VOCATIONAL

WJEC LEVEL 1 / 2 AWARD in

CONSTRUCTING THE BUILT ENVIRONMENT

SAMPLE ASSESSMENT MATERIALS - External

Teaching from 2018

WJEC Level 1/2 Vocational Award in Constructing the Built Environment

SAMPLE EXTERNAL ASSESSMENT UNIT 3: PLANNING CONSTRUCTION PROJECTS

For teaching from 2018

For certificate from 2020

Contents

LEVEL 1/2 VOCATIONAL AWARD IN

CONSTRUCTION

UNIT 3: Planning Construction Projects

E assessed paper (using SecureAssess)

Questions are based on the context of Bourne End Back Industrial Estate

INSTRUCTIONS TO CANDIDATES
You have 2 hours to complete this paper.
You are required to complete **all** tasks.
A calculator is required.

There are 60 marks available on this paper.

Type your answers into the spaces provided or as guided by the question. The length of your answer is not limited by the size of the text box. A scrollbar will appear as you continue to type.

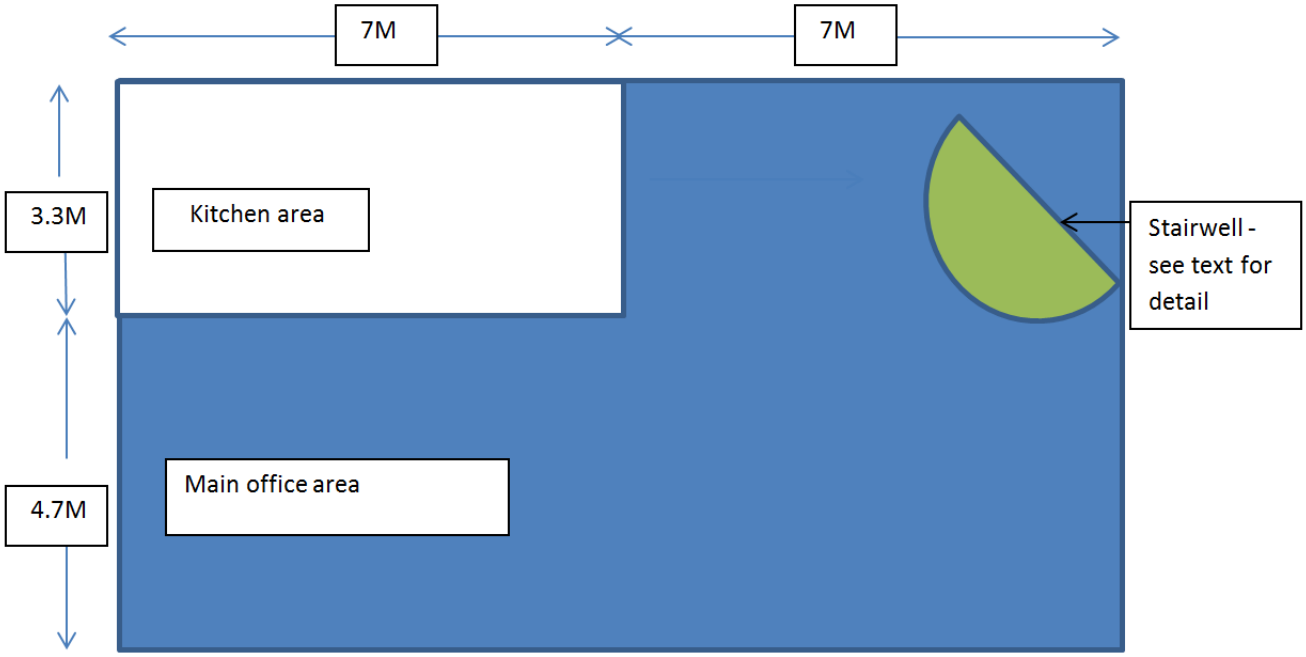
Some questions might require you to navigate down the page using the scroll bar on the right of the screen.

Bourne End Bank Industrial Estate is currently seeing the building of its first warehouse and office structure. It is to be completed within the next six months.

The build has been straightforward up to this point in time, progress is shown in the photograph below.

A number of items needed to complete the build are still not fully agreed. Certain items have been costed in general terms but not fully costed as yet. The following diagram (not to scale) has been completed for some of the flooring.

Task 1



Information for flooring (main office area and kitchen):

- The main office area will be covered in carpet tiles. The tiles, including fitting and all additional items will be costed at £35.00 per square metre. It is advisable that for wastage an extra 5% square meterage is added.
- The stairwell features an irregular shape (almost a semi-circle) which has an area of 4.5 square metres. This area does not need any flooring.
- The kitchen area needs vinyl flooring which is available in 2 metre wide rolls. This will be costed (including fitting and all additional items at £40.00 per square metre – for how much needs to be bought).

You are asked to calculate the full cost of the flooring which is to include the carpet tiles for the office area and the vinyl for the kitchen area. Outline your calculations and the total cost below. [15]

Total cost of flooring £ ……

Task 2

The kitchen area will have specially designed and built wooden kitchen units, which will be assembled on site but built in a joinery workshop. Despite being a modern warehouse, the building will feature other timber structures including doors and planters.

The warehousing area of the building is very large and requires an electrical installation for (mainly) lighting and heating. The office area requires more varied electrical work including a supply for sockets, heavy duty kitchen equipment, heating and lighting.

The front of the building will be finished in brick and there will be small brick wall separating the car park from the pathways.

The work noted above will need Carpenters/Joiners, Electricians and Bricklayers to complete.

Carpenter/Joiner [5]

What does this craftsperson do?

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What do they produce?

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What responsibilities, including health and safety, does this craftsperson have?

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Electrician [5]

What does this craftsperson do?

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What do they produce?

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What responsibilities, including health and safety, does this craftsperson have?

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Bricklayer [5]

What does this craftsperson do?

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What do they produce?

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What responsibilities, including health and safety, does this craftsperson have?

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Task 3

The following grid shows the key stage activities for the completion of the warehouse sub-structure. Complete the grid by identifying how long (in weeks) each activity should take. Mark each activity / grid by placing a tick in the box. e.g. an activity should take 3 weeks starting in week 4 and ending in week 6 then place a tick in the box for weeks 4, 5 and 6. The sequence of activities has already been completed for you with the Health, Safety and Site Security Induction being first (placed at the top of the list) and the final activity of this stage being the completion of the floor slab (placed at the bottom of the list).

[7]

	Week Number								
Activity	1	2	3	4	5	6	7	8	9
Health, Safety and Security Induction									
Groundwork Excavations									
Foundations									
Footings									
Drainage									
Services									
Floor slab									

Task 4

The following grid is for the planning of the warehouse super-structure build. Complete the grid by identifying the correct order of the programme and how long (in weeks) each activity should take. Select each activity from the list provided then place a tick in the box where you think this activity should start and end. e.g. an activity should take 2 weeks starting in week 3 and ending in week 4 then place a tick in the box for weeks 3 and 4.

Activities: First Fix Carpentry Plaster and Skim Painting and Decorating Second Fix Carpentry Plumbing External Walls Doors Internal Walls Internal Finishes Windows Roof Induction for Health Safety and Site Security. [12]

	Weeks									
Activity	1	2	3	4	5	6	7	8	9	10

Task 5 (a)

In tasks 3 and 4, the sub-structure and super-structure were discussed. The final element in the build process is 'External Finishes'.

To start the External Finishes phase a Health, Safety and Security Induction would be undertaken and the phase would end with the handover to the client. In between the Induction and handover, a number of External Finishes activities are required.

Complete the table below by identifying and sequencing 5 key External Finishing activities. [5]

	1	2	3	4	5	
Health, Safety and Security Induction						Handover to Client

Task 5 (b)

Considering all of the phases in this build from Sub-Structure (Task 3), Super-structure (Task 4) and External Finishes (Task 5(a)), identify three factors which could affect the smooth running of the project and describe the impact they could have on the success of the project. [6]

Factor 1

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Factor 2

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Factor 3

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WJEC LEVEL 1/2 VOCATIONAL AWARD IN CONSTRUCTING THE BULT ENVIRONMENT

Unit 3

Mark scheme

SAMPLE EXTERNAL ASSESSMENT

For first teaching from September 2018

Task 1

15 marks

Calculation of area to be carpet tiled:

Overall area (7M + 7M) x (3.3M + 4.7M) = 112M^2 [**2 marks available** - 1 mark for the application of appropriate method of calculation to this essential stage and 1 for accurate calculation – own figure rule applies for subsequent marks but candidate will lose 1 mark for inaccurate calculation]

Minus the Kitchen area 3.3M x 7M = 23.1M^2 = 88.9M^2 [**2 marks available** - 1 mark for the application of appropriate method of calculation to this essential stage (ie subtraction from main area) and 1 for accurate calculation – own figure rule applies for subsequent marks but candidate will lose 1 mark for inaccurate calculation]

Minus the stairwell (4.5M^2 as given) = 84.4M^2 [**2 marks available** - 1 mark for the application of appropriate method of calculation to this essential stage (ie subtraction from main area) and 1 for accurate calculation – own figure rule applies for subsequent marks but candidate will lose 1 mark for inaccurate calculation]

Plus 5% extra for wastage = 88.62M^2 [**2 marks available** - 1 mark for the application of appropriate method of calculation (eg x 1.05) to this essential stage and 1 for accurate calculation – own figure rule applies for subsequent marks but candidate will lose 1 mark for inaccurate calculation]

At £35.00 per square metre = **£3,101.7** [**2 marks available,** 1 mark for the application of appropriate method of calculation to this essential stage and one for accurate calculation – own figure rule applies for subsequent marks but candidate will lose one mark for inaccurate calculation]

Calculation of Kitchen area:

Area is 3.3M x 7M = 23.1 however as roll is 2M wide then 4 lengths of 3.3M are required 3.3M x 2M x 4 lengths = 26.4M^2 [**2 marks available,** 1 mark for the application of appropriate method of calculation to this essential stage and one for accurate calculation – own figure rule applies for subsequent marks but candidate will lose one mark for inaccurate calculation]

NB Condone as accurate the use of 23.1M^2 x £40.00 = £924.00 where basic floor area has been used and also condone as accurate where rolls have been laid along the 7 metre run of the room – this would see a calculation of 2M x 7M x 2 lengths = 28M^2 = £1,120) Own figure rule applies where either of these have been utilised.

At £40.00 per square metre = **£1056.00** [**2 marks available,** 1 mark for the application of appropriate method of calculation to this essential stage and one for accurate calculation – own figure rule applies for subsequent marks but candidate will lose one mark for inaccurate calculation]

Total cost of flooring work is £3,101.7 + £1056.00 = **4,157.7 [1 mark available –** for the addition of both calculated costs – Own figure rule applied to previous calculations as noted.

Task 2.

Carpenter/Joiner [5]

What does this craftsperson do? (1)

Carries out all first and second fix carpentry work with the use of timber. (1)

What do they produce? (2)

Install and build with timber (1) – which includes doors, skirting boards, architrave, windows, roof structures door ironmongery and kitchens (1)

What responsibilities, including health and safety, does this craftsperson have? (2) To gain both marks, candidates have to provide an appropriate response which includes health and safety.

To follow instructions as directed by senior staff responsible for all Carpentry work (1), to work to drawings and specifications (1), to work safely as part of a team (1) they must wear appropriate PPE at all times (1)

Electrician [5]

What does this craftsperson do? (1)

Carries out all first and second fix electrical work (1) Works with power sources (1)

What do they produce? (2)

The install lighting (1), wall sockets (1), boilers (1) and other electrical items and systems (1) What responsibilities, including health and safety, does this craftsperson have?

To follow instructions as directed by staff responsible for electrical installation (1) to work to electrical drawings and specifications (1), to work safely as part of a team (1) they must wear appropriate PPE at all times (1) they must adhere to electrical regulations when carrying out the work (1)

Bricklayer

[5]

What does this craftsperson do? (1)

Works with bricks (1), blocks (1), stone(1) and mortar (1)

What do they produce? (2)

They construct internal walls (1), external walls (1), inspection chambers (1) and feature brickwork(1)

What responsibilities, including health and safety, does this craftsperson have?

To follow instructions as directed by senior staff responsible for all brickwork (1), to work to drawings and specifications (1), to work safely as part of a team (1) they must wear appropriate PPE at all times (1)

Task 3.

[7]

Typical solution to task 3:

	Week Number								
Activity	1	2	3	4	5	6	7	8	9
Health, Safety and Security Induction	x			x				x	
Groundwork Excavations	x	x	x						
Foundations				x					
Footings					x	x			
Drainage					x	x	x		
Services					x	x	x		
Floor slab								x	x

Marks	Evidence
7 marks	All activities attributed an appropriate timescale and are in a workable sequence. Timings against other activities are also realistic with no unworkable overlaps.
5 - 6	Most activities attributed an appropriate timescale and are in a generally workable sequence. Timings against other activities are also realistic with no unworkable overlaps.
3 - 4	Some activities are attributed an appropriate timescale and the sequence is provided. There may be issues related to overlaps.
1 - 2	A limited number of activities are sequenced and timed correctly demonstrating some understanding, however, there are fundamental flaws.
0	No work worthy of credit – inappropriate sequence and timings.

Task 4

[12]

Typical solution to task 4:

	Weeks									
Activity	1	2	3	4	5	6	7	8	9	10
Health, safety and security	x			x				x		x
External walls	x	x	x							
Internal walls	x	x	x							
First fix carpentry			x	x						
Roof					x	x				
Windows						x				
Doors						x				
Plaster and skim					x	x				
Second fix carpentry						x	x			
Plumbing						x	x	x		
Internal Finishes						x	x	x		
Painting and decorating								x	x	x

Marks	Evidence
12 marks	All activities attributed an appropriate order and timescale. They are in a workable sequence. Timings against other activities are realistic with no unworkable overlaps.
8 - 11	Most activities attributed an appropriate order and timescale. They are in a generally workable sequence. Timings against other activities are realistic with no unworkable overlaps.
4 - 7	Some activities are attributed an appropriate order and timescale. There may be issues related to overlaps and/or errors in sequencing and timescales.
1 - 3	A limited number of activities are sequenced and timed appropriately demonstrating some understanding, however, there are fundamental flaws.
0	No work worthy of credit – inappropriate sequence and timings.

Task 5 (a)

[5]

	1	2	3	4	5	
Health, Safety and Security Induction						Handover to Client

Examples of Key External Finishing activities are:
Hard Landscaping, Soft Landscaping, Rainwater Goods, Alarm System, External Decoration, Cladding, External Lighting (all other appropriate responses are acceptable)

5 marks	Five appropriate examples identified and correctly sequenced
4 marks	Five appropriate examples identified with an error in sequencing or Four appropriate examples identified with correct sequencing
3 marks	Four appropriate examples identified with an error in sequencing or Three appropriate examples identified with correct sequencing
2 marks	Three appropriate examples identified with an error in sequencing or Two appropriate examples identified with correct sequencing
1 mark	Two appropriate examples identified with an error in sequencing or 1 appropriate example identified
0 marks	No appropriate example is identified

Task 5 (b)

1 mark for each correct factor identified + 1 mark for description of impact (maximum 2 marks for each factor)

Factor 1 Bad Weather (1) – this could have a major impact on the progress of the project as certain aspects could not be completed until the weather changes – this adds extra time, meaning the project could take longer to complete.(1)

Factor 2 Delays in delivery of materials (1) – this could have a major impact on the progress of the project as certain aspects could not be completed until the materials have arrived – this adds extra time, meaning the project could take longer to complete. (1) It could add to the cost of the project if staff are dormant awaiting materials (1).

Factor 3 Staff illness (1) – this could have a major impact on the progress of the project as certain aspects could not be completed until the staff return to work or until replacements can be found (1). This could be more problematic where highly specialised staff are absent through illness leading to longer delays(1) – generally this adds extra time, meaning the project could take longer to complete.(1)

[6]

Unit 3 SAM mark distribution

Assessment Criteria	Task	Total	Mark parameters
1.1	2	5	
1.2	2	5	
1.3	2	5	
Sub total		**15**	12 -18
2.1			
2.2	1	15	
2.3	5(b)	6	
2.4			
Sub total		**21**	19 - 25
3.1	4 5(a)	8	
3.2	3 4	8	
3.3	3 4	8	
Sub total		**24**	20 - 26
Total		60	