

# NQF Level 1/2 Firsts in Construction Examiner Report 1906

Summer 2019

***Construction Technology Unit 11***

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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, 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 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 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 test, because then it would not take into account that a test might be slightly easier or more difficult than any other.

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

<http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx>

## Unit 11 – Sustainability in Construction

Grade	Unclassified	Level 1	Level 2		
		Pass	P	M	D
Boundary Mark	0	10	20	30	40

# Introduction

## Introduction

This report has been written by the Lead Examiner for BTEC Construction and the Built Environment Unit 11 – Sustainability in Construction. 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 examples of learner responses at a range of different marks. It may be helpful to read this report in conjunction with the mark scheme for the examination. We hope you will find this will help you to prepare your learners for future examination series.

## General Comments on Exam

This was the eleventh examination for this unit, and the paper produced a range of responses.

It is noticeable that some learners did not attempt all of the questions; however, learners did appear to manage their time effectively and appeared to be able to complete the paper in the allotted time. There did not appear to be evidence of rushed work towards the end of the paper. Therefore, where questions were not answered this may have been due to learners not having the knowledge to provide a response.

The more demanding questions require learners to apply their knowledge in response to sustainability issues related to a range of construction scenarios. It was evident from the responses to some questions that learners had limited knowledge of sustainability in relation to construction. Learners may have some prior learning in respect of environmental and sustainability issues, but it is important that learners are taught sustainability in the context of construction covering the life cycle of a development within the built environment and the full range of topics covered in the unit specification. For example, learners appeared to have limited knowledge and understanding of adding thermal insulation to the walls of an existing building. Learners also showed in their responses to question 20 that they had limited understanding of prefabricated building techniques and being able to relate this to the restaurant in the scenario.

Learners would also benefit from being taught examination skills and techniques as often they did not appear to have read the question properly. This resulted in questions not being answered using an appropriate methodology. Where questions required learners to 'give' many provided extended responses where only naming or a short response is required. Learners should be familiar with the command verbs to be able to effectively answer questions that require them to 'describe', 'explain', 'discuss' and 'compare'. Learners need to provide a response that answers the question and not just repeat information from either the question or the scenario in Section B.

## Section A

### Question 1

A multiple choice question that required the identification of two characteristics of sustainable materials.

**Targeted Specification Area: Learning Aim B2**

**Q1:** Many learners were able to identify both of the correct answers 'Low carbon content' and 'Low embodied energy'.

### Question 2

This question required learners to give two forms of pollution that may make living near a large construction site unpleasant.

**Targeted Specification Area: Learning Aim A2.1**

**Q2:** Many learners were able to give at least one correct response and some were able to give two correct responses. Frequent correct responses included 'dust', 'noise' or 'light'.

### Question 3

A multiple choice question that required the identification of two sources of waste produced during the construction process.

**Targeted Specification Area: Learning Aim A2.3**

**Q3:** Many learners were able to identify both correct responses 'Excavation spoil from foundations' and 'Building material packaging'.

### Question 4

This question assessed learners' knowledge of noise transmission within buildings.

**Targeted Specification Area: Learning Aim B1**

**Q4:** Learners were required to state two forms of construction technology that will reduce noise transmission within buildings. Correct responses included 'Double/triple glazing' or 'insulating materials'. Learners provided a range of correct responses.

### Question 5

This question required learners to have an understanding of the use of materials from a demolition site.

**Targeted Specification Area: Learning Aim A2.3**

**Q5:** Learners were required to state two uses of timber from a demolition site. Some learners were able to provide one response and others were able to provide two responses. Frequent responses were 'Reused' and 'Recycled'.

2 mark response:

**5** State **two** uses of timber from a demolition site.

1 to be used as fuel

2 to be reused and made into something like  
chipboard

(Total for Question 5 = 2 marks)

### Question 6

This question required learners to have a knowledge and understanding of community facilities.

**Targeted Specification Area: Learning Aim A3.1**

**Q6:** Learners were required to state two benefits to a community of a new swimming pool. Some learners were able to provide one response and others were able to provide two responses. Correct responses included 'keep fit', 'meet up with friends' and 'employment opportunities'.

2 mark response:

**6** State **two** benefits to a community of a new swimming pool.

1 Family and children to exercise or even enjoy and  
have fun.

2 Creates jobs for life guards.

(Total for Question 6 = 2 marks)

### Question 7

This question required learners to have an understanding of the purpose of planning notices.

**Targeted Specification Area: Learning Aim A3.1**

**Q7:** Learners were required to give one reason why notices are placed around a development site when planning permission has been applied for. Learners showed a limited understanding of the reason for the notices. Correct responses given included 'Neighbours are able to comment on the proposals'.

1 mark response:

**7** Give **one** reason why notices are placed around a development site when planning permission has been applied for.

To see how the neighbourhood  
will be affected.

**(Total for Question 7 = 1 mark)**

### Question 8

A multiple choice question that required the identification of two ways of reducing the waste of mains water.

**Targeted Specification Area: Learning Aim B1**

**Q8:** Many learners were able to identify one correct answer and some provided both of the correct answers which are 'Regular maintenance of equipment' and 'Reporting procedures'.

### Question 9

This question required learners to demonstrate an understanding of grey water systems.

**Targeted Specification Area: Learning Aim B4**

**Q9:** Many learners had some understanding of grey water systems, but many learners confused grey water systems with rain harvesting. Many learners were able to identify how grey water recycling can contribute to sustainability, but were not able to provide a linked response to explain why. A correct response is 'Reduces the volume of water discharged to waste' with the linked response 'as water is reused'.

2 mark response:

**9 Explain two ways grey water recycling can contribute towards sustainability.**

1 You can reuse it in your home

2 Not wasting the water

**(Total for Question 9 = 4 marks)**

### Question 10

A multiple choice question that required the identification of two locally-sourced materials that contribute to sustainability in the community.

**Targeted Specification Area: Learning Aim B1**

**Q10:** Many learners were able to identify one correct answer and some provided both of the correct answers which are 'Transport costs are reduced' and 'Reduced competition for local business'.



### Question 11

This question assessed the learners' understanding of making construction sites secure.

**Targeted Specification Area: Learning Aim A3.2**

**Q11:** The question required learners to give two reasons for making construction sites secure. Many learners were able to give two responses to this question. Correct responses included 'Keep people safe' and 'Prevent theft'.

2 mark response:

**11** Give **two** reasons for making construction sites secure.

- 1 TO prevent ~~unauthorised~~ people <sup>coming</sup> onsite  
for example kids
- 2 To prevent equipment from being  
stolen.

**(Total for Question 11 = 2 marks)**

### Question 12

This question assessed the learners' understanding of embodied energy.

**Targeted Specification Area: Learning Aim A2.5**

**Q12:** The question required learners to state two stages in the life of a material that contribute to embodied energy, other than transportation. A number of learners were able to provide two correct responses. These included 'Extraction' and 'Manufacturing'.

2 mark response:

**12** State **two** stages in the life of a material that contribute to embodied energy, other than transportation.

- 1 Extraction
- 2 ~~the~~ ~~the~~ factory where the item is produced

**(Total for Question 12 = 2 marks)**

### Question 13

This question required learners to have an understanding of plant and equipment.

**Targeted Specification Area: Learning Aim B2**

**Q13:** Learners were required to state one way of reducing exhaust fumes from plant and equipment other than through the use of alternative fuels. This was a recall question from the unit specification. The correct response is either 'Regular maintenance' or 'Servicing'.

### Question 14

This question required learners to have knowledge of community areas.

**Targeted Specification Area: Learning Aim A3.1**

**Q14:** Learners were required to explain two ways in which the built environment can promote a feeling of safety in a shopping street after the shops have closed. Some learners did not pick up that the question is about the built environment and gave responses about security guards. A number of learners were able to identify one way with some learners identifying two ways. To gain full marks for the question a linked response was also required for both ways identified. The most frequent responses provided related to lighting and CCTV. Typical responses would be, 'Adequate lighting' with the linked response 'so people can see other people clearly' and 'Installation of CCTV' with the linked response 'so people know that someone will be monitoring what is going on'.

4 mark response:

**14** Explain **two** ways the built environment can promote a feeling of safety in a shopping street after the shops have closed.

1 By providing an acceptable amount of street lighting in order to increase vision and awareness. As well as using various of traffic calming signs in order to reduce traffic speed.

2 Maybe the installation of several security cameras to keep an eye on streets.

(Total for Question 14 = 4 marks)

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**TOTAL FOR SECTION A = 30 MARKS**

## SECTION B

### Question 15

This question was scenario-based and required learners to have knowledge of heat loss within buildings.

**Targeted Specification Area: Learning Aim B1**

**Q15:** Learners were required to state one way that heat loss through the windows of Building 1 can be improved other than by heavy fabric curtains. Many learners were able to give the correct response of 'Double/triple glazing'.

### Question 16

This question was scenario-based and required learners to demonstrate knowledge and understanding of heat loss within buildings.

**Targeted Specification Area: Learning Aim B1**

**Q16:** Learners were required to state one reason why heat will be lost through the stone floor of Building 1. Many learners did not appear to have sufficient understanding of heat loss and the properties of stone to provide a correct response. Learners who did provide a correct response stated 'No insulation is incorporated' or 'Stone is a poor insulator'.

1 mark response:

**16 State one reason why heat will be lost through the stone floor of Building 1.**

because stone is not a good  
insulator

**(Total for Question 16 = 1 mark)**

## Question 17

This question was scenario-based and required learners to demonstrate an understanding of social issues within the built environment.

### Targeted Specification Area: Learning Aim A1.1

**Q17:** Learners were required to explain two potential social disadvantages impacting on residents who live near the restaurant in Building 2. Many learners showed an understanding of the social disadvantages and were able to identify one or two of these. The most frequently identified disadvantage was noise and traffic congestion. Some learners were able to provide a linked response. Typical full responses are 'Nearby residents may be disturbed by noise at night' with the linked response 'due to the 24 hour opening' or 'Car use may be encouraged' with the linked response 'adding to congestion/emissions'.

4 mark response:

17 Explain **two** potential social disadvantages impacting on residents who live near the restaurant in Building 2.

1. noise pollution could be caused as it is open for 24 hours so ~~while~~ while residents are trying to sleep they can hear talking outside
  2. A lot of emissions could be released from all the electricity ~~the~~ building 2 uses damaging the environment and all the vehicles going there could ~~release~~ release emissions.
- (Total for Question 17 = 4 marks)

## Question 18

This question was scenario-based and required learners to demonstrate an understanding of adding thermal insulation.

<b>Targeted Specification Area: Learning Aim B1</b>
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**Q18:** Learners were required to explain one disadvantage of adding thermal insulation to the inner face of the walls of Building 1. Learners showed a poor understanding of construction technology for the adding of thermal insulation to existing buildings and their responses were incorrect. Those learners that did provide a correct response mostly identified that the insulation would take up space. A correct response is 'The insulation will take up space in the rooms' with a linked response 'due to the thickness of the insulation'.

2 mark response:

**18** Explain **one** disadvantage of adding thermal insulation to the inner face of the walls of Building 1.

you would lose interior space as  
the walls would be made thicker to  
accommodate the insulation

**(Total for Question 18 = 2 marks)**

### Question 19

This question was scenario-based and required learners to demonstrate an understanding of using timber as a fuel.

<b>Targeted Specification Area: Learning Aim B3</b>
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**Q19:** Learners were required to explain two reasons why a log fire can be considered sustainable. Few learners were able to provide a correct response and often were only able to identify a reason and not provide a linked response. Correct responses include 'Timber is a natural material' with the linked response 'and can be regrown' or 'The use of fossil fuels can be reduced' with a linked response 'by burning a renewable fuel'.

1 mark response:

The first response identifies the use of a natural material, but there is no linked response. The second response is an incorrect answer and does not relate to the question.

**19** Explain **two** reasons why a log fire can be considered sustainable.

1 Because your using natural ~~timber~~  
renew resources to keep the fire burning

2 can clean a part of a land by getting  
rid of all the logs and paper.

**(Total for Question 19 = 4 marks)**

## Question 20

This question was scenario-based and required learners to demonstrate an understanding of prefabrication.

<b>Targeted Specification Area: Learning Aim B1</b>
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**Q20:** Learners were required to discuss why prefabricated building techniques can be considered a sustainable form of construction for a fast food restaurant chain.

Most learners provided a response to this question although the number that did not provide a response appears to be higher for this series. Those that did provide a response were able to draw out some relevant points from the scenario that relates to sustainability.

The mark scheme provides a range of points that could have been considered in the discussion as to how the use of prefabricated buildings is a sustainable form of construction for the restaurant chain.

The mark scheme also provides three descriptor mark bands by which the responses are assessed and awarded marks. The learner's application of understanding of sustainability in relation to the scenario is taken into consideration.

Learners should only use material that can be gained from the scenario and should not make assumptions where the scenario provides no basis for these.

Lower mark band learners are expected to identify a few benefits of prefabricated buildings, with some superficial/generic explanation, and show basic understanding sustainability. The example response below identifies a limited range of points and very little discussion is provided.

For the mid mark band learners will provide some further discussion of the use of prefabricated buildings for a restaurant chain. The response will show a good understanding of sustainability. The example response below has identified a range of points and provides some discussion.

For the higher mark band learners would be expected to provide a detailed discussion of the use of prefabricated building for a restaurant chain. The response will show a developed understanding of sustainability. Learner responses should also be well balanced and cover a wide range of reasons. No examples within this mark band are available.



Mark band 1 response:

20 Discuss why prefabricated building techniques can be considered a sustainable form of construction for a fast food restaurant chain.

Because prefabricated techniques are usually used where a construction building needs to be processed quick as possible in order for the restaurant chain to make income.

Secondly, it is more of that usually fast food places not used to eat in, therefore it is not required that the materials prefabricated are aesthetically attractive.

Thirdly, as the construction needs to be processed fast, therefore it is more likely for workers to use more waste whereas with prefabricated materials it is less likely to gain a loads of waste.

On the other hand there are some disadvantages that can occur, for example if the supplier is not locally sourced it would be hard for the job to be processed in time.



Mark band 2 response:

20 Discuss why prefabricated building techniques can be considered a sustainable form of construction for a fast food restaurant chain.

### Prefabricated (Plan)

- takes quicker
- less transportation needed
- can be build stronger and more precise  
offsite
- less labourers needed

The way prefabricated building techniques can be considered as sustainable are that firstly it takes quicker to construct ~~in~~ a building this way so less emissions are released and a fast food ~~to~~ restaurant can open faster.

Secondly less materials are needed on site so not as much ~~transportation~~ transportation will need to deliver materials to the site which results in less harm to the environment of residents around the fast food chain.

Thirdly building parts of a building off site usually provides a more sturdy part of a building as it is done by machinery which is specially designed for certain tasks also it gives a more

precise outcome which makes  
it overall last longer than it  
would if it was built on-site

lastly less labourers are needed  
on-site and less machinery which  
reduces ~~some~~ noise pollution allowing  
residents ~~not~~ not to complain as  
much and natural habitat not  
getting scared.

# Summary

Following the review of learner responses to the examination paper the following recommendations are made:

- Learners should be taught the whole of the unit specification
- Learners should understand sustainability in relation to construction technology and practice
- Learners should carefully read each question to understand what is required before attempting their response
- Learners should be taught the form that a response should take when answering questions that ask for a 'description', 'discussion' or an 'explanation'.
- In responding to scenario-based questions that require a discussion or explanation learners are required to provide more than repeating parts of the scenario.

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