

L2 Lead Examiner Report 1901

January 2019

**NQF BTEC Level 1/Level 2 Firsts
in Construction**

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Grade Boundaries

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, at Distinction, Merit and Pass.

Setting grade boundaries

When we set grade boundaries, we look at the performance of every learner who took the external 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 is 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 external assessment 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 assessment, because then it would not take accessibility into account.

Grade boundaries for this, and all other papers, are on the website via this link:

<http://qualifications.pearson.com/en/support/support-topics/results-certification/grade-boundaries.html>

Unit 1: Construction Technology

Grade	Unclassified	Level 1	Level 2		
		Pass	P	M	D
Boundary Mark	0	10	20	30	41

Introduction

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 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. Candidates should understand the different responses required for different command words, for example, identify, explain or discuss.

Individual Questions

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 correctly identify at least one performance requirement and the way it is achieved. More able learners identified both performance requirements correctly.

The correct responses were:

1. Strength- Use of stress graded structural timber

Sustainability- Minimising construction waste

1b) Learners were required to name two locations in a building where insulation material can be placed to reduce heat loss. Most learners were able to identify at least one location correctly with more able learners able to correctly identify two correct responses.

Please refer to the marking scheme for all suitable responses.

2 mark response example:

(b) Name two locations in a building where insulation material can be placed to reduce heat loss.		(2)
(1)	<i>Ceiling</i>	
(2)	<i>Walls</i>	

2 marks awarded:

2 marks awarded for two correct responses given. Please refer to the marking scheme.

1c) Learners were required to identify two types of sound insulation. Many learners were able to identify the two types of sound insulation correctly.

The correct responses were:

2. C- Plasterboard layers
3. D- Flooring mats
- 4.

1d) Learners were required to identify two types of load that buildings are designed to resist. Most learners were able to correctly identify the correct response of dead load. Some learners were unable to realise that the second type of loading was dynamic.

The correct responses were:

5. A - Dead
6. E - Dynamic

Question 2

This question was aimed at the understanding of sub-structures groundworks and associated hazards.

Targeted Specification Area: Learning Aim B.2

Learners were required to complete the table to show the risk and control measure associated with water in a deep trench.

This was a well answered question.

Example correct responses were:

7. Associated Risk - Flooding, drowning, death, trench collapse

Control Measure - Pump out excess water, support the sides of the trench

2 mark response example:

2 Complete the table to show the risk and control measure associated with water in a deep trench.

An example hazard, risk and control measure are shown to guide you.

(2)

Hazard	Risk	Control Measure
Damage to gas service pipes	Asphyxiation, explosion	Locate underground services
Water in a trench	flooding, drowning	pump out the water.

(Total for Question 2 = 2 marks)

2 Marks awarded for the correct responses of flooding/drowning and pumping out the water.

1 mark response example:

2 Complete the table to show the risk and control measure associated with water in a deep trench.

An example hazard, risk and control measure are shown to guide you.

(2)

Hazard	Risk	Control Measure
Damage to gas service pipes	Asphyxiation, explosion	Locate underground services
Water in a trench	flooding, causing in	drainage. locate detection

(Total for Question 2 = 2 marks)

1 mark awarded:

1 mark awarded for the relevant risk of flood.

0 marks awarded for the control measure of drainage as this is too general.

Question 3

This question was aimed at the understanding of sub-structures and preconstruction work.

Targeted Specification Area: Learning Aim B.1

Learners were required to identify two site set-up activities that are required before construction work starts. This was a well answered question by most learners.

The correct responses were:

8. B -Temporary lighting

D- Site accommodation

Question 4

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

Targeted Specification Area: Learning Aim B.2

4a) Learners were required to identify one statement that best described a strip foundation. This was a well answered question by learners. However, some learners did get confused and incorrectly gave the response of D 'It is used when soil is weak'.

The correct response was:

9. A - It is often used in house construction

4b) Learners were required to label the five parts of the foundation shown in Diagram 1. This satisfactorily answered. Many learners achieved at least two marks.

However, a proportion of learners did not answer this question or gave answers such as for (ii) air brick, (iv) gravel and (v) electrical wiring. This would indicate that some centres had not prepared their learners to detail foundation types.

The correct responses were:

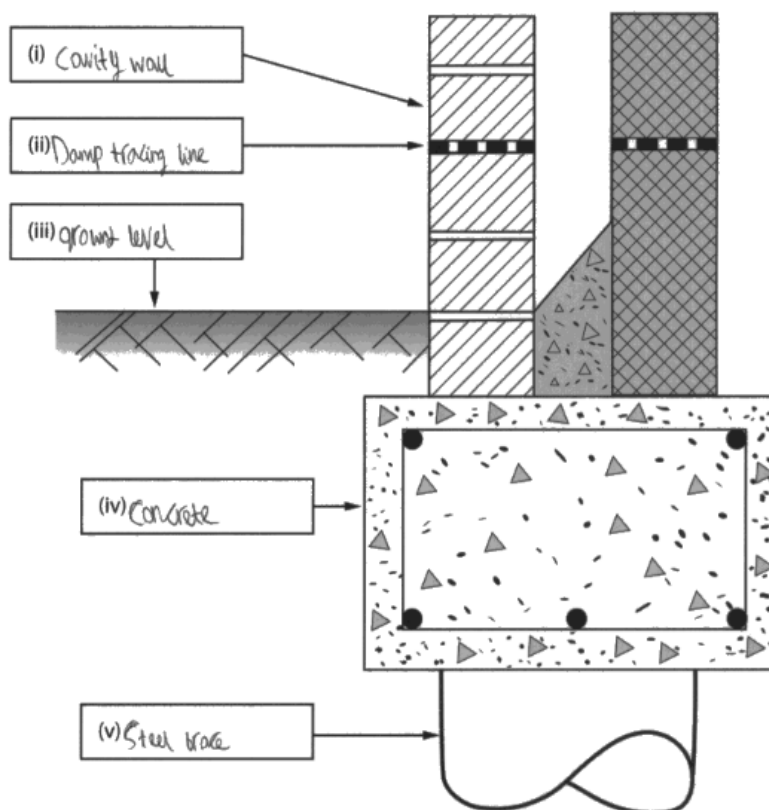
- 10. (i) brickwork
- 11. (ii) DPC
- 12. (iii) ground level
- 13. (iv) concrete/ground beam/foundation/strip/edge beam
- 14. (v) pile (short bored)
- 15.
- 16.

2 mark response example:

(b) Diagram 1 shows a section through a pile foundation.

Label the **five** parts of the foundation shown in Diagram 1.

(5)



2 marks awarded:

2 marks awarded for the correct labelled parts of (iii) ground level and (iv) concrete

Question 5

This question was aimed at the superstructure of upper floors.

Targeted Specification Area: Learning Aim C.2

Learners were required to sketch a cross-section through a timber upper floor supported by joist hangers.

In recent exam series, learner responses to sketch type questions had improved and this was a labelling question in a previous series exam. However, overall responses were very poor with sketch diagrams being weak in detail and quality or the question was not answered. Some learners did not attempt a response or focused incorrectly on a past exam series detail such as that of a solid ground floor or strip foundation.

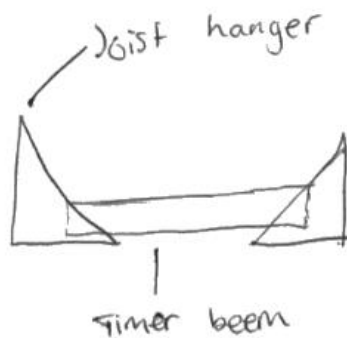
Centres should consult with the mark scheme to consider the detail required for a sketch question of this type. Centres also need to understand that this type of question will continue to be included in future examinations.

2 mark response example:

5 Sketch a diagram of a cross-section through a timber upper floor supported by joist hangers.

You should annotate your diagram.

(4)



2 marks awarded:

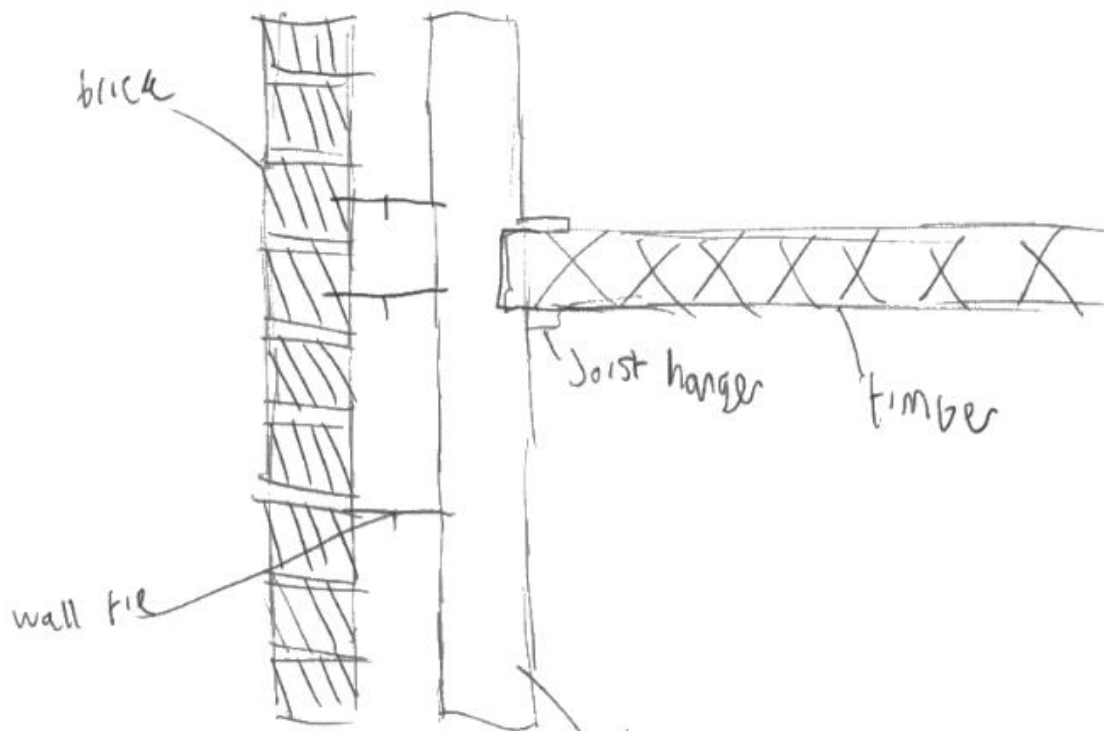
2 marks awarded for the floor components of timber beam and joist hanger

4 mark response example:

5 Sketch a diagram of a cross-section through a timber upper floor supported by joist hangers.

You should annotate your diagram.

(4)



4 marks awarded:

Although the detail is not quite an accurate sketch detail of a timber upper floor, four components from brick wall, block wall, wall tie, joist hanger and timber(accept as timber joist) are accepted.

Question 6

This question was aimed at the understanding of the performance requirements of sustainability.

Targeted Specification Area: Learning Aim A.1

Learners were required to explain give two other sustainable methods of construction. Most learners were able to give at least one sustainability method with more able learners able to correctly identify two correct responses.

Please refer to the marking scheme for all suitable responses.

2 mark response example:

<p>6 One sustainable method of construction is to minimise waste. Give two other sustainable methods of construction.</p> <p>(1) use of local supplies</p> <p>(2) Made in factories / Prefabrication of elements like (SIPS)</p> <p style="text-align: right;">(Total for Question 6 = 2 marks)</p>	(2)
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2 marks awarded:

Response 1-One mark is awarded for a correct response, please refer to the marking scheme- Bullet Point 8.

Response 2-One mark is awarded for a correct response, please refer to the marking scheme- Bullet Point 1.

Further 2 mark response example:

6 One sustainable method of construction is to minimise waste.

Give **two** other sustainable methods of construction.

(2)

(1) USE local Suppliers

(2) Use wood so you can regrow the trees. So it IS renewable.

(Total for Question 6 = 2 marks)

2 marks awarded:

Response 1-One mark is awarded for a correct response, please refer to the marking scheme- Bullet Point 8.

Response 2-One mark is awarded for the use of low embodied energy materials, please refer to the marking scheme- Bullet Point 6.

Question 7

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

Targeted Specification Area: Learning Aim B.2

Learners were required to explain two explain two advantages of a raft foundation.

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.

Learners were able to achieve 1 mark for the identification of a reason 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 response included:

- it is good on soft/poor ground
- spread the load

0 marks awarded for:

- easy to install
- stable
- cheap
- quick to put up
- strong

Acceptable 4 mark responses included:

7 Explain **two** advantages of a raft foundation. (4)

(1) One advantage of a raft foundation would be that they can be used when soil conditions are poor this is because they have a larger surface area meaning the load is spread across a larger Area reducing pressure on the ground.

(2) Another advantage of a raft foundation would be that it provides a solid concrete floor this is because means that cost are cut as builder do not have to instal a different floor ontop of the foundations reducing use of materials

(Total for Question 7 = 4 marks)

4 marks are awarded for two identified advantages with relevant linked responses.

Acceptable 2 mark responses included:

7 Explain **two** advantages of a raft foundation.

- (4)
- (1) ~~For~~ ~~the~~ Raft foundation is used when the soil is weak and can move so they put Raft foundation so that if the soil moves then the foundation moves with it meanit the house wont get cracks.
- (2) When a house is on a raft ~~is~~ foundation then the house stable and the ground won't hurt the building.

2 marks awarded:

first response identifies that a raft foundation may be used on weak soil which is accepted as poor ground conditions. The linked response is poorly expressed but is sufficient for the award of a second mark. 2 marks awarded.

The second response includes no rewardable content.

Question 8

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 explain two benefits to the community of a developer building on a brownfield site. 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.

Learners were able to achieve 1 mark for the identification of a reason 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. Suitable linked correct responses may be seen in the marking scheme.

Acceptable 3 mark response example:

8 Explain **two** benefits to the community of a developer building on a brownfield site. (4)

(1) using land that was all ready build on saves up the greenfield site

(2) It is good fore ~~eco~~ system less land is geting ~~or~~ build on by building on brown field witch gives natural view.

(Total for Question 8 = 4 marks)

3 marks awarded:

The first response is acceptable for 1 mark and is linked to the environmental benefit of not building on a greenfield site. No clear linked identified benefit has been explained.

The second response is linked to the improved visual amenity and protection of the natural environment. An acceptable linked response has been included. 2 marks awarded.

4 mark response example:

8 Explain **two** benefits to the community of a developer building on a brownfield site.

(4)

- (1) The developer doesn't have to destroy nature or parks Reserves or play areas e.g. Field's, parks
- (2) Services may already be in place such as power, water, sewage, Roads no road closures

4 marks awarded:

The first response is linked to the protection of the natural environment. An acceptable linked response has been included. 2 marks awarded.

The second response is also acceptable for 2 marks and is linked to the benefit of reduced road closures because the existing infrastructure is potentially available.

Question 9

This question was aimed at the superstructure of roofs.

Targeted Specification Area: Learning Aim C.3

Learners were required to explain two advantages for a developer of using a flat roof instead of a pitched roof for a new two-storey apartment block.

Learners were able to achieve 1 mark for the identification of a reason 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. Suitable linked correct responses may be seen in the marking scheme.

3 mark response example:

9 Explain **two** advantages for a developer of using a flat roof instead of a pitched roof for a new two-storey apartment block. (4)

(1) It is cheaper quick to build and very sustainable less material is getting to used up.

(2) less dead weight is getting put on the foundation.

3 marks awarded:

The first response is acceptable for 3 marks which is linked to the advantages that a flat roof is cheaper because less materials are being used. A second identification mark can be awarded for quick to build because no identification mark is being awarded for the second response. Please refer to the additional guidance.

The second response has no rewardable content.

2 mark response example:

9 Explain **two** advantages for a developer of using a flat roof instead of a pitched roof for a new two-storey apartment block. (4)

(1) A flat roof people can walk on, so something like a roof top garden can be added because it's a strong flat surface.

(2) A flat roof is also cheaper compared to a pitch roof.

2 marks awarded:

The first response is acceptable for 1 mark and is linked to the inclusion of a roof garden. No clear identified linked explanation has been included.

The second response is acceptable for 1 mark and is linked to the advantage that flat roofs are cheaper to construct. No clear identified linked explanation has been included.

Question 10

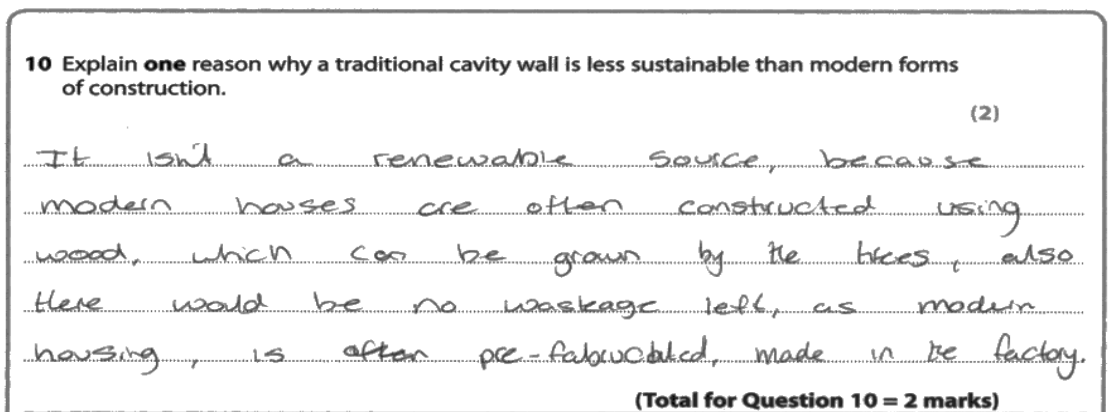
This question was aimed at the performance requirement of construction structural forms.

Targeted Specification Area: Learning Aim A.2

Learners were required to explain one reason why a traditional cavity wall is less sustainable than modern forms of construction.

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

2 mark response example:



2 marks awarded:

The response is related to the reasons that materials used are not renewable followed by the issue that there will be increased wastage as the components are not prefabricated. This is sufficient for two separate identified reasons. Both reasons identified include limited linked explanations, but both would score 2 marks separately.

Please refer bullet points 1 and 2 in the marking scheme.

Further 2 mark response example:

10 Explain one reason why a traditional cavity wall is less sustainable than modern forms of construction. (2)

cavity walls produce more waste onsite
 where as modern walls are assembled
 in the factory.

(Total for Question 10 = 2 marks)

2 marks awarded:

The response is related to increased wastage. A suitable linked response has been included. Please refer bullet point 2 in the marking scheme.

Question 11

This question was aimed at the structural form of cross-wall construction.

Targeted Specification Area: Learning Aim A.1

Learners were required to explain two disadvantages for a developer of using a prefabricated concrete cross-wall form to build a two-storey apartment block.

This was generally poorly answered by many learners.

Suitable linked correct responses may be seen in the marking scheme. The most common link response being:

- Specialist plant equipment required to erect the frame (cranes) (1) may increase cost to the project/weight of components (1)

-

Acceptable 1 mark advantage responses included:

- cannot be easily modified
- heavy
- could be measured wrong therefore costing more

Common responses which were not awarded marks included:

- stronger
- stable
- expensive
- it takes longer to construct

2 mark response example:

11 Explain **two** disadvantages for a developer of using a prefabricated concrete cross-wall form to build a two-storey apartment block. (4)

(1) It would be expensive and hard to sit into place.

(2) It would be very heavy and increase the dead load by a lot.

(Total for Question 11 = 4 marks)

2 marks awarded:

The first response includes no rewardable content.

The second response 'It would be very heavy and increase the dead load by a lot' is acceptable for a linked response. This is not included in the marking scheme but is an acceptable.

1 mark response example:

11 Explain **two** disadvantages for a developer of using a prefabricated concrete cross-wall form to build a two-storey apartment block. (4)

(1) ~~The~~ developer can have them
~~to~~ put up quicker
 Hard to work with

(2) will need specialist equipment
 and employee's

(Total for Question 11 = 4 marks)

1 mark awarded:

The first response includes no rewardable content.

The second response includes the need to use specialist equipment and is accepted for 1 identification mark. The use of specialist employees does not warrant an additional identification mark, as it could be argued that all construction forms require specialist employees. No linked explanation has been given.

Question 12

This question was aimed at structural forms of superstructures-walls

Targeted Specification Area: Learning Aim C.1

Learners were required to discuss the advantages and disadvantages of traditional cavity walls compared to structural insulated panels (SIPs) for this project.

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 construction form. Some learners provided a balanced discussion of different structural forms, with sufficient detail, to achieve marks beyond those in mark band 2.

The mark bands and level descriptors are included in the mark scheme for question 12.

4 mark example response:

12 A local council is planning to build a large housing estate. Two forms of wall construction are being considered:

- traditional cavity walls
- structural insulated panels (SIPs).

Discuss the advantages and disadvantages of traditional cavity walls compared to structural insulated panels (SIPs) for this project. (8)

Advantages for structural insulated panels is that when they get to the site they are already cut to size, ~~reducing~~ reducing on site wastage. They also come with insulation built in as well as being fast to put up.

The disadvantages for these are that they will need a crane to lift them up and into place, so this means more money will be spent to get a crane.

Advantages for traditional cavity walls is that more people like the look of them compared to structural insulation panels.

Disadvantages for this is that the wall will take longer to build, as well as this the wall is not made from a renewable source while structural insulation panels are.

4 marks awarded:

Arguments for and against are described for both types of wall. Most points made were relevant to the situation in the question, but linked responses were not always clear however this just tips into mark band 2.

The learner demonstrates a good understanding of cavity wall and SIPS construction.

3 mark example response:

12 A local council is planning to build a large housing estate.

Two forms of wall construction are being considered:

- traditional cavity walls
- structural insulated panels (SIPs).

Discuss the advantages and disadvantages of traditional cavity walls compared to structural insulated panels (SIPs) for this project.

(8)

Advantages of cavity walls is that they are much stronger. They are also more fire proof.

A disadvantage is that the cavity walls are more expensive so there is more cost.

Advantage of SIPS is that they are made in a factory so there is not waste on sight.

SIPS are much quicker to build so there is less labour needed.

One disadvantage of SIPS is that a crane is needed on sight and this is very expensive. Another disadvantage is they are not as strong as cavity walls.

In ~~conclusa~~ conclusion I think SIPS would be a better option than cavity walls because they are made in a factory so there is no waste on sight and they are more cost effective than using cavity walls which are more expensive.

3 marks awarded:

Arguments for and against are described for both types of wall. Most points made were relevant to the situation in the question and some linked responses included. The learner demonstrates a basic understanding of cavity wall and SIPS construction.

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25

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