

Costing a building project

Functional Skills L1 workplace assignment

Tutor notes



Costing a building project

Suitable for: learners in building services engineering

Trainer notes

(Please also refer to the accompanying lesson plan - available as a separate document on www.skillsworkshop.org)

This assignment can be used for any building project, from a simple garden wall to a complete building or extension. The principles are the same: consult with the customer, produce a drawing, compare prices and produce an estimate.

Depending on the size of the project, the learner should consider whether to mix his own concrete for the foundations or buy it ready-mixed.

The learner should be able to find information in graph form relating not only to the amount of concrete needed for the depth of foundations required but also to the foundations' setting time before building work can start.

Briefing and supporting the learner

Involve the learner in choosing an appropriate assignment. Consider the business benefit.

Consult with the learner's employer if necessary.

Think about the learner's existing skills and knowledge - will they need help before they start?

Decide whether to use the assignment to help the learner develop and practise their key skills or to gather portfolio evidence.

Decide whether to use all or part of the assignment.

How long will it take the learner to complete the assignment? How and when will you review progress?

Explain the assignment to the learner so that they know what's involved and what's expected.

Identify health and safety implications and make sure the learner is aware of these.

Extending the assignment

If your learners have difficulty accessing IT, it may be worth using this assignment to arrange for them to use a computer. For example, they could:

- have access to the Internet so that they can obtain suppliers' price lists

- produce a proposal using a word-processing package

- produce any charts or tables using a graphics package.

You could also extend the assignment to include problem solving.

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Stage 1 Talk to the customer about their requirements

Consult the customer on the design specification. Note down all aspects of the building, including purpose, number of floors, type of roof, number of windows and doors, electrical requirements, and so on.

Who is the customer?	Tutor name or designated 'customer'
Why does he want the project built?	Tidy up the front of the house
Has he set a time frame?	4 weeks, working at weekends
Has he set a budget?	No
What are his specific requirements?	Single skin wall 10m long x 2m high
	Cheap ornate gate in centre Red bricks
	No foundations required No damp course required

Stage 2 Do a scale diagram of the project

Stage 3 Refer to the Building Regulations

Consult the Building Regulations with regard to depth of foundations, damp-proofing or damp course and other requirements for your building or extension. Are the Building Regulations relevant to your project?

N/A for the given build-a wall example but introduce students to the concept of building regulations

Stage 4 Identify the steps for a planning application

Find out whether or not your project needs planning permission. Identify the stages of a council planning application. Does your project need planning permission? If not; why not?

N/A but introduce students to the concept of planning app

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Stage 5 Estimate the materials needed

Draw up a list of all the materials you need for the building work. You'll want to consider such items as:

<ul style="list-style-type: none"> number of bricks 	<p>60 bricks = 1 sqm + 10% for breakages - 10m x 2m = 20sqm = 1200 x 10% = 1320 bricks</p> <p>Less space for gate (1m) = 18sqm = 1200 bricks</p> <p>www.wickes.co.uk</p>
<ul style="list-style-type: none"> amount of sand and cement, and ratio for cement against concrete 	<p>1.2 tonnes sand = 1 tonne bag @ 31.55 + 10 x 25kg bags @ 1.33 = 13.30 = TOTAL 44.85</p> <p>10 Bags cement @ 3.84 = 38.40</p> <p>www.buildingsuppliesrus.co.uk</p>
<ul style="list-style-type: none"> roofing materials 	N/A
<ul style="list-style-type: none"> materials for windows and doors. 	N/A
	<p>Ornate BOW TOP gate = 1867 x 991mm complete with fittings = 24.99</p>

Stage 6 Calculate costs

To calculate the costs of materials, compare prices from at least two different suppliers of all the items on your list. Consider also the hire charges for scaffolding.

Produce your results in chart and table form. If bricks or other materials are bought in minimum orders, calculate the proportion or percentage used.

From the catalogues supplied find the following information on the bricks to be used:

<ul style="list-style-type: none"> Select a variety of different facing bricks that would be suitable for your project and find their cost. 	<p>www.wickes.co.uk</p> <p>Engineering Common Brick</p> <p>Single = 0.29/brick</p> <p>Pack = 117.96/pack (452 bricks) = 3 packs @ 178.99 = 353.88</p> <p>Facing brick</p> <p>Single = 0.44/brick</p> <p>Pack = 178.99/pack (452 bricks) = 3 packs @ 178.99 =</p>
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<ul style="list-style-type: none"> What is the range of these prices and the mean price? 	Packs: 118 to 179 / 148.50 Single: 0.29 to 0.44 / 0.365
<ul style="list-style-type: none"> Why do some bricks cost more than others? 	Different quality/finish
Produce a schedule of materials for the work.	Schedule of materials to build a single skin brick wall, 10 x 2m including gate at 1 x 2m 1200 bricks 1.2 tonnes sand 10 bags cement 1 x bow top gate Check with Wickes order and delivery time in advance of work starting. Place order in time for delivery of all materials on site for first day

Stage 7 Identify health and safety issues

What are the rules relating to a construction site?	H&S - Site instructions - PPE
Are there any risks to workers from the materials being used (such as dermatitis from lime in concrete)?	Cement burn Dust inhalation
Do you require hard hats and boots?	Yes
How are COSHH and PUWER relevant to your project?	Students to describe COSHH and PUWER

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Stage 8 Calculate labour charges and profit

When calculating labour charges, consider the following:

<ul style="list-style-type: none"> How many builders will you need? And why? 	<p>If 1 person lays 250 bricks/day = 5 days Gate = 1 day Contingency = 2 days TOTAL = 8 days / 4 weekends</p>
<ul style="list-style-type: none"> What will be the bricklaying rate: how many bricks per hour can you lay? 	<p>250/day, say 30 per hour</p>
<ul style="list-style-type: none"> How long will the project take to build? And why do you think that? 	<p>See first item above</p>
<ul style="list-style-type: none"> Include a rough working out of your assumptions made for overheads and profit. 	<p>8 weekend days @ 100/day Labour = 800.00 (no profit - cash in hand) Materials: Bricks = 537.00 Gate = 25.00 Sand = 45.00 Cement = 39.00 TOTAL = 646.00 VAT 113.05 ----- TOTAL MATERIALS = 759.05 Plus 10% profit = 835.00 Plus Labour = 800.00 GRAND TOTAL = 1635.00</p>
<ul style="list-style-type: none"> Remember to include VAT in all charges. 	<p>VAT @ 20% charged on materials</p>
<ul style="list-style-type: none"> Draw a chart to illustrate how the whole quote is broken down. 	
<ul style="list-style-type: none"> What is your day rate? 	<p>100.00 / day</p>
<ul style="list-style-type: none"> Total price? 	<p>1635.00</p>

Stage 9 Produce a costed proposal

Using the results of all your calculations from stages 6 & 8, produce a costed proposal. Discuss it with your tutor, make any amendments necessary, and present the final version to the customer. Remember: a quotation is fixed where an estimate can change. Will your final costing proposal be a quotation or an estimate?