

L2 Lead Examiner Report 2001

January 2020

L2 Qualification in Construction

Unit 1 – Construction Technology



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Introduction

This report has been written by the Lead Examiner for BTEC Construction and the Built Environment Unit 1 – Construction Technology. It is designed to help you understand how learners performed overall in the exam. For each question, there is a brief analysis of learner responses. You will also find some example learner responses at Level 2 Pass, Merit and Distinction. We hope this will help you to prepare your learners for future examination series.

Grade Boundaries

Introducing external assessment

The new suite of 'next generation' NQF BTECs now include an element of external assessment. The external assessments for NQF BTEC Construction are timetabled paper-based examinations.

What is a grade boundary?

A grade boundary is where we set the level of achievement required to obtain a certain grade for the externally assessed unit. We set grade boundaries for each grade (Distinction, Merit, Pass and Level 1 fallback).

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the assessment. When we can see the full picture of performance, our experts are then able to decide where best to place the grade boundaries – this means that they decide what the lowest possible mark should be for a particular grade.

When our experts set the grade boundaries, they make sure that learners receive grades which reflect their ability. Awarding grade boundaries is conducted to ensure learners achieve the grade they deserve to achieve, irrespective of variation in the external assessment.

Variations in external assessments

Each test we set asks different questions and may assess different parts of the unit content outlined in the specification. It would be unfair to learners if we set the same grade boundaries for each test, because then it wouldn't take into account that a test might be slightly easier or more difficult than any other.

Grade boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link: http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

Grade	Unclassified	Level 1 Pass	Level 2	Level 2	Level 2
			Pass	Merit	Distinction
Boundary Mark	0	14	26	38	50

General Comments

This is the first sitting of the new 2018 Specification for the Unit 1: Construction Technology. The external assessment now includes the application of mathematics in Learning Aim B, two further additional response questions, has an overall mark out of 60 (compared to the 2013 series of 50 marks) and the duration of assessment has increased to 75 minutes (from 60 minutes). Overall, the paper produced a suitable range of responses.

Lower ability learners often gave inaccurate or simplistic responses to questions and therefore gained limited marks. The more demanding questions provided learners with an opportunity to apply their knowledge in relation to construction scenarios and it was pleasing to see some extended answers that focused on the vocational context. In some cases, learners continued to provide responses which repeated information from the question stem or from previous question stems. In a number of other cases, candidates gave answers that appeared to reflect general knowledge rather than any detailed understanding of construction components or methods under consideration.

In preparation for future series, centres should focus on the analysis of the new 2018 Specification SAM (Sample Assessment Material) for this unit together with using this exam and its mark scheme as the basis for identifying and applying relevant more expansive solutions to the questions set. Learners should also be familiar with the full range of content from the unit specification and ought to be able to examine the application of these concepts in different scenarios. Learners should be able to sketch and label elements of construction as identified in the unit specification.

The ability to recognise the demands of a question is also important. Learners should understand the different responses required for different command words, for example, identify, explain or discuss.



Question 1

This question was aimed at the understanding of the performance requirements required in buildings.

Targeted Specification Area: Learning Aim A.1

1a) Most learners were able to match each material/component to their intended performance requirement.

The correct responses were:

Plasterboard layers- Sound Insulation Flashings- Weather resistance

In some cases learners incorrectly identified flashings as being linked to the performance requirement of strength.

1b) Learners were required to identify two types of load that a building is designed to resist. Most learners were able to identify at least one type of load correctly with more able learners able to correctly identify two correct responses.

The correct responses were:

B- Wind

E- Self-weight

1c) Learners were required to name two materials from a traditionally built house that could be recycled when the building is demolished. Many learners were able to identify two materials correctly. Please refer to the marking scheme for suitable acceptable responses.

In addition, the response of insulation or a type of insulation e.g. sheep's wool was also considered an acceptable response.

2 mark response example:

(c) Name two materials from a traditionally built house that could be recycled when the building is demolished.

(2)

Plastic 2 Wood ------



2 marks awarded for the correct response.

1d) Learners were required to identify two types of sound insulation used within a building. Most learners were able to identify at least one type of sound insulation material correctly with more able learners able to correctly identify two correct responses.

The correct responses were:

A- Triple glazing D- Carpeting

1e) Learners were required to identify two locations in a building where sound insulating materials could be placed to reduce the passage of sound. Most learners were able to identify the two correct locations.

The correct responses were:

B- Floor E- Wall

Question 2

This question was aimed at learners understanding of the features of a site layout plan used in the preconstruction work

Targeted Specification Area: Learning Aim B.1

Other than temporary roads or hard standing areas, most learners were able to name at least one feature of a site layout plan with the more able learners being able to state two acceptable features.

Correct responses are included in the marking scheme. Additional acceptable responses also included:

- Fencing
- Trees/hedges
- Access points
- Services/utilities

2 Temporary roads and hard standing areas are features shown on a site layout plan. Name **two** other features shown on a site layout plan.

2 Storage

marks awarded for the correct response.

Question 3

This question was aimed at learners understanding of the differnt types of internal partitions.

Targeted Specification Area: Learning Aim C.1

This was poorly answered by many learners. The different types of internal partition are clearly stated in the Topic area C.1 of the unit specification.

The correct responses are included in the marking scheme.

1 mark response example:

3 Name one type of internal partition wall.

*			
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Question 4

This question was aimed at the understanding of sub-structure of foundations.

Targeted Specification Area: Learning Aim B.2

Learners were required to label the four parts of the foundation shown in Diagram 1. Many learners achieved at least two marks with more able learners labelling all four components correctly.

However, some learners did not answer this question or gave answers such as for (i) damp proof course (iii) cavity fill/concrete. This would indicate that some centres had not prepared their learners to detail foundation.

The correct responses were:

2

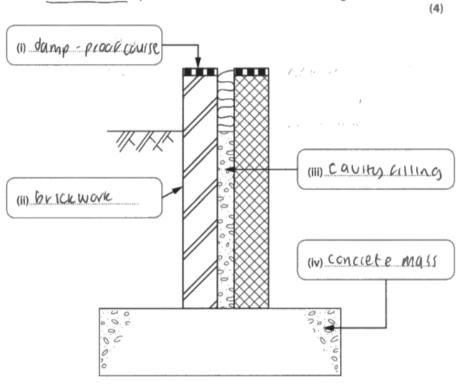
(1)

(i)DPC/PVC/Bitumen(ii)Brickwork/external wall(iii)Cavity fill/concrete(iv)Concrete/strip foundation

4 mark response example:

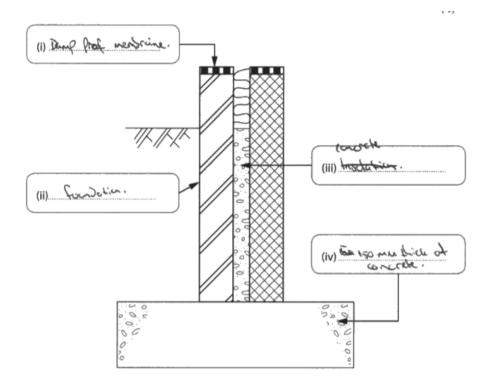
4 Diagram 1 shows a section through a foundation.

Label the **four** materials/components of the foundation shown in Diagram 1.



1.818 1

Diagram 1



3 marks awarded: Part (ii) is incorrect.

Question 5

This question was aimed at the understanding of sub-structure of foundations.

Targeted Specification Area: Learning Aim B.2

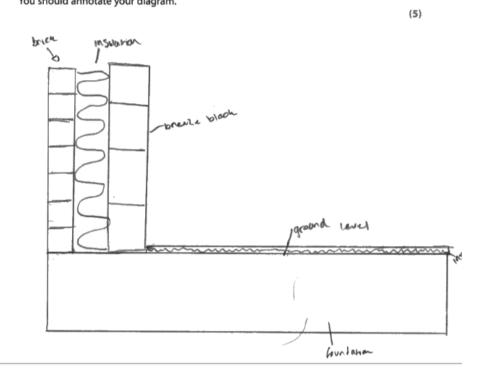
Learners were required to sketch a cross-section through a raft foundation supporting a cavity wall.

This was satisfactorily attempted by learners. Pass learners were able to produce sketch diagrams of sufficient detail and quality to achieve 4 or 5 marks. However, weaker learners did not attempt a response or focused incorrectly on the strip foundation shown in question 4 or produced a sketch of a cavity wall with no foundation included.

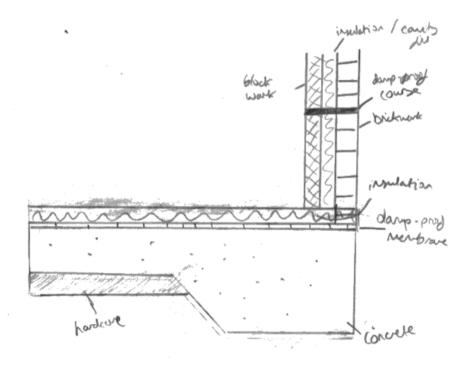
Centres should consult with the mark scheme to consider the detail required for a sketch question of this type. Centres also need to understand that this type of question will continue to be included in future examinations.



5 Sketch a cross-section through a raft foundation supporting a cavity wall. You should annotate your diagram.



4 marks awarded: Four marks awarded the correct answer with annotations. 1 mark awarded for insulation (wall or floor)





5 marks awarded for a fully correct response.

Question 6

This question was aimed at the understanding of sub-structure of foundations.

Targeted Specification Area: Learning Aim B.2

Learners were required to explain one advantages and one disadvantage of a strip foundation.

The command verb used for this question is explain, therefore 1 mark was allocated to the identification of an advantage/disadvantage and 1 mark for a linked explanation of the stated advantage/disadvantage.

Learners were able to achieve 1 mark for the identification of an

advantage/disadvantage but then often failed to understand the need to develop a linked explanation from it.

This question was generally poorly answered by many learners. More able learners were often able to achieve 2 marks.

1 mark advantage response for:

• Simper/easier to construct/build

0 mark advantage response for:

- Strong/stronger
- Quick to construct
- Longer life span
- Durable
- More stable

Please refer to the marking scheme for all suitable responses.

6 Explain one advantage and one disadvantage of a strip foundation.

Advantage				
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then	other	fandertien	the	CP
alse	\bigcirc)		
Disadvantage				
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wed	if	Are	ground	Δ
rally	SOFF	- 05	they	may
Move	and	dernage	the	building.
		\mathcal{O}	(Total for Qu	uestion 6 = 4 marks)

6 Explain one advantage and one disadvantage of a strip foundation.

3 marks awarded: The first response, 1 mark for easier than other foundation. 2 marks for the second response of the marking scheme.

(4)

2 mark response example:

•	Explain on	e dorum	age an							(4)
	Advantage									
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	Disadvanta	ge								
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	have	ю	0B	nu	~	ure	res.			0-

2 marks awarded: The first response is worth 2 marks. Please see BP1 in marking scheme. The second response has no rewardable content.

Question 7

This question was aimed at the superstructure of walls.

Targeted Specification Area: Learning Aim C.1



7a) Learners were required to give one function of a wall opening. This was a mostly well answered question by learners although some failed to connect the connection between a wall opening and the provision of ventilation.

The correct responses are indicated in the marking scheme. Reference should also be made to the unit specification Topic C.1.

1 mark acceptable responses also included:

- To allow access to the building
- To allow provision to build a doorway or window.

7b) Learners were required to name one component of a wall opening. This was a satisfactorily answered question by learners. Some learners incorrectly stated that a cavity wall was a component of a wall opening.

The correct responses are indicated in the marking scheme. Reference should also be made to the unit specification Topic C.1.

Question 8

This question was aimed at the understanding of sustainability methods of construction.

Targeted Specification Area: Learning Aim A.1/C.1

8a) Learners were required to name the building element that straw bales are used to construct.

The correct answer was walls which is as indicated in the unit specification. Many learners incorrectly stated that the building element were straw bales would be used was a thatched roof or left the question unanswered.

8b) Learners were required to explain two reasons why the use of straw bales is a sustainable form of construction.

The command verb used for this question is explain, therefore 1 mark was allocated to the identification of a reason and 1 mark for a linked explanation of the stated reason. Some learners were able to achieve identification marks for correctly stated reasons, but then often failed to understand the need to develop a linked explanation from it. This question was generally poorly answered by many learners. Often learners gave generic incorrect responses and did not relate their responses to the question stem and sustainability. More able learners were often able to achieve 2 marks.

1 mark response included:

- It is a renewable material
- Good for the environment

0 marks awarded for:

- Strong/stronger
- Can hold more weight
- More stable
- Materials can be re-used/recycled
- Easier form of construction
- Quicker to construct

Please refer to the marking scheme for all suitable responses.

4 mark response example:

(b) Explain **two** reasons why the use of straw bales is a sustainable form of construction.

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can use it	//
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The ill have been	1 A LA CILL
	be used elserbore (like
feeding aristands) so	if it is not used (here hehrid - (Total for Question 8 = 5 marks)
and se an and the	(lotal for Question 8 = 5 marks)

(4)

4 marks awarded: The first response is worth 2 marks and is a linked response see BP 1 marking scheme. The second response is worth 2 marks and is a linked response see BP 4 marking scheme.

1 mark response:



(b) Explain **two** reasons why the use of straw bales is a sustainable form of construction.

1 stre	w	is	SU	slounable	>	1
	J	ÌS	grou	L the	fore	Ve
will	never		run	out.		
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which		not	Sus	venotie	٦F	
lest	a	de	cent	Inou	¥	of
time.						
				(Total for Ou	estion 8 =	5 marks)

(4)

1 mark awarded: The first response is acceptable for 1 identification see BP 1 of the marking scheme. No suitable linked response has been stated. The second response has no rewardable content.

Question 9

This question was aimed at the understanding of the application of matematics and associated calculations in realtion to sub-structure groundworks.

Targeted Specification Area: Learning Aim B.2

Learners were required to calculate the volume of excavated material for a drainage trench. The application of mathematics and calculations in relation to perimeters, areas, volumes and distance is new to the 2018 specification and centres should be aware that future exam series will also incorporate mathematical construction contextualised problems.

The question was well answered, particularly those learners at pass or above level. In some cases one mark was awarded for a suitable method being adopted but with the follow through calculation being incorrect.

Acceptable 2 mark responses included:



9	A trench is going to be excavated for a drainage pipe 0.6 m wide and 2.4 m deep.	. The trench will be 40 m long,
	Calculate the volume of excavated material.	(2)
	40×0.6×2.4	
		57.6 m ³
		(Total for Question 9 = 2 marks)

2 marks awarded for a correct response.

Question 10

This question was aimed at the superstructure of upper floors.

Targeted Specification Area: Learning Aim C.2

Learners were required to explain two benefits of using eco-joists instead of solid timber joists for the construction of the upper floors of a low-rise building. The command verb used for this question is explain, therefore 1 mark was allocated to the identification of a benefit and 1 mark for a linked explanation of the stated benefit.

Learners were able to achieve 1 mark for the identification of a benefit but then often failed to understand the need to develop a linked explanation from it. More able learners were often able to achieve 2 or 3 marks. Suitable linked correct responses may be seen in the marking scheme.

Acceptable 1 mark advantage responses included:

- Easier to install
- Cheaper to construct
- Quicker to construct
- Less people required for installation
- Lighter

0 marks awarded for:

- Cheap/Cheaper on their own
- Lasts longer
- More stable
- Its renewable
- Sustainable/more sustainable
- Stronger

Acceptable 3 mark responses included:

10 Explain two be construction o	enefits of using e f the upper floor	co-joists ins s of a low-ri	tead of solid se building.	timber joists	for the	
			2			(4)
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3 marks awarded: The first response is acceptable for 1 identification as the learner states that the joists are lighter. No suitable linked response has been stated. The second response is worth 2 marks and is a linked response see BP 6 marking scheme.

Acceptable 1 mark responses included:

10 Explain two benefits of using eco-joists instead of solid timber joists for the construction of the upper floors of a low-rise building.

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initall	the	iy er	e a	
better-	finish -			
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
2 HARY		Cheaper	84	- 4
timber.		'		

(4)

1 mark awarded: The first response is acceptable for 1 identification see BP 2 of the marking scheme. No suitable linked response has been stated. The second response has no rewardable content.



Question 11

This question was aimed at the understanding of the performance requirement of sustainability and building on a brownfield site.

Targeted Specification Area: Learning Aim A.1

Learners were required to discuss the advantages and disadvantages of a development being built on the brownfield site identified.

Marks were awarded dependent on the detail of points identified and described and as to whether the learner had made a balanced discussion of both advantages and disadvantages stated.

Most learners attempted this question. Many achieved some marks and there were included some high scoring responses. More able learners provided a balanced discussion of both the advantages and disadvantages.

The marking scheme gives a detailed list of the advantages and disadvantages of building on the brownfield site.

1 mark:

- More houses will be available for the public to live in
- Better for the environment
- It won't be hard/may be easier to get planning permission
- The land will be cheaper to buy/cost related

0 marks:

• Can re-use existing foundation



5 mark example response:

11 An inner city industrial site has been abandoned and is contaminated. A developer is proposing to build houses on this site.

Explain the advantages and disadvantages of developing the project on this brownfield site.

(6) broundeld ь ises enw и ild der be R CO and sat s Brufield U life som pe la ~L^ nour some disaduratases that se ar have (Total for Question 11 = 6 marks) a ke with reed and Jarte w the and and 60 These lot. the build . 9 fhe. Lot i ver

5 marks awarded:

Advantages - environment not destroyed (1) as do not need to build on greenfield land destroying vegetation which ruins habitats (1) - may have services but no link response included (1)

Disadvantages - Need to demolish existing buildings (1) which can be costly-can be costly for machinery and labour costs (1) - Waste and contamination needs to be removed (1) and the land cleaned which is costly (0 marks awarded because this is a repetition of previously linked mark awarded for cost).



The best 2 advantages and 1 disadvantage, or 1 advantage and 2 disadvantages were marked. The above would score 5 marks, comprised of 3 identification points, 2 of which have a linked response. The maximum number of identification marks for this item is 3.

3 mark example response:

Explain the advantages and disadvantages of developing the project on this brownfield site.

(6)A Sownfield site can be extenty continuted Jacqueres ler advertages to this - you however, three are some it's alreed because sinning permission abendoned. Threes nows Acnt property, There will alectricit cina J. se Juentage maintenace what an issue. Have Morenser 50 Act the ground cer otten word and toric, which will minimulist growth contaminated Acrts Losic Jecoretiens, Clearing to sik دس pr. thes Talile Leccurs 0 Con amounts CG again leaving remoul So Me tim leadin 1:023 reve >. Sewoge (Total for Question 11 = 6 marks) Some times wich leale Sui (y rue

3 marks awarded:

Advantages-You won't need much planning permission (0) as already built on and is now abandoned-poor. Electricity cables present (1)

Disadvantages-Aspects of contamination weakly discussed (1) Clearing of site (1) No linked explanations given. 3 identification marks awarded.

Question 12

This question was aimed at the understanding of common structural forms and the superstructure of walls.



Targeted Specification Area: Learning Aim A.2/C.1

Learners were required to discuss the reasons why a housing developer might use a timber frame construction form rather than cavity wall construction. This was a new 6 mark extended response question and the marking scheme gives a detailed list of the advantages and disadvantages of each construction form.

Most learners attempted this question. Most achieved 2 marks or better.

5 mark example response:

5 marks awarded - bottom of mark band 3

Arguments for and against are described for both types of construction form were stated. Most points made were relevant to the situation in the question and some limited linked responses included. The learner demonstrates a developed understanding of the issue of selecting a timber frame compared to a traditional cavity wall construction form.



Acceptable 3 mark response example:

12 Discuss why a housing developer might use timber frame construction rather than traditional cavity wall construction. (6)Timber Frome: They are Much more sustainable than cavity walls, which is better for the environment. They are much easier to montance mantener mantain. They are casier to construct, which reduces time. Cavity Walls: to They will not cop is what water leaks into it, where as timber frame will, and cause multiple issues. It will not need to be replaced for a king period of times where as timber frame may need to be replaced sooner. Cavity Walls require little maintainance, as its components are strong and long lasting. Courty Walls act as very an important factor in a house. (Total for Question 12 = 6 marked (Total for Question 12 = 6 marks)

3 marks awarded - bottom of mark band 2

Some arguments for and against are described for both types of construction form were stated. Most points made were relevant to the situation in the question and some limited linked responses included. The learner demonstrates a good understanding of the issue of selecting a timber frame compared to a traditional cavity wall construction form.

Question 13

This question was aimed at the understanding of the superstructure of roofs.

Targeted Specification Area: Learning Aim C.3



Learners were required to discuss the advantages and disadvantages of two roof types proposed for a two-story office block.

Marks were awarded dependent on the detail of points identified and described and as to whether the learner had made a balanced discussion of both construction forms. Most learners attempted this question. Many achieved some marks. Learner marks were mostly in mark band 1 or at the lower end of mark band 2. Some high mark band 2 and occasional mark band 3 learner work was also seen.

The marking scheme gives a detailed list of the advantages and disadvantages of each rood type.

The mark bands and level descriptors are included in the mark scheme for question 13.

8 mark example response:

13 A developer is proposing to build a two-storey office block. Properties nearby have pitched roofs.
 The developer is considering two different types of roof: pitched roof with interlocking tiles flat roof with built up felt.
Discuss the advantages and disadvantages of each of these roof types.
19) Moitaned roofs and would be the better charce corthe
construction of a two stones office block as it us nheeping
with the surrounding area, it is aesthetically pleasing,
worter run offis easier and requires little to no
maintenance, and for course of the buildings th
nowever, the intial costs of a pirched roof is much
nigner man a clat rook, and it takes longer to
constructs and me aundations much be shang
enough to wimstand the road a comme rock.
the advantages of a clost rook is mat it
is a eimencally pleasing, it is quick to construct
and is much cheaper (in/fally) to con

construct, but met welt needs to be protected to protect it even me sun, pratia water runoll may be more didircult monon and water puddles canearmover hme on me 1006 I dumasing It, so more respairs may be needed (but me nod to access car more repairs would be easier). 17 pitched roop would be more efficience and though it is more expensive at cirst; it is inneeping with me surrounding are a no require) lift a mainten (Total for Question 13 = 9 marks)

8 marks awarded - Middle mark band 3

The advantages and disadvantages of both forms of roof construction have been discussed in a balanced manner. All points made were relevant to the situation in the question and some linked responses included. The learner demonstrated a developed understanding of the advantages and disadvantages of both roof types. This is a high quality piece of work which falls just short of the 9 mark response. To achieve full marks, greater reference to office block context is required.

3 mark example response:

13 A developer is proposing to build a two-storey office block. Properties nearby have pitched roofs.

The developer is considering two different types of roof:

- pitched roof with interlocking tiles
- flat roof with built up felt.

Discuss the advantages and disadvantages of each of these roof types.

(9)

Whilst a pitched roop is better for weakher, and strength. If takes much more time to build, and rearly has a chance to collapse during building. This also takes up more space however, really good at keeping the rain away so you wont have a chance of getting any leaks, and it you do its very rair. And whilst this roop is carriging more weight its less likely to collapse on itself.

The 'flat roop is a good idea for a building, however not the best. This is because whilst a plat roop is light lighter in weight its more likely to collapse on itself due to all, it - not most of the weight going to the

middle, since that's the weakest spot. Also a plat root requires a type of coaling it you don't want rain going the the threw the root since most rain will stay there because its a plat surpace. And one last thing about the \$ plat rook is that, its faster to build and requires less makerial. This also means its cheap and you are alluays doing the finish the build much taster, making protit over time spent building. So in my opinion, the plat roop is the best (Total for Question 13 = 9 marks)

3 marks awarded - top of mark band 1

Some points made were relevant to the situation in the question although the response was basic in detail and explanation. The learner demonstrated a basic understanding of both roof types.

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