

CPCCBBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

ASSESSMENT SUMMARY

The assessment activities for *CPCCBBC4004 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

Participant signature

☒ Not applicable

Theory Exam

Workbook

Practical Assessment

☐ Satisfactory

☐ Satisfactory

☐ Satisfactory

☐ **Competent**

☐ Not Satisfactory

☐ Not Satisfactory

☐ Not Satisfactory

☐ **Not Yet Competent**

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

☐ Theory Exam

☐ Workbook

☐ Practical Assessment

☐ Compliance sheet (HO1)

☐ Project Details (HO2)

☐ Materials and consumables costing (HO3)

☐ Off-site production cost estimation (HO4)

☐ Labour cost estimation (HO5)

☐ Physical resources cost estimation (HO6)

☐ Risk mitigation sheet (HO7)

☐ Costings estimate spreadsheet template (HO8)

☐ Building Construction estimate spreadsheet (HO9)

Assessor name

Assessor signature

The Environmental Protection Authority is an independent statutory body delegated to protect the environment and prevent and control environmental harm. They are in charge of enforcing regulations with an environmental concern.

CPCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

THEORY EXAM

Participant name	Jeremy Tydd
------------------	-------------

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.

Q1. How is the construction industry in Australia regulated?

Answer The Australian Government collaborates with state and territory ☐
governments to promote nationally consistent regulations through
the National Construction Code (NCC).

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

Answer All Australian standards referred to in state and territory legislation such ☐
as the building act are mandatory.

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

Answer

☐

By following the work health and safety act and following all site rules.

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

Answer

To protect the environment for the future

☐

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

Answer

Type there

☐

The Environmental Protection Authority is an independent statutory body delegated to protect the environment and prevent and control environmental harm. They are in charge of enforcing regulations with an environmental concern. In qld the department of environment and science is the regulator of monitors environment risk.

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

Answer

☐

They help to make clear procedures and a safe work environment

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

Answer

☐

you must now be able to identify the building site features, type of building, method of construction, and specified building materials necessary for the completion of the project. Identifying these is important in producing the estimated cost of a construction project.

The building site features, type of building, construction method, and specified building materials will serve as the basis for many of what needs to be identified later on, such as the number of required materials and the and physical resources required for the project.

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

Answer

☐

Schedules are a must to keep things running smoothly. They help trades know what and when they need their materials and labour on site.

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

Answer

☐

To make sure the people undertaking the work have the correct qualifications and are licenced.

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

Answer

☐

Because it can affect the cost and design of the project.

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

☐

They must provided drinking water, toilets and power

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

Answer

☐

This is a requirement for the WHS regulation in QLD.

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

Answer

☐

To insure effective communication in the work place for all involved.

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

Answer

☐

Local council and enviromental protection requirements.

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

Answer

☐

Cost of removal

Costs of Dumping

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

Answer

☐

zooning approvals

permit applications

Q17. Discuss what a quantity take off is.

Answer

☐

The measurement of materials needed for a job

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

Answer

☐

Ypu can use building material calculators or apps

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

Answer

☐

Get in contact with the supplier and as for a quote

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	bulldozer ticket
Excavator	excavator ticket
Hoist	High risk licence
Forklift	Forklift ticket
Mobile Crane	High risk licence



Q21. Discuss what you need for the safe and effective operation of a compressor, generator or a pump at the work site.

Answer

PPE

Competent operator

☐

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

Call or email the supplier and ask for them to send you a quote for the equipment you need and the time frame.

☐

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

Answer

Ask for the transport costs to be on the quote.

☐

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

Answer

☐

Vehicle cost, tools and office expenses need to be covered in pricing of jobs so the business remains profitable.

Q25. How is an overhead margin calculated?

Answer

☐

It is a total sum of your annual overheads divided by the sales

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

Answer Risks include unexpected price increases ☐

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

Answer follow the policies and procedures of your organisation. ☐

Type text here

CPCCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

WORKBOOK

Participant name	Jeremy Tydd
------------------	-------------

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.

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

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

north

d) What type of slab is required?

waffle pod slab

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

New home

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

Recycled Materials
Reverse brike veneer and insulation

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:	excavator	
Timeframe:	30 days	
Operational Costs:	operator rate	
Associated Costs:	Cost per day of use	Total
Fuel	\$50	\$1500
Operator's wage	\$500	\$15000
Maintenance	\$20	\$600
Hire costs	\$120.60	\$3618
Transport cost	\$117.25	\$117.25
Total cost	\$20 835 .25	

Plant for hire:	bulldozer	
Timeframe:	30 days	
Operational Costs:	operator rate	
Associated Costs:	Cost per day of use	Total
Fuel	50	1500
Operator's wage	500	1 15000
Maintenance	20	600
Hire costs	133.90	4017
Transport cost	350	
Total cost	\$21,467	

**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

$$\text{\$30,000 divide 2} = \text{\$15,000 per M}$$

b) Cost of building the masonry walls per square metre

$$\begin{aligned} &\text{\$5000 divide (4m x 3.5) + (3 m x 3.5 m)} \\ &= \text{\$3500 divide 14m}^2 + 10.5\text{m}^2 \\ &= \text{\$3500 divide 14.5m}^2 \\ &= \text{\$241.379 per m}^2 \\ &= \text{\$242 per m}^2 \end{aligned}$$

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

\$5000 divide 20m²
=\$250 per m²

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

\$2000 divide (4m x 3.5m) + 3m x 3.5m)
=\$2000 divide 14m² + 10.5m²
=\$2000 divide 24.5m²
=137.931 per m²

=\$138 per m²

Because it can effic

**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

\$3000 divide 12m²
=\$250 per m²

b) Cost of installing the pipes per square metre.

\$6000 divide 20m
 =\$3000 per m

c) Cost of installing sanitary ware per unit.

\$18000 divide 8
 =\$2250 per item

d) Cost of tiling per square metre.

\$1000 divide (3m x 1.5m) + (3m x 1.5m)
 =\$1000 divide 4.5m² +4.5m²
 =\$1000 divide 9m²
 =\$111.111 pr m²
 =\$112 per m²

**Satisfactory
 Outcome**



CPCBC4004

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

PRACTICAL ASSESSMENT

Participant name	Jeremy Tydd
------------------	-------------

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		☐ 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 drawings, specifications and plans reviewed for compliance:
1.2A. 1.3C.	Specify how supplier list was determined:
1.2C. 1.2D.	Specify how contractors, sub-contractors and employees were selected:

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:	Ayden Cooper
Role of observer (Confirm suitability to sign)	builder/ supervisor
Email address of observer	Admin@cooperconstructionsandrenovations
Signature of observer:	
Date:	22-7-24

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. (template available – HO1)	
1.1B. Confirm site features, type of building and method of construction, and specified building materials. (template available – HO2)	
1.1C. Determine and document site facilities, communication and temporary fencing requirements. (template available – HO2)	
1.1D. Determine and document waste removal costs including waste management site fees. (template available – HO2)	
1.1E. Determine and document other site specific statutory, approvals, permits or compliance costs. (template available – HO2)	
2 Calculate materials and labour costs.	
1.2A. Produce a materials and consumables quantity list and obtain a price from supplier. (template available – HO3)	
1.2B. Determine and estimate off-site production costs, including delivery. (template available – HO4)	
1.2C. Determine numbers of contractors, sub-contractors and employees appropriate for the project and work rates. (template available – HO5)	
1.2D. Estimate labour hours and calculate labour costs, including on-costs and worker insurance costs. (template available – HO5)	
3 Identify type and cost of physical resources.	
1.3A. Determine physical resources required for the project. (template available – HO6)	
1.3B. Determine limitations, conditions, operational costs and timeframes for hire of physical resources. (template available – HO6)	
1.3C. Obtain supplier prices, including transport of physical resources. (template available – HO6)	
1.3D. Identify, itemise and cost plant, equipment and machinery. (template available – HO6)	
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. (template available – HO5, HO9)	
1.4C. Document costs of physical resources. (template available – HO6, HO9)	
1.4D. Apply organisational overhead recovery and margins. (excel template available- HO8, HO9)	
1.4E. Produce estimated project costs for inclusion in a tender or bill. (excel template available- HO8, HO9)	
1.4F. Manage and mitigate risks associated with estimating project costs. (template available – HO7)	

