS Act).
A code of practice also has effective ways to identify and manage risks.

☐

Q6. **The National Construction Code (NCC) Volume Two Amendment 1 – Part 3.0 Structural provisions discusses 'Resistance to actions'. Explain what is stated.**

Answer

In short its stating that the design of building must be designed with greater integrity than the worst case scenario.
So in regards to load, in my experience buildings are designed with anywhere between 10% and 25% excess max load as a safety factor.
This would include live loads, dead loads, wind and snow etc.

☐

Q7. **What is covered in AS/NZS 1170 series?**

Answer

The AS/NZS 1170 series is a set of standards in Australia that provides guidelines for structural design actions. It covers various loads, such as wind actions (AS/NZS 1170.2), snow and ice actions (AS/NZS 1170.3), and earthquake actions

Q8. **Explain why you should review project drawings, details and specifications when assessing construction faults in buildings.**

Answer

Ideally, the project should have been designed in a way that would not have had faults had it been completed to the specifications and drawings.
The project drawings and specification should be reviewed first to understand if the project was built to the specification.
You would need to go through QA documents to find if there are any faults in the works that have been completed to understand if the fault was through poor workmanship or through a insufficient design.
If the design looks to be the problem you would need to go back to relevant engineers or the like and have them review the issue.
If this raises responsibility issues then a 3rd party review may be required.

Q9. **Discuss the basic principles of structural design that must be considered in any building design.**

Answer

Structures are design to withstand all forces that may be imposed on it durings its life cycle.

A structure is designed to keep the buildings shape when these forces are imposed on it.

Considerations for the following need to be addressed during design:
Ground conditions including foundation depths
Building heights
Structure type or method
Area wind rating requirements
Temperature zones
Property location

Q10. **Discuss compressive and tensile stresses on buildings.**

Answer

Compressive strength is when loads are forcing components together.
Like a slab down onto a column.

Tensile strength is a load which is pulling something apart like a bolt connection from a post to the underside of the slab.

Q11. **Discuss the structural significance of building basements in tall buildings.**

Answer

Tall buildings will generally use the basement structure to help with the lateral loads of the building.
In multi level carparks, slabs can be used to brace the piles and can also use the pressures of the ground around the piles (passive pressure) to help brace the piles from bending.

Q12. **What is meant by the term the 'aesthetics' of a structural design?**

Answer

That the structure has been designed to look good and is in proportion to finishes on the façade and that the method of building it is to run smoothly

Q13. **Explain economic factors and how these affect design.**

Answer

All projects no matter what size have some sort of budget.
Designs should be completed keeping these budgets in mind.
So assume we are talking about a tall commercial building:

Larger projects can use an array of different methods in which they all have financial advantages and disadvantages.

A steel structured floor plate will generally be faster to build than a reinforced concrete slab and requires less workers to achieve it. However there maybe factors in the design whether it be structure, fire rating or general use of the floors.

Precast can be a great solution for projects.
The finish of the panels generally are of much better quality than a FRP wall completed on the job.
Inclement weather does not delay the projects as they are done in a factory.
This is a much faster system than FRP walls for the site however, this option is very expensive in comparison and requires large cranes to be able to achieve it.

There are many factors to be taken into account in the design:

1. Service life
2. Safety in design. Can the building be built safely and is it safe for the user.
3. Budget
4. Quality (this includes the building being fit for purpose)
5. Program

Q14. **'The function of a structure is to resist forces in equilibrium' - what does this mean?**

Answer

This means that all forces or moments acting on the building are balanced

Q15. **Why is reinforced concrete commonly used for the construction of high-rise buildings?**

Answer

Durability
Good fire rating properties
Strong
It's a very workable product and can be shaped in many ways.
Allows very little movement

Q16. **Discuss why you might need to consult the structural engineer regarding the loads and forces acting on a beam or column.**

Answer

All designs should be completed by an engineer.
Usually a big factor is the settlement of the building when looking at façade design and internal framing.
These elements need to take into consideration any movement gaps that are required to ensure that the structure does not place pressure on the element.
Light weight walls usually have a head track that allows the studs to move up and down inside the track. This way the wall will not deform or crack.

Façade panels may have elongated holes in the mounting brackets that allow movement so the façade panel does not crack.

Q17. **Determine the bending behaviour of a column under axial load.**

Answer

An axial load is when the load that the column is carrying, is directed down through the centroid of the column.
Under this load depending on the size and height of the column they will compress and/or bend laterally.
Longer columns will tend to bend more than shorter columns

Q18. **Describe the performance characteristics of columns under eccentric load.**

Answer

The force on the column is pushing the column away as the force on the column is not through the columns centroid so the column may tip sideways

Q19. **Discuss bending moments, shear forces, deflection and torsion of beams and slabs.**

Answer

Beams/Slabs	Response
Beams	Bending moments is the torque that keeps a beam together. When a beam has a load forced down onto the beam the beam will bend. So the bottom of the beam will stretch while the top of the beam compresses so both reactions are working against each other creating Torque. Shear forces are when the loads enforced make one reaction work against the other. So while force is applied down onto a beam the support of the beam is stationary or pushing up. Deflection is the amount the beam bends or sags down after shrinkage and a force is applied and is accounted for in the design. Torsion is when the load creates force that makes the beam twist or deform in some way. For example when a beam is on top of a column and the beam sags the end of the beam will need to distort as the bottom of the beam is is stretching and the top of the beam is compressing. On a beam the torsion point is generally over the column or point of support and can go hand in hand with Shear and bending moments.
Slabs	Bending Moments on a slab, the design bending moments are the reactions in the slab from the load enforced on the slab. Usually near the center of the span at the top of the slab this is called positive bending moment and at the bottom of the slab over a column is called negative bending moment. Shear strength on a slab is the slab supporting itself against another force in an opposite direction. Slab to walls, slab to beams, slab to columns etc. Deflection of a slab is how far the slab sags down after the structure has settled and the final loads have been applied. Torsion, much the same as the torsion of the beam is when the reactions of the structure make the slab twist from the point of negative bending moment that is created over a column or the like.

Q20. **Discuss how beams are connected to columns. Explain your answer.**

Answer

Concrete beams are connected usually via reinforcement.

The reinforcement of the columns is cogged into the slab and the columns are poured first.

After this, the beam is formed and reinforcement is placed into the form and over the column and then poured over.

There are different connection details for different designs but this would cover 95% of concrete structures

Q21. **Describe the slenderness ratio and its effect on columns.**

Answer

The slenderness ratio is the proportion of a column's length to its smallest radius of gyration. It's often used for calculating design loads and sorting columns into short, long, and intermediate categories. The column's slenderness ratio indicates whether or not the column is buckling. The higher the slenderness ratio, the more likely the column may fail due to buckling in the direction.

Q22. **Discuss the characteristics of dead loads and live loads. Include how each is calculated.**

Answer

Load	Characteristics and calculations
Dead load	Are the loads on the structure that will generally remain stationary like joinery, plant, internal finishes. This could also be a load that can build up like snow.
Live load	A live load is loads that move like people, movable furniture and includes plant used tyo build the structure like scissor lifts

Q23. **What is the advantage of using composite floor systems consisting of steel beams, profiled metal decking, and reinforced concrete slabs?**

Answer

Fast construction.
Less workers required when comparing to a conventional formwork system where formworker, reinforcement fixers and concretors are required.
Lighter weight
Less concrete required normally meaning also that more ceiling space can be achieved
Very little formwork or propping so works can commence under new slabs relatively quickly and propping can be pulled out earlier than conventional forwork.
Very little materials handling.

Q24. **Discuss the characteristics of the following high performance structural elements.**

Answer

Structural element	Characteristics
Castellated beams	Steel beams that can be I-H or U shaped. Lightweight. Achieve long spans Has perforated webbing so services can pass through these.
Laminated beams	Created by adhering multiple layers of timber together. Long spans when compared to other species of timber beams.
Pre-stressed concrete beams	Beams with cables running through them that are tensioned and grouted in. Help reduce quantities of reinforcement due to the cable taking the weight. Helps with reducing the amount of columns that are required to support the beams.
Trusses	Can be timber or steel and are a series of members that are fixed to each other usually creating the shape of triangles. Easy to install and can be lighter weight when compared to single timber or steel members. For roofing the roof rafter and ceiling joist come in one piece greatly reducing labour cost.
Waffle slabs	Slabs that usually have foam or void formers layed on the ground with spaces in between creating beams or ribs to enable greater strength in the slab without going a thicker slab. Also good for sites where the slab is higher than the suurounding ground as there is no need to fill and compact areas to bring the subgrade up to the base of the slab. Also good for reactive soils as the slab to a degree can carry its own weight.

Q25. **How does thermal impact affect a load on structure?**

Answer

This is when the properties of an element change due to the temperature of the environment it is in.

In heat, steel and glass would expand to some degree.
Timber can actually shrink dependant on the type and quality of the timber hence why in some buildings you here the walls or roof members creak after there is a shift in temprarture.
Light steel framing is known to creak and move during sudden changes of temperature.
Masonry also have an element of stress when they are heated really there is no measurable change in shape.

Q26. **Describe the process associated with fabricating and installing tilt-up concrete panels.**

Answer

Tilt up panels are created by:

1. Starting by Usually have a flat hard surface like another slab to works off.
2. Place a membrane down to ensure the concrete of the panels don't stick to the substrate.
3. Form up the sides of the panel
4. Place reinforcement inside along with all lifting points and dowel sleeves that are placed in the bottom of the beam.
   All are designed by an engineer
5. Pour concrete inside the form and let it cure for a prescribed time frame.
6. Once approved to lift, a crane can lift the panels into position over the top of the dowel system coming out of the slab or footing.
7. Braces are installed to hold the panel in position once plumbed up.
8. Grout is then injected into the sleeves
9. Panels will remain braced until the remaining structure is installed

Q27. **What are the impacts of creep and shrinkage on concrete structures?**

Answer

Creep is the increased strain of a structural part. Creep can be the shortening of a column under load or the column slightly leaning as more load is put on.
Suspended slabs are known to creep as they are poured as the load of the slab onto columns is not applied evenly.

Shrinkage is when an element (usually Concrete) actually shrink as the maoisture content is reduced.
Shrinkage must be taken into account during design as well as during construction.

Columns should be poured first and allowed to cure prior to the slab being poured over due to the fact that what can happen is the column can actually pull away from the slab as the concrete on the column and the concrete in the slab have cured at different times and rates.

Q28. **Discuss considerations that must be made when using masonry in the construction of high-rise buildings.**

Answer

What is supporting the masonry. Some structures may have rebates in slabs to carry the brickwork or shelf angles could be intrucued.
Continuous heights of masonry. All types of masonry have maximum continuous heights that they are able to go before a structure support would need to be installed.
Climate of the building location. Some locations may have environments that can affect the life time of the masonry product.

Fire rating. Different types of masonry have different fire ratings and may or may not be able to be used dependant on what the design is.

Slab mass ratings for not only the finished product but for materials point loading during construction. How many pallets per m2.

Construction sequence. Comes down to design as different types of construction require different sequences. For example brick veneer construction requires stud work to be installed so that the brick can tie back to the frame. Stand alone bricks or blocks can potentially could go in any sequence

Q29. **Explain the differences between structural steel and cold-formed steel.**

Answer

Cold formed steel is manufactured and shaped through dies and do not use heat in the process.
The steel is much lighter gauge and is mainly used as light weight framing members like wall studs, purlin members for walls and roofs as well as curtain walls.

Structural steel is hot rolled to create much thicker and heavier members that are much stronger than CFS.

Q30. **Discuss three (3) uses of aluminium in the construction industry and why it is used.**

Answer

Façade/glass framing

1. Very good for being corrosion resistant
Light weight
Good finish

2. Handrails
Very good for being corrosion resistant
Light weight
Good finish.

3. Tile angles
Very good for being corrosion resistant

Good finish.

Q31. **Briefly discuss the use of the following temporary structures and components in the construction of large and complex buildings.**

Answer

Temporary structure	Use
Bracing	All temporary works would have some type of bracing designed into the overall system. For example formwork has bracing between each frame to ensure that each leg cannot move once loaded
Closed Sheeting	This is a system that is usually placed in the ground to create a temporary retaining wall. Materials used would depend on the system but it could be a steel rectangular box (Shoring) or planks that are driven into the ground so that soil can be retained while works happen. Once works are complete these can be removed and the area backfilled
Formwork props	There are a lot of products on the markets but formworks props are any vertical load bearing item. This could also include single props that are not apart of the propriatryt system but have been introduced to take loads not allowed for. For example it maybe Post Tension cable coils or even formwork packs.
Pressure resistant formwork	This is formwork that is creating a mold for concrete to be poured into and the formwork not only need to carry the live and dead load but also needs to hold the pressure of the wet concrete. For example wall shutters need to be designed to hold the latrel pressure of the concrete wanting to push the shutter out.
Scaffolding sole plates	These are plates that are placed on the ground or on slabs to spread the load of the props. This will vary for didfernt systems but most conventional formwork system will have a hardwood plank under each prop.
Shields	Basicall formwork shutters that are made from a steel framework and usually timber soldiers and a plywood face. These secure to another shutter by using coil ties or conduits through the wall to take Z-ties and they clamp the wall together with a set dimension between the shutters creating a wall.
Shoring collar set	Shoring collars are used on temporary anchors during excavation. The collar, usually an angled piece of plate steel ensures that the diagonal load from the tension of the anchor transfers evenly into the pile or column or whaler.

Answer

Temporary structure	Use
Soldier set	These are the vertical timbers or steel members that are in the formwork walls or shutters

Q32. **How do you determine which document to use when communicating construction problems to relevant personnel?**

Answer

This depends on the problem:
Safety issues would need to be reviewed through using the WHS legislation and act along with state regs.
Through using SDS sheets, Materials specification sheets, project specifications and project drawings it can be verified what is the construction problem and how to fix it.

Q33. **You are contracted to undertake refurbishment of an inner-city hotel. Explain how this is different from a restoration or renovation.**

Answer

Refurbishments generally mean a redesign of floor space where rooms are changed and potentioally structural changed are made.

Restoration and renevations basically mean that rooms are renewed without changing the use or the structure of the building.

Q34. **Discuss why you might suggest refurbishing using fire-resistant building materials where possible.**

Answer

All refurbishments should be completed to the most recent code to be compliant construction.
Especially large projects that are gradually refurbished over time as it would not be good to have a mismatch of compliant and non-compliant areas.

Q35. **Complete the table below by identifying the type of fire-resisting construction (i.e. Type A, Type B, or Type C) given the following class of building and number of storeys each class of building has.**

Answer

Rise in Storeys	Class of building: 2,3,9	Class of building: 5,6,7,8
4 or more	A	A
3	A	B
2	B	C
1	C	C

Q36. **Describe how you would monitor alternative forms of construction to ensure compliance.**

Answer

Reading the construction drawings and the specification and note key points to take into consideration on site,
QA plan should detail hold points and detail materials to be used. This would be checked and verified on site.
Scope of works should be read to ensure the contractor is completing the work as per the scope.
Alternative forms need to be checked with performance indicators and checked with the NCC to ensure the alternative meets the code,
Details should be supplied by relevant “experts” to approve the use of the alternative form of construction.

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PRACTICAL ASSESSMENT

Participant name	Ryan Hay

FOR THE PARTICIPANT

Instructions

- The tasks outlined on the following pages will require performance of normal workplace activities, as a result of a structured activity set by an Observer in the workplace or a simulated activity set by your Assessor/Observer.
- The timeframe for these tasks will be established by your Assessor/Observer, in consideration of location conditions and industry requirements.
- You must complete all tasks unassisted by the Assessor or other personnel, unless the steps note this assistance.
- You must attempt all tasks (and itemised steps) for a 'Satisfactory' assessment outcome to be awarded.
    - For any observation conducted that is incomplete, or without satisfactory performance, the observation will need to be completed again after further training support.

FOR THE ASSESSOR/OBSERVER

Instructions

- The following observation record should be used to judge and record your observations of the Participant as they complete the task(s) set. You must record your observations of the Participant's performance.
    - For each occasion, indicate the task performed and whether it was a simulation or workplace-based task.
        - Any simulated assessment must ensure the Participant still performs under workplace conditions which reflect industry standards.
    - In the comments, provide clear detail regarding the task that the Participant was required to do (e.g. PPE used, materials handled, attachments connected, plant types).
- All steps must be satisfactorily demonstrated by the Participant for a 'Satisfactory' determination (indicated by an Assessor tick to the right of each itemised step, or an Observer tick to the right of each itemised step, and confirmation by an Assessor in the Assessor Comments).
    - Where you have determined that one or more task steps have not been satisfactorily demonstrated, provide the Participant with additional support and outline details of such assistance in the Assessor/Observer Comments. Allow the Participant two (2) further opportunities to demonstrate the task again to allow an opportunity for a 'Satisfactory' assessment outcome to be achieved.
    - If after three (3) attempts the Assessor determines that the Participant cannot demonstrate the required steps, a 'Not Satisfactory' outcome is to be determined.

TASK OUTCOME					
Task	**Date**	**Task Type (Tick)**	**Location**	**Task outcome (Tick)**	
				Satisfactory	Not Satisfactory
Task 1	Select Date.	☑ Workplace ☐ Simulation		☐	☐

ASSESSOR COMMENTS: GENERAL
As necessary, outline: • Details on reattempts, alternative arrangements or reasonable adjustments made. • Where a Participant is deemed 'Not Satisfactory', provide recommendations for future training.

ASSESSOR COMMENTS: PRACTICAL TASK 1	
☑ Individual student (as named on cover page) ☐ Multiple students [☐ All from Attendance Report, ☐ Specific students involved – identify students]	
Task	**Provide detail**
1.1A.	Specify specific construction fault/s on Type A building requiring rectification. NA for this project
1.1A.	Specify (✓) construction faults associated with two (2) of: ☑ Structural ☑ Installation ☐ Refurbishment ☐ Renovation ☐ Restoration ☐ Other (please specify):
1.1C. 1.1D. 1.5A. 1.5B.	Specify workplace practices adhered to when documenting and communicating construction problems to relevant personnel and external professionals. Aconex system has a defect register and process for subcontractors to close out issues raised. Or these are just discussed and rectified through in house discussions and emails.
1.1E.	Specify problem-solving techniques applied: Knowledge and referring to the NCC
1.2A.	Specify existing or designed-in construction common/ not common problems identified. ☑ None ☐ Other (please specify):
1.2B.	Specify alternative methods or materials suggested. N/A
1.2C.	Specify equipment and programs accessed to extract information: Aconex is used for information like drawings and specifications along with the defects system.
1.4C. 1.5C.	Specify how alternative method of construction will be managed and monitored. Through on site discussions and meetings and a QA process.

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Practical Task 1

Description of task:

The participant must demonstrate the skills and ability to assess construction faults and determine remedial action for construction faults associated with at least two (2) of the following: structural; installation; refurbishment; renovation or restoration on a Type A building project. The assessor will be seeking evidence of:

- Identify and analyse construction faults.
  - Collect information relating to specific construction faults.
  - Analyse original construction project plans and specifications to identify potential causes of construction faults or problems. Use problem-solving techniques to identify typical faults and problems.
  - Adhere to workplace practices when documenting and communicating construction problems to relevant personnel.
  - Make contact with project team members and external professionals to elicit expert analysis and opinions.
  - Use problem-solving techniques to identify typical faults and problems.
  - Develop and document a rectification action that meets the Performance Requirements of the National Construction Code (NCC).
- Analyse construction techniques, methods and materials.
  - Analyse working drawings and specifications to identify any existing or designed-in construction problems.
  - Prepare alternative methods and materials to meet the project specification objectives and comply with the NCC and relevant building legislation.
  - Use equipment and programs to access, extract information and develop relevant documentation.
  - Use building terminology accurately in the communication of issues.
- Evaluate alternative construction solutions.
  - Consider and analyse commonly occurring on-site problems with building materials and their causes.
  - Prepare reports identifying available alternative methods and materials available to meet the construction aims and objectives of the specifications.
  - Prepare detailed sketches of available alternative methods and materials that meet the construction aims and objectives of the specification.
- Resolve construction faults using alternative construction methods.
  - Consider and document solutions and recommend suitable alternative methods to resolve the problem and meet project aims and objectives and organisational processes.
  - Integrate selected methods into the project construction works to align with construction schedules and timeframes.
  - Manage and monitor alternative forms of construction to ensure compliance.
- Communicate preferred solution to construction problem.
  - Use digital tools to document technical resolution in detail of identified problem.
  - Lodge appropriate documentation and communicate with appropriate project and other construction professionals.
  - Determine and implement strategies to monitor corrective action processes and procedures.

These tasks may be simulated or real. 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. The Observer is to provide detailed comments on the tasks completed by the Participant (on the Observer Comments, overleaf). The Assessor is to verify the Observer's comments, noting their findings in the Assessor Comments (on the back of the Practical Assessment cover page) and provide the assessment outcome.

Resources required:

Type A building project; access to equipment, technology and software to assess and remediate construction faults in large building projects and collaborate effectively with external professionals; access to relevant government building legislation codes and standards; access to environmental and sustainability requirements; access to manufacturer specifications and installation instructions; workplace policies, procedures and site safety requirements; project plans and specifications.

Practical Task 1	
Observer details	
Name of observer:	Michael Brady
Role of observer (Confirm suitability to sign)	Project Manager
Email address of observer	MBrady@besixwatpac.com
Signature of observer:	Michael Brady Digitally signed by Michael Brady DN: E=mbrady@besixwatpac.com, CN=Michael Brady, OU=BNE, OU=Construction, OU=User Accounts, OU=Watpac Group, DC=watpac, DC=local Location: Mackay Reason: I am approving this document Contact Info: mbrady@besixwatpac.com Date: 2024.05.08 17:09:13+10'00'
Date:	Select Date.

When completing the task, did the Participant:		**Tick if satisfactorily completed. Provide comments if left unticked.**
1 Identify and analyse construction faults.		
1.1A.	Collect information relating to specific construction faults.	☑
1.1B.	Analyse original construction project plans and specifications to identify potential causes of construction faults or problems. Use problem-solving techniques to identify typical faults and problems.	☑
1.1C.	Adhere to workplace practices when documenting and communicating construction problems to relevant personnel.	☑
1.1D.	Make contact with project team members and external professionals to elicit expert analysis and opinions.	☑
1.1E.	Use problem-solving techniques to identify typical faults and problems.	☑
1.1F.	Develop and document a rectification action that meets the Performance Requirements of the National Construction Code (NCC).*(attach rectification request/ report)*	☑
2. Analyse construction techniques, methods and materials.		
1.2A.	Analyse working drawings and specifications to identify any existing or designed-in construction problems.	☑
1.2B.	Prepare alternative methods and materials to meet the project specification objectives and comply with the NCC and relevant building legislation.	☑
1.2C.	Use equipm ent and programs to access, extract information and develop relevant documentation.	☑
1.2D.	Use building terminology accurately in the communication of issues.	☑
3. Evaluate alternative construction solutions.		
1.3A.	Consider and analyse commonly occurring on-site problems with building materials and their causes.	☑
1.3B.	Prepare reports identifying available alternative methods and materials available to meet the construction schedule and objectives of the specifications.*(attach report/s)*	☑
1.3C.	Prepare detailed sketches of available alternative methods and materials that meet the construction aims and objectives of the specification.).*(attach detailed sketches)*	☑
4. Resolve construction faults using alternative construction methods		
1.4A.	Consider and document solutions and recommend suitable alternative methods to resolve the problem and meet project aims and objectives and organisational processes. *(attach report/s)*	☑
1.4B.	Integrate selected methods into the project construction works to align with construction schedules and timeframes.	☑

When completing the task, did the Participant:		Tick if satisfactorily completed. Provide comments if left unticked.
1.4C.	Manage and monitor alternative forms of construction to ensure compliance.	☑
5. Communicate preferred solution to construction problem.		
1.5A.	Use digital tools to document technical resolution in detail of identified problem.	☑
1.5B.	Lodge appropriate documentation and communicate with appropriate project and other construction professionals.	☑
1.5C.	Determine and implement strategies to monitor corrective action processes and procedures.	☑

Observer comments:
Needed to create a simulation as this project is in early works stage.