



CPCCBC4004A

IDENTIFY AND PRODUCE ESTIMATED COSTS FOR BUILDING AND CONSTRUCTION PROJECTS

THEORY EXAM INSTRUCTIONS

- This exam will occur under standard assessment conditions.
 - An oral examination may be allowed under certain circumstances. Answers will be documented and FT003 (Oral examination declaration form) must be completed.
- Participants must provide enough detail in their responses to demonstrate their knowledge and skills.
- Please fill in the details below, providing your name, signature and date of assessment.
 - Your signature acknowledges that this is your own work.
- If a participant initially answers a question incorrectly but modifies their response, they must follow the instructions below:
 - If a participant changes their response in writing, they must put their initials next to the written change.
 - If a participant changes their response verbally, this must be noted on the exam paper by the assessor.

Participant name

Participant signature

Assessor name

Assessor signature

Date

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

Number of questions	Number of questions answered correctly	Satisfactory?	
		Yes	No
24		☐	☐



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Q1. What is the critical aspect of identifying and interpreting plans, drawings and specifications for a building project?

Answer To show all parties involved in a building project, what the proposed structure will look like once completed.



Q2. What is the purpose for date stamping of plans, drawings and specifications?

Answer So all parties can ensure they are working from the same set of current, approved drawings and specifications so any documented changes have been covered.



Q3. Nominate at least six (6) people and/or entities that would use plans drawings and specifications on a building project.

Answer Carpenters
Plumbers
Local Council
Engineers
Water Authority
Client



Q4. Plans and drawings usually hold many and varied features.

Name some of the types of drawings and details you would expect to see on plans and drawings for a building project.

Answer ☐ Site or block plan which shows reference height to other site levels and the buildings orientation to the north point.
A location plan shows the position of the site in relation to the surrounding area
A floor plan identifies the layout of a home or property from above. Floor plans show the location of walls, windows, doors, and stairs, as well as fixed installations such as bathroom fixtures, kitchen cabinetry, and appliances.
The elevations show the side view of the building or what it would look like if you stood in front of it. The elevations give an idea as to the size of the windows, doors, balconies and other external features plus the wall finish.

Q5. It is necessary to acquire all building plans and specifications at the beginning of the negotiation period so we know all building project details prior to commencing work (including dimensions, construction materials, door and window schedules, masonry control joint locations and smoke alarm locations).

What else would be expected to be provided?

Answer ☐ Footing Construction Report
Geotech Report
Structural Drawings
Framing Plans
Roof Truss Calculations
Energy Efficiency Report



Q6. Drawings are usually arranged in the approximate order of construction. What might a set of drawings consist of?

Answer Civil Drawings – site plans, easements, utilities, grading
Structural Drawings – foundations, structural steel, building support system, roof framing
Hydraulic – hot & cold water reticulation, sewerage & waste system
Architecturals – floor plans, elevations, sections, door & window schedules, wet area lay outs
Electrical – electrical wiring, lighting & reflected ceiling plan, panel schedule
Mechanical – heating & air con (ducted and/or splits) mech ventilation
Landscaping – hard and soft scapes inc plants, paths, garden beds, retaining walls



Q7. Explain how to access the Building Code of Australia (BCA) and its relevance to estimating costs for building and construction projects.

Answer The BCA can be accessed via the ABCB website and should be used during the tendering process to ensure all building materials and methods outlined in the drawings and specifications meet Australian Standards. Alternatively, they can assist in providing alternate solutions which are more cost effective yet still deemed-to-comply



Q8. Explain how to access the Plumbing Code of Australia (BCA) and its relevance to estimating costs for building and construction projects.

Answer The Plumbing Code is Volume 3 of the National Construction Code and contains the technical provisions for the design and installation of plumbing and drainage systems. Referencing this document ensures all estimates are compliant with the plumbing code.



Q9. Explain how to access Australian Standards and their relevance to estimating costs for building and construction projects.

Answer Australian Standards are accessed via the SAI Global or ISO website and again, should be referred to when providing costs to ensure the materials and methods proposed are acceptable and meet Australian Standards.



Q10. Identify two (2) standards that would be relevant to the industry sector.

Answer AS 3600 – Concrete Structures
AS 4440 – Installation of Nailplated Timber Roof Trusses



Q11. Explain the impact of WorkCover requirements on costs to the project.

Answer The yearly premium for WorkCover needs to be factored into the total cost as it is classed as an overhead.





Q12. Explain the impact of Environmental Protection Agency requirements on costs to the project.

Answer Requirements of the EPA can greatly add to the cost of a project due to time delays which may occur whilst investigations are being carried out, especially if the issue was unknown before the project began. It can also add costs if extra measures need to be put in place to ensure the surrounding area is protected and preserved during construction.



Q13. Calculate and cost the lineal timber order for 93 x 19 DAR Meranti and allow 5% wastage. The cost per lineal metre is \$6.40.

**The requirements are: 22 @ 2400; 30 @ 3600; 10 @ 4800; 12 @ 1880
Show your calculations.**

Answer

$(22 \times 2.4) \times 1.05$	=	55.44	@ \$6.40 =	\$354.82
$(30 \times 3.6) \times 1.05$	=	113.40	@ \$6.40 =	\$725.76
$(10 \times 4.8) \times 1.05$	=	50.40	@ \$6.40 =	\$322.56
$(12 \times 1.88) \times 1.05$	=	50.40	@ \$6.40 =	\$151.60
			total	\$1554.74



- Q14. A building floor plan measures 24000 x 14000 and the specification states the sheet flooring is 3.6 x 0.9 x 19mm Yellow TERMIFLOR T&G H2 at \$58.38 per sheet.

Calculate the area of floor sheeting required when an allowance of 2% is made for waste and cutting. Determine the number of sheets to order to the nearest whole sheet and calculate the cost for the flooring.

Show your calculations.

Answer Floor Area: $24 \times 14 = 336\text{m}^2 (+2\%) = 343\text{m}^2$

$\text{M}^2 \text{ per sheet} = 3.6 \times .9 = 3.24\text{m}^2$

$343 / 3.24 = 106 \text{ sheets}$

$106 \text{ sheets @ } \$58.38 = \6189



- Q15. If a solid cavity brick wall is to be built 23000mm long and 2400mm high (no windows and no doors), how many bricks would be required if the number of bricks per square metre is 50? Show your calculations.

Answer $(23 \times 24) = 552\text{m}^2 \times 50 = 27,600$





- Q16. You are a QBCC licensed plasterer and a client (Owner Builder) Davey Jones-Locker of 100 Reef Avenue, Brisbane, Queensland wants you to quote for plastering an internal wall of his house build and has described to you the following information over the phone:**

The Client tells you the Council approved plans and drawings state the finished ceiling height from the top of slab floor is 2400mm. There is one external solid timber door (D4) is 2340 x 870 x 35 in this wall and no other openings. The length of this house end wall is 11 metres.

The house is of brick veneer construction and includes a 50mm cavity and the load bearing external framing is 70 x 45 MGP12 (a Boral product "Pineguard Blue"). The bricks are standard bricks 230 x 76 x 100mm. (L x H x W).

The Client tells you that the door is positioned 2100mm from an internal corner (RHS in aerial view) and as seen from inside the house looking out. The specification and drawings state 10mm regular internal plasterboard. You know from experience regular plasterboard is supplied in the following sizes lengths 6M, 4.8M, 4.2M, 3.6M, 3M, 2.7M and 2.4M with recessed edge and widths of 1200mm and 1350mm.

The Client wants a quote to fix and finish this internal wall with plasterboard.

Your labour and on-costs are charged at \$51.50 an hour per tradesman plus materials including sheets, fixing, finishing and sanding. You estimate ancillaries including stud glue, screws, base coat, top and finish coats at \$315.00 and that there is two (2) days' work.

Your business works a 38 hour week you allow workers a 15 minute morning tea break and half hour for lunch. You will need two (2) tradesmen first day and one (1) tradesman second day including materials and equipment supply, fixing, finishing and sanding.

You are to research or acquire plasterboard sheet prices and attach this price list to your email. You are not required to supply or fix cornice.

Sketch the wall in Plan View (not to scale), dimension it with relevant measurements, and position the door on the right side of your plan view sketch and then calculate the plasterboard required and approximate waste expressed as a percentage (%) for internally lining this wall.

Estimate the cost of the job, including supplying plasterboard materials fixing setting, finishing and sanding plus labour. Then write a covering email to be sent to the client. You must show your methods for calculating cost of sheets, waste, plus fixing, setting, finishing and sanding.

Attach your quote, sketch, calculations and pricing list and email this to your Trainer/Assessor (details provided by them).



DRAFT AREA



DRAFT AREA

Answer



- Q17. There are many different ways of estimating project costs. You can use your past experience, or 'square metre' rates but if you are unfamiliar with estimating and pricing then you should resort to the *materials and labour method* of costing using an item-by-item approach which is considered as the best industry approach to estimating.

What are at least three of the nominated methods for estimating?

Answer

Costing by Area
Costing by Material and Labour
Costing by a costing guide or estimating manual

☐

- Q18. Name some of the circumstances to consider in relation to labour adjustment factors when estimating a project for construction.

Answer

You would need to consider environmental factors such as temperature or whether or not the work required is due to a natural disaster, the location of the site, ease in which materials can be transported and manually handled once received on site and the skill level of the tradesmen involved.

☐



Q19. If a bricklayer lays 600 bricks in an eight (8) hour day, what is the average number of bricks laid per hour by the bricklayer?
Tick your response.

Choice	Possible Answers
☐	65
☐	70
☐	55
☐	90
☒	75
☐	105
☐	85

Q20. What and where are some of the potential sources you could go to in choosing your suppliers for goods and services?

Answer
Suppliers who have quoted on previous projects, word of mouth from other contractors, online search, checking through EOI's which have been received and industry events.

Q21. What are some of the primary (key) factors for choosing your suppliers?

Answer
Availability of the product, lead times, location to determine delivery costs, reliability, payment and invoicing options and quality of the product.

Q22. What are some of the ways you could communicate with your suppliers for gaining quotes?

Answer Email, phone or verbally face to face. Email is the best option as all documentation can be attached for easy referencing and there is also record of what was requested to ensure there's no confusion.



Q23. Explain the concept of a 'Labour Only' quote?

Answer A labour only quote is when the subcontractor supplies an hourly rate to undertake the works as it's unclear how much time is required to complete the job. It can also be per unit for installation of items such as doors, per lineal metre for trades such as joint sealing or per square metre for example, laying tiles when the client has supplied. Materials are never included in a labour only quote.





*You will be provided an allocated period by your instructor to complete this task.
You may use appropriate costing software programs in completing this task.*

- Q24. Referring to the supplied set of house plans, you must do the following scheduling and costing:
- Identify and nominate a supplier/s and schedule the materials and cost the internal and external timber wall framing.
 - Identify and nominate a supplier/s and schedule the materials and cost the foundations and lower floor concrete slab including the schedule and costing for reinforcement.
 - Identify and nominate a supplier/s and schedule the materials and cost for the sub floor framing and the flooring for the upper floor plan.
 - Calculate the architrave and skirting required for the fit out of the upper floor only in lineal metres.
 - Calculate the wet area tiles for the upper floor only which are client chosen for both floors and walls with the wall tiles 250 x 100 and floor tiles 300 x 300.
 - Estimate the labour only cost to tile all the wet areas only in the home. The tiler charges labour only \$44.00 per square metre.
 - Determine the roofing material and number of square metres of it that are required.
 - Complete the aluminium windows and doors schedule and other external doors schedule for the lower floor only.
 - Complete a full internal doors schedule for the lower floor only.
N.B. Assume all doors are flush panel 2040mm in height and 35mm thick.
 - Estimate the labour only cost for hanging all doors on the lower floor – if a tradesman takes 2 hours to jamb an opening, hang the door, fit the door furniture, door stops, architrave and fit a door-open-restraint. The hourly rate is \$27.80 plus 20% on costs.

Answer SEE ATTACHMENT



Answer

