

CPCCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

ASSESSMENT SUMMARY

The assessment activities for *CPCCBC4004 Identify and produce estimated costs for building and construction 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	Tyanna Childs
Participant signature	

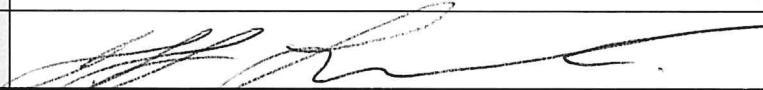
Pre-requisite unit(s) to be achieved and authenticated prior to undertaking assessment

☒ Not applicable

Task	Date completed	Assessment Results	
Theory Exam	12/02/2024	☒ Satisfactory	☐ Not Satisfactory
Workbook	14/02/2024	☒ Satisfactory	☐ Not Satisfactory
Practical Assessment	20/02/2024	☒ Satisfactory	☐ Not Satisfactory
Outcome for CPCCBC4004	20/02/2024	☒ Competent	☐ Not Yet Competent

Evidence requirements checklist (ticked by assessor and evidence supplied to RTO)

☒ Theory Exam	☒ Off-site production cost estimation (HO4)
☒ Workbook	☒ Labour cost estimation (HO5)
☒ Practical Assessment	☒ Physical resources cost estimation (HO6)
☒ Compliance sheet (HO1)	☒ Risk mitigation sheet (HO7)
☒ Project Details (HO2)	☒ Costings estimate spreadsheet template (HO8)
☒ Materials and consumables costing (HO3)	☒ Building Construction estimate spreadsheet (HO9)

Assessor name	Jeff Lewandowski
Assessor signature	

CPCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

THEORY EXAM

Participant name	Tyanna Childs
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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. ○ An oral examination may be allowed under certain circumstances, whereby your answers will be documented by another party. ○ 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.

Tyanna displayed a fundamental knowledge and principles of estimating. Only two questions required minor amendment (Q8 & Q18) Overall answers are more than satisfactory. Excellent work!

Cheers

Jeff

Q1. How is the construction industry in Australia regulated?

Answer

The construction industry in Australia is regulated by state/territory governments, along with the collaboration of the federal government and industry-specific bodies.

Some key aspects of the construction industry regulations in Australia are:

- National Construction Code (NCC)
- Australian Standards
- Work Health and Safety Regulations (WHS)
- Environmental Protection Authority Regulations (EPA)
- State/Territory-specific Building and Construction regulations
- Licenses and qualifications



Q2. How do you determine which Australian Standards are mandatory and therefore enforceable?

Answer

The Australian Standards are not laws and therefore not mandatory. However, if there is a law which says that you must comply with a specific standard then it is mandatory and enforceable. If an Australian Standard, or joint Australian/New Zealand Standard is referenced in state or federal governments then a standard can become mandatory.



Q3. Discuss how builders and others on construction sites ensure the safety of all on site.

Answer

Builders and other construction personnel must have completed CPCCWHS1001 *Prepare to work safely in the construction industry* and obtained their white card through the completion of this training, this will help them in identifying potential hazards on a construction site.

All building and construction sites should have comprehensive safety measures and protocols implemented that all builders and others on the construction site must adhere to. A risk assessment is an important step that is to be taken prior to commencing any work, where builders can identify any potential hazards associated with equipment, materials, work processes and environmental conditions.

PPE (Personal Protective Equipment) is a requirement for all builders and others on a construction site and helps in ensuring the safety of all onsite. Hard hats, high-visibility clothing, gloves, eye protection and safety boots are some of the key PPE items.

Regular safety briefings and training should be provided to all construction personnel on construction sites to reinforce safety protocols and to bring to light any safety concerns or issues.

Builders, and appropriate contractors, should also conduct regular site inspections to establish any potential hazards or safety concerns so that they can be flagged and rectified.

There are many things that builders and other construction personnel can do to achieve a safe environment for all on site, but listed above are some of the key aspects to ensure safety.



Q4. Why do construction projects have to abide by environmental protection legislation and regulations?

Answer

Firstly, and foremost because it is a legal requirement to adhere to the environmental protection legislation and regulation. Failure to do so can result in legal consequences and delays due to non-compliance. These legislations and regulations were put in place to ensure a healthy balance between development needs and environmental preservation, with the goal to minimize the negative impact that construction projects have on ecosystems, public health and the overall quality of life.



Q5. Describe the Environmental Protection Authority (EPA) and how environmental protection is monitored in the state/territory you work.

Answer

The Environmental Protection Authority is an independent statutory body responsible of safeguarding the environment and mitigating environmental harm. EPA's primary role is to prevent, control and oversee activities that may lead to adverse environmental impacts.

The environmental regulator in the state that I work in is the Queensland Government Department of Environment and Science (DES).

The DES implements monitoring programs aimed at assessing the condition of the environment. These programs include;

- Air quality monitoring network, which consists of stations around the state that contains equipment that records and stores weather and air pollutant data.
- Coal dust management, due to the impact on the air quality caused by coal dust emissions from coal mining activities. Investigations are currently being undertaken by the QLD Government so that specific mining activities that are affecting the air quality can have regulations put in place to lessen the environmental harm.
- Water quality monitoring. There is the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 which is in place to protect Queensland's water environment during development.

Along with the above, there is also Wetlands monitoring and Groundwater monitoring that is conducted by DES through different assessment methods.



Q6. Explain why workplace policies and procedures are important in relation to legislation.

Answer

Workplace policies and procedures are crucial in the construction industry as they ensure compliance with work health and safety (WHS), construction codes and standards, environmental regulations, licensing and qualification requirements, Compliance with Australian employment laws, contractual compliance, and management of legal risks.

Workplace policies and procedures are essentially guidelines implemented by a company to ensure that all personnel function in accordance with legal parameters and promotes a secure and compliant working environment.



Q7. Why should you understand the 'scope' of the workplace when producing estimated costs for building and construction projects?

Answer

Understanding the workplace 'scope' when producing estimated costs for building and construction projects is fundamental in generating accurate cost estimations. By understanding the scope, you are able to assess the size, complexity and specific needs associated with the project and therefore produce appropriate cost estimates for materials, labour and resources.

Making sure that the scope of work has been well-defined and understood helps to alleviate the risk of key elements being overlooked or incorrect, which will assist in producing accurate estimated costs and minimise scope changes that may impact the cost. This also applies to risk management, which is essential to account for uncertainties and possible issues that may arise. Effective risk management can lessen the impact that they may pose on the budget.



Q8. Explain the importance of construction schedules in relation to contracting tradespeople, material resourcing and inspections.

Answer

A construction schedule is important as it is a detailed action plan and timeline that outlines the sequence of activities involved in a project from start to finish.

This action plan not only lays out the sequence of tasks in time order, but also allocates resources efficiently, establishes clear deadlines, and plays a pivotal role in budget management, to ensure the completion of the works within budget and on time.



Q9. Discuss why builders should keep and maintain records of subcontractors, site supervisors and workers qualifications, competencies and licences.

Answer

Builders should keep and maintain records of Subcontractors, site supervisors and works qualifications, competencies, and licences as this ensures that workers have the appropriate training and understanding for the tasks that they are responsible for. Maintaining records of valid licensing and qualifications verifies not only that the worker has the skill level and ability to perform and deliver high-quality work, but also mitigates legal risks by demonstrating that the builder took the appropriate steps in acquiring competent and qualified personnel.



Q10. Why is it important to identify the site conditions during planning?

Answer

It is important to identify the site conditions during planning as it plays a large factor in the design and cost of the project. Identifying and understanding the site conditions ensures an accurate assessment of the works and materials required, so that the building is structurally appropriate and suitable for the surroundings and circumstances of the environment in which it is being built in, along with a cost estimation that is more accurate. It is also very important to do a risk assessment by identify the site conditions and implementing appropriate measures to mitigate the risks.



Q11. The 'Managing the work environment and facilities Code of Practice' states that a PCBU must so far as reasonably practicable provide adequate and accessible facilities for the welfare of workers. Discuss what must be organised to meet this requirement.

Answer

This chapter of 'Managing the work environment and facilities Code of Practice' focuses on the PCBU's responsibilities to provide adequate facilities for workers. The items that must be organised to meet this requirement are as follows –

- Access to facilities - including those with particular needs or disabilities)
- Drinking water – Must be clean and free of charge
- Toilets
- Hand washing facilities
- Dining facilities – These facilities are for storing, preparing, and eating food.

Other items that should be provided, dependant on the circumstances, are Personal storage facilities, change rooms and shower facilities.



Q12. Why should you determine the temporary boundary fencing requirements for the site?

Answer

Temporary boundary fencing is an important site control measure which controls access to the construction site, restricting access to unauthorized personnel. It serves to reduce and prevent accidents or injuries and is a requirement as per AS4687:2022. It also helps to deter theft and vandalism by securing and containing equipment and building materials.



Q13. Why is it important to establish communication protocols for the site?

Answer

It is important to establish communication protocols as it creates and supports a safe and compliant job site, with a clear understanding on the coordination and responsibility of the multiple different trades that will all be working amongst each other. The communication protocols set the guidelines in effective communication to essentially manage and mitigate risks, ensure safe practices and allow for a smooth progression and successful outcome of the project.



Q14. Discuss what must be determined when identifying waste removal requirements.

Answer

When identifying waste removal requirements, you must determine what kind of waste is being produced during the construction (eg hazardous waste, general waste, Industrial waste, recyclable rubbish, Organic waste, liquid waste) and the estimated volume and quantity. Based on this information you can then determine the appropriate methods and cost estimations associated with the waste removal. Dependant on which state/territory you are in, you must follow the relevant state/territory legislations and regulations to adhere to the appropriate method of waste removal. Health and safety measures should also be implemented with the handling and removal of waste, including the use of PPE (personal protective equipment).



Q15. What are the different costs to be considered when determining waste removal requirements for the site?

Answer

The different costs to be considered when determining waste removal requirements are –

- Transportation of waste from construction site to disposal facilities
- Waste segregation and waste storage/container – With the different classifications of waste, each type of waste will need to have its own applicable bin or container for waste to be placed in until it is taken to a disposal facility.
- Waste levy/disposal fee
- Personal Protective Equipment (PPE)
- Hazardous waste management
- Labour costs
- Applicable Permits and environmental assessments



Q16. Discuss additional project-specific statutory, approvals or compliance costs that must be met.

Answer

It is important that project-specific statutory, approvals or compliance costs are included in a project budget to ensure compliance.

Project-specific statutory, approvals and compliance costs include items such as Building Approvals, Environmental Impact Assessments, Heritage Impact Assessment, Native Title Assessment, Development Applications, Energy Efficiency Report, Developer Contributions to Local Government, Transport Infrastructure Levy, Certificate of Occupancy etc.



Q17. Discuss what a quantity take off is.

Answer

Quantity take off is a preliminary step in the construction process and is an important factor in ensuring accurate cost estimations and budgeting.

The exercise entails breaking down the project to individually estimate and then quantify various materials, labour, subcontractors, equipment and machinery, in order to get a total cost for the whole project.



Q18. How can you make use of modern technology when producing a take off?

Answer

Modern technology, such as CostX and other dedicated quantity take off software, allows the user to speed up the process, without effecting the accuracy, granted the right quantity take off software/technology is used. When using Quantity take off software you can use documents such as PDF plans to export quantities directly into spreadsheets, helping to reduce the time required for the Quantity take off process. And on top of that, because these software programs have specialized algorithms, it is a very effective tool in mitigating the risk of human error.



Q19. Discuss how you would estimate the cost of precast concrete components.

Answer

To be able to estimate the cost of precast concrete components you would need to review plans and specifications for the project to know the types, sizes and quantities required. Following on from this you would then need to measure and quantify the materials, determine the mix design, reinforcement requirements and formwork needed based on the project specifications. Labour and equipment costs then need to be factored in, along with overhead costs, transportation costs, waste and environmental costs and project-specific costs. There should also be an inclusion in the estimate for items such as contingencies, and some wiggle room for fluctuation in the market for materials, labour etc.



Q20. Briefly discuss what is needed for the safe operation of the following physical resources at a current and active worksite in your state or territory.

Answer

Physical resource	Requirement for operation
Bulldozer	A license or certificate is no longer required to operate a bulldozer, however the person operating the plant must receive adequate information, training, instruction, and supervision. The operator must be competent, and evidence is required either by a statement of attainment or certificate by completing a unit of competency. The unit of competency required is – RIIMP0323D – Conduct civil construction dozer operations.
Excavator	A license or certificate is no longer required to operate a bulldozer, however the person operating the plant must receive adequate information, training, instruction, and supervision. The operator must be competent, and evidence is required either by a statement of attainment or certificate by completing a unit of competency. The unit of competency required is – RIIMP0320E – Conduct civil construction excavator operations
Hoist	It is a requirement to complete a course through a registered training organisation, then apply for a HP license through WorkSafe QLD.
Forklift	It is a requirement to complete training through a registered training organisation to be deemed competent and then you need a High Risk Work Licence (LF) which you can get from a high risk work assessor through WorkSafe QLD.



Mobile Crane	It is a requirement to complete training through a registered training organisation to receive a nationally recognised statement of attainment, or a Certificate III in Crane Operations. You will also need the High Risk Work Licence (HRW).
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Q21. Discuss what you need for the safe and effective operation of a compressor, generator or a pump at the work site.

Answer You need to make sure to adhere to the Australian Standards that are applicable to each piece of equipment (Eg for a generator you would make sure it is manufactured to AS2790) and keep up to date with the latest safety standards. A risk assessment would be needed of the work environment and equipment to mitigate any hazards or safety concerns, along with regular inspections, maintenance and training for the operator/s. ☒

Q22. Describe how you can obtain the supplier prices for physical resources such as the hire of earthmoving equipment or smaller equipment such as generators.

Answer You can obtain the supplier prices by researching suppliers in the area of the project and reaching out to them to issue a Request for Quote (RFQ) with the project details and equipment required. The RFQ should include the rental period, delivery and pickup requirements, maintenance services and any other job specific terms that are relevant. ☒

Within our organisation we typically require 3 quotes so once these have been received you will then compare the quotes. It is important to note that you make sure that each step within this process aligns with the due date set out in the procurement schedule (or the applicable policies and procedures within the organisation that you work for).

After we have selected the contractor, we organise a pre-let meeting and try to negotiate the terms to potentially secure better pricing and/or terms. This leads to a final agreed upon outcome and an agreement is finalised.

Q23. Discuss how you confirm additional transport costs that may apply to the hire of plant and equipment.

Answer

To confirm additional transport costs that may apply to the hire of plant and equipment you need to make sure to include detailed information on the Request for Quote (RFQ) such as location of delivery, delivery and pickup dates, conditions of the site such as being in a remote or challenging location that may effect transport time and costs, and any other requirements associated with the transport of the plant and equipment. It may even be advised to arrange a site inspection with the supplier so an accurate cost estimation can be provided.

Make sure to find out the mode of transport and if there are any additional handling or unloading costs. If there are additional handling or unloading costs, then make sure that these are included in their quote if they are providing the service. However if they are not included and this is your responsibility to arrange then make sure that it is clearly communicated by the supplier so that you can get quotes for this also to be included in the transport costs.

Check insurance information for the machinery whilst in transit to make sure it is covered by the supplier and review the terms and conditions of the agreement.

Once all this information has been clarified and confirmed in the contract, finalise the contract.



Q24. Discuss what is meant by 'overhead costs' and why these must be included when calculating and estimating costs for a job.

Answer

Overhead costs are ongoing expenses that a business incurs for the operations of the business. These overhead costs aren't directly tied to a particular construction project but are imperative in the functioning of the business. This can include things like rent, utilities, insurance, administrative staff, office supplies etc.

Overheads must be included when calculating and estimating costs for a job so that the project is contributing to the overall operational expenses.

Including the overhead costs results in accurate cost estimates and profit margin calculations.



Q25. How is an overhead margin calculated?

Answer

An overhead margin is calculated by taking the total overhead costs and dividing them by the total revenue and then multiplying that figure by 100(%).

For example, if a company's total overheads is \$400,000 and the total revenue is \$1,200,000 then you would do the following –

$(400,000 \div \$1,200,000 \times 100 = 33.33)$

Therefore the overhead margin is 33.33% which means that 33 cents from every dollar is allocated to cover overhead costs.



Q26. Discuss risks associated with estimating project costs that you must manage and mitigate.

Answer

Some risks associated with estimating project costs that you must manage and mitigate include:

- Market changes and inflation – You can manage and mitigate this by keeping an eye on the market and include a contingency for inflation. You should also aim to lock in the pricing on an agreement with the contractor when possible.
- Resource and skilled labour shortages – You can manage and mitigate this by understanding the project, planning early and accordingly to ensure you have given yourself and HR the time and best opportunity to acquire the resources and skilled labour needed for the project.
- Contingency allowances – You can manage and mitigate this by assessing the risks associated with the project and that could financially impact it, including any unforeseen circumstances, and include a contingency allowance.
- Inaccurate Project scope – You can manage and mitigate this by Comprehensively understanding the project, making sure to have clear communication and involvement with the stakeholders so there are no crosswires and documenting all project deliverables.
- Project delays – You can manage and mitigate this by thoroughly planning the project, creating a well-defined project plan, regularly



monitoring the project plan and establishing realistic project schedules.

Q27. Describe how you manage and mitigate the risks associated with estimating costs?

Answer ANSWERED ABOVE.



CPCCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

WORKBOOK

Participant name	Tyanna Childs
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FOR THE PARTICIPANT
Instructions - You will complete written activities as outlined on the following pages. You must attempt all questions and provide enough detail in your responses to demonstrate your knowledge. - The timeframe for these tasks will be established by your Assessor or Training Plan, 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. - An oral examination may be allowed under certain circumstances, whereby your answers will be documented by another party. - 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.

Tyanna displayed understanding of how to read the plans and interpret them to determine various materials types and quantities. She understands the different units like m, m², m³, hr, etc and their applicable rates. Tyanna also understands prelim costs that are unseen. Overall satisfactory.

NOTE

At times, you will be provided with a specific business context to which you must respond, otherwise it is anticipated that you will use a workplace of your choosing (your own, or hypothetical) to provide the context to the task.

At all times, the responses in your assessment must reference **Australian** (State/ Territory or Federal) documentation, including legislation, regulations, codes of practice, standards and guidance publications when required.

ACTIVITY 1

Access the internet and locate the project plan below:

[Case Study: Caloundra, Queensland](#)

After reviewing the project plan, answer the following questions:

- What is the size of the land?
- Based on the floor plan, how many bedrooms does the house have?
- In which cardinal direction is the living room oriented?
- What type of slab is required?
- What type of building is shown for this project?
- Specify the materials used to support the sustainability of this construction.

a) What is the size of the land?

320m²

b) Based on the floor plan, how many bedrooms does the house have?

3 Bedrooms.

c) In which cardinal direction is the living room oriented?

North

d) What type of slab is required?

Concrete Slab

e) What type of building is shown for this project?

Low density

f) Specify the materials used to support the sustainability of this construction

Concrete Slab, Reverse brick veneer, Insulation made from recycled glass bottles, low-e glass windows and doors, energy-efficient appliances, solar photovoltaic system, rainwater tank, masonry block walls, weather strips, cladding made partially from pinewood pulp, steel roofing which is made up using 25% recycled materials, Low VOC (Volatile organic compound) paints and laminates, lightweight building materials such as sustainably sourced timbers.

**Satisfactory
Outcome**



ACTIVITY 2

Following organisational procedure, you have contacted the appropriate supplier to enquire about the price to hire a bulldozer and an excavator for a construction project across a 30 day period.

You have clarified workplace requirements that the supplier transport the plant from the supplier to the construction site and collect after use. The supplier has responded to with the following quote:

Plant Hire	Cost /per day	Transport cost (Combined delivery and pick-up)
1 x Track-mounted excavator	\$120.60	\$234.50
1 x Track-mounted bulldozer	\$131.70	

Complete the costing sheets below for each item.

Plant for hire:	Track mounted excavator	
Timeframe:	30 days	
Operational Costs:	\$35,846.45	
Associated Costs:	Cost per day of use	Total
Fuel	34.1L per hour x 9 hours a day @ \$1.97p/L = \$604.60	\$604.60 x 22 (working days) = \$13,301.20
Operator's wage	\$95 per hour x 9 hours = \$855.00	\$855.00 x 22 (working days) = \$18,810.00
Maintenance	N/A - Supplier is responsible for maintenance	
Hire costs	\$120.60	\$3,618.00
Transport cost	\$234.50 / 2 = \$117.25	\$117.25
Total cost	\$35,846.45	

Plant for hire:	Track-mounted bulldozer	
Timeframe:	30 days (22 week days and 8 weened days)	
Operational Costs:	\$30,991.50	
Associated Costs:	Cost per day of use	Total
Fuel	20.8L per Hr x 9 Hrs a day @ \$1.97p/L = \$368.78	\$311.42 x 22) working days) = \$8,113.25
Operator's wage	\$95 per day x 9 Hrs = \$855.00	\$380.00 x 22 (working days) = \$18,810.00
Maintenance	N/A - Supplier is responsible for maintenance	
Hire costs	\$131.70	\$3,951.00
Transport cost	\$234.50 / 2 = \$117.25	\$117.25
Total cost	\$30,991.50	

**Satisfactory
Outcome**



ACTIVITY 3

Swayze Construction recently built a new bedroom as an extension to an already-existing bungalow. These are the specifications and features of the new room:

- The room has a mat foundation that is 2 m deep.
- The room has four masonry walls:
 - Two walls are 4 m wide and 3.5 m tall.
 - Two walls are 3 m wide and 3.5 m tall.
- All walls are painted eggshell white.
- The steel tray roofing is 20 m² large.

Laying the mat foundation cost \$30,000.00. This includes labour and materials.

Putting up all the masonry walls cost \$3,500.00. This includes labour and materials.

Laying the steel tray roofing cost \$5,000.00. This includes labour and materials.

Painting the masonry walls cost \$2,000.00. This includes labour and materials.

Given the information above, calculate for the following:

- a) Cost of laying the foundation per metre of depth.
- b) Cost of building the masonry walls per square metre.
- c) Cost of laying the steel tray roofing per square metre.
- d) Cost of painting the masonry walls per square metre.

You must show the calculations to your answers.

Round up your answers to the nearest dollar.

a) Cost of laying the foundation per metre of depth

The mat foundation is 2m deep and cost a total of \$30,000.00, therefore
\$30,000.00

÷ 2

\$15,000 per metre of depth.

b) Cost of building the masonry walls per square metre

2 x walls are 4m wide and 3.5m tall, therefor $4 \times 3.5 = 14$

2 x walls are 3m wide and 3.5m tall, therefor $3 \times 3.5 = 10.5$

$14 + 10.5 = 24.5\text{m}^2$

\$3,500.00

÷ 24.5

\$143 per square metre.

c) Cost of laying the steel tray roofing per square metre.

$\$20,000 \div 20\text{m}^2 = \1000 per square metre.

d) Cost of painting the masonry walls per square metre.

2 x masonry walls are 4m wide and 3.5m tall, therefor $4 \times 3.5 = 14$

2 x masonry walls are 3m wide and 3.5m tall, therefor $3 \times 3.5 = 10.5$

$14 + 10.5 = 24.5\text{m}^2$

$\$2000 \div 24.5\text{m}^2$

$\$82.$

**Satisfactory
Outcome**



ACTIVITY 4

Swayze Construction recently built a new bathroom as an extension to an already existing bungalow. These are the specifications and features of the new bathroom:

- The foundation slabs cover an area of 12 m²
- A total of 20 m of pipes were installed as part of the bathroom's plumbing.
- There are eight new pieces of sanitary ware in the bathroom:
 - One toilet
 - Two washbasins
 - Two sink taps
 - Two shower taps
 - One shower outlet
- The floor area of the bathroom is 9 m². All of the bathroom floor is tiled.
- The bathroom has four walls.
 - Each wall is 3 m wide and 3 m tall.
 - Only half the height of the wall is tiled.
- Laying the slabs cost \$3,000.00. This includes labour and materials.
- Installing the pipes cost \$6,000.00. This includes labour and materials.
- Installing all the sanitary ware cost \$18,000.00. This includes labour and materials.
- Tiling the tiled sections of the bathroom (i.e. all of the bathroom floor and half the height of each wall) cost \$1,000.00. This includes labour and materials.

Given the information above, calculate for the following:

- a) Cost of laying of the slabs per square metre.
- b) Cost of installing the pipes per square metre.
- c) Cost of installing sanitary ware per unit.
- d) Cost of tiling per square metre.

*You must show the calculations to your answers.
Round up your answers to the nearest dollar.*

a) Cost of laying of the slabs per square metre

The foundation slab covers an area of 12m² and cost \$3,000.00 to supply materials and lay, therefore

$$\begin{array}{r} \$3,000.00 \\ \div 12\text{m}^2 \end{array}$$

\$ 250 per square metre

b) Cost of installing the pipes per square metre.

There was a total of 20m of pipes installed over an area of 12m^2 with a total cost of \$6,000 to supply and install them, therefore

\$6,000.00

$\div 12\text{m}^2$

\$ 500 per square metre.

c) Cost of installing sanitary ware per unit.

There are a total of 8 new pieces of sanitary ware in the bathroom, with a total value of \$18,000.00 for the installation of the sanitary ware, therefor –

\$18,000

$\div 8$

\$2250.00 for the installation of each unit.

d) Cost of tiling per square metre.

The bathroom floor area is 9m^2 which is to be fully tiled, along with half the height of each wall, which are $3\text{m} \times 3\text{m} \times 4 = 36\text{m}^2 \div 2 = 18\text{m}^2$ and has a total cost of \$1000.00 to supply and install, therefore –

$9 + 18 = 27$.

\$1000

$\div 27$

\$37 Per square metre.

Satisfactory
Outcome



CPCCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

PRACTICAL ASSESSMENT

Participant name	Tyanna Childs
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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	Alder Place Helensvale	☒	☐

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 drawings, specifications and plans reviewed for compliance: Tyanna reviewed Floor plans, electrical plans, Mechanical Plans, Fire plans, site plan, Elevation plans along with their respective specifications,
1.2A. 1.3C.	Specify how supplier list was determined: Tyanna assessed the project requirements, including materials, plant/equipment etc to determine what was required for the project and establish a supplier list.
1.2C. 1.2D.	Specify how contractors, sub-contractors and employees were selected: Based on the project requirements, Tyanna evaluated the appropriate construction personnel required and selected those who were qualified individuals and entities capable of delivering.

CPCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

Practical Task 1

Description of task:

The participant must demonstrate the ability and knowledge to effectively estimate the cost of one (1) residential OR commercial building and construction project, ideally, the task will be undertaken for a workplace project, using workplace documentation, however, own templates can be used for cost calculations. Some templates are available for use as needed if workplace documents are not available. The assessor will be looking for evidence of:

estimate project costing from construction drawings, specifications and written information

list physical resources appropriate for the construction of the project

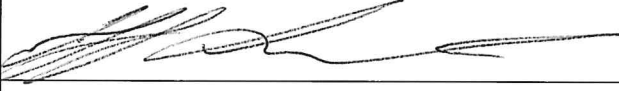
produce project cost using an appropriate software program.

- Establish project requirements
 - Read construction drawings and plans in conjunction with local regulations, relevant codes and standards to determine and document compliance requirements. *(template available – HO1)*
 - Confirm site features, type of building and method of construction, and specified building materials. *(template available – HO2)*
 - Determine and document site facilities, communication and temporary fencing requirements. *(template available – HO2)*
 - Determine and document waste removal costs including waste management site fees. *(template available – HO2)*
 - Determine and document other site specific statutory, approvals, permits or compliance costs. *(template available – HO2)*
- Calculate materials and labour costs.
 - Produce a materials and consumables quantity list and obtain a price from supplier. *(template available – HO3)*
 - Determine and estimate off-site production costs, including delivery. *(template available – HO4)*
 - Determine numbers of contractors, sub-contractors and employees appropriate for the project and work rates. *(template available – HO5)*
 - Estimate labour hours and calculate labour costs, including on-costs and worker insurance costs. *(template available – HO5)*
- Identify type and cost of physical resources.
 - Determine physical resources required for the project. *(template available – HO6)*
 - Determine limitations, conditions, operational costs and timeframes for hire of physical resources. *(template available – HO6)*
 - Obtain supplier prices, including transport of physical resources. *(template available – HO6)*
 - Identify, itemise and cost plant, equipment and machinery. *(template available – HO6)*
- Produce estimated project costs.
 - Review and document materials, consumables and off-site production costs and delivery charges.
 - Document labour costs inclusive of rates and entitlements. *(template available – HO5, HO9)*
 - Document costs of physical resources. *(template available – HO6, HO9)*
 - Apply organisational overhead recovery and margins. *(excel template available- HO8,HO9)*
 - Produce estimated project costs for inclusion in a tender or bill. *(excel template available- HO8,HO9)*
 - Manage and mitigate risks associated with estimating project costs. *(template available – HO7)*

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:

Workplace documents including current construction drawings and specifications, HR contractor files and rates, insurance information, Access to PC to research compliance requirements from NCC, council, state legislation including WHS and environmental protection requirements. Access to take-off software or similar technology to achieve requirements. Templates (workplace or RTO).

Observer details	
Name of observer:	Jeff Lewandowski
Role of observer (Confirm suitability to sign)	Senior Contracts Administrator / Estimator
Email address of observer	jeff.lewandowski@aldercon.com.au
Signature of observer:	
Date:	20/02/2024

When completing the task, did the Participant:	Tick if satisfactorily completed. Provide comments if left unticked.
1 Establish project requirements.	
1.1A. Read construction drawings and plans in conjunction with local regulations, relevant codes and standards to determine and document compliance requirements. <i>(template available – HO1)</i>	☒
1.1B. Confirm site features, type of building and method of construction, and specified building materials. <i>(template available – HO2)</i>	☒
1.1C. Determine and document site facilities, communication and temporary fencing requirements. <i>(template available – HO2)</i>	☒
1.1D. Determine and document waste removal costs including waste management site fees. <i>(template available – HO2)</i>	☒
1.1E. Determine and document other site specific statutory, approvals, permits or compliance costs. <i>(template available – HO2)</i>	☒
2 Calculate materials and labour costs.	
1.2A. Produce a materials and consumables quantity list and obtain a price from supplier. <i>(template available – HO3)</i>	☒
1.2B. Determine and estimate off-site production costs, including delivery. <i>(template available – HO4)</i>	☒
1.2C. Determine numbers of contractors, sub-contractors and employees appropriate for the project and work rates. <i>(template available – HO5)</i>	☒
1.2D. Estimate labour hours and calculate labour costs, including on-costs and worker insurance costs. <i>(template available – HO5)</i>	☒
3 Identify type and cost of physical resources.	
1.3A. Determine physical resources required for the project. <i>(template available – HO6)</i>	☒
1.3B. Determine limitations, conditions, operational costs and timeframes for hire of physical resources. <i>(template available – HO6)</i>	☒
1.3C. Obtain supplier prices, including transport of physical resources. <i>(template available – HO6)</i>	☒
1.3D. Identify, itemise and cost plant, equipment and machinery. <i>(template available – HO6)</i>	☒
4 Produce estimated project costs.	
1.4A. Review and document materials, consumables and off-site production costs and delivery charges.	☒
1.4B. Document labour costs inclusive of rates and entitlements. <i>(template available – HO5, HO9)</i>	☒
1.4C. Document costs of physical resources. <i>(template available – HO6, HO9)</i>	☒
1.4D. Apply organisational overhead recovery and margins. <i>(excel template available- HO8, HO9)</i>	☒
1.4E. Produce estimated project costs for inclusion in a tender or bill. <i>(excel template available- HO8, HO9)</i>	☒
1.4F. Manage and mitigate risks associated with estimating project costs. <i>(template available – HO7)</i>	☒

Observer comments:

Tyanna did exceptionally well considering her limited experience in the building industry. I feel like some of the terminology used is not current and I found it a little confusing like "off-site production costs" and I have 25+ years experience as a CA / Estimator. For many trades like services trades, a full measure in not completed and costings are relied upon from subcontractor quotations, unless the works are very minor. I'm confident given what Tyanna has displayed to date that she could produce an estimate for a simple structure. Overall satisfactory.
Thank you,
Jeff