



June 2018

**Level 3 National in Construction and
the Built Environment Unit 2:
Construction Design**

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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>

Grade	Unclassified	Level 3			
		N	P	M	D
Boundary Mark	0	11	22	34	46

Introduction

- This was the first live examination for this unit and was based around the scenario of a block of 65 retirement apartments which required learners to complete a series of activities related to;
 - design factors and constraints for the project
 - the production of an initial project brief
 - recommendations and justification for the building size, form and type of construction
 - the production of initial ideas for the building and
 - Virtual modeling of the design.
- The unit involved the release of Part A which required learners to undertake some research in response to the given topic and scenario. Task A was to be completed during the two weeks prior to the supervised assessment period

Introduction to the Overall Performance of the Unit

- Though many candidates coped well with the style of the exam, the content, requirements and degree of difficulty, it would appear that a number were not ready for assessment either being not fully prepared in relation to Part A, without the necessary skills to access the tasks, or to prepare the evidence.
- In terms of administration it was pleasing to see that most candidates submitted only the evidence requested. However, at times, learners also submitted what appeared to be the work they completed in response to Part A which is not necessary.
- Most centres printed the required documents generated for Activity 5 and sent it attached to the paper with treasury tags. On occasion centres had not attached work which made it difficult to work out which prints outs belonged to which learner.
- It is important to define what is deemed acceptable with regards to help and assistance before and during the assessment window. The teacher should prepare the learners for the examination by developing the technical skills necessary to analyse the task and to generate appropriate responses in relation to the 5 activities. At no point should the teacher be giving specific advice, solutions and direction to learners.
- At times it would appear that some solutions were centre led as opposed to being the learner's individual work. This is not appropriate. The work should clearly be the learners own.
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- Comment on the overall performance throughout the paper (the specific examples will highlight this)
- If appropriate, refer and link to the specification and/or sample assessment materials (SAMs) located on the BTEC Nationals qualification webpage located [here](#)

Individual Activities

Activity 1 – Design factors and constraints

Learners who did not do so well:

- The comments made were often generic and did not relate to the scenario, showing no reference or link back to Part A.
- Learners who identified impacts from the scenario often followed up with generic influence. They gave answers such as ‘use a pile foundation because of the sub soil conditions’ but did not justify why.
- Learners sometimes seemed confused as to what they were writing about in that they simply repeated information that had been given in Part A.

Learners who did well:

- The constraints and impacts identified were relevant to the scenario with specific links being forged between the constraints and scenario.
- The Constraints identified were followed up with detail on how it might influence the design. For example, ‘the weak ground conditions, poor sub soil and high water level will affect the choice of foundation’. ‘Uneven surfaces and a high ground water table could damage concrete and weaken, or cause movement of some types of foundation such as strip or raft; therefore, these methods should not be used’. ‘Bored replacement pile and friction pile foundation could be considered as they could reach the stiff brown boulder clay and provide solid support of the superstructure’.
- Further constraints from the scenario were identified and solutions offered. For example, identifying the narrow road access a constraint, linking it to issues with delivery of building materials and requiring limited amounts of small size delivery, and then linking this to the idea of using modular and prefabrication construction techniques.

Activity 2 – Initial project brief

Learners who did not do so well:

- Learners gave poor descriptions in relation to the four individual traits that needed to be considered. They did not expand or develop ideas or thoughts, they simply recited information from the brief.
- They made no attempt to calculate the cost/m² of the project
- Learners did not identify the need for a quantity survey to keep track of the project
- They did not complete or used prior research to establish suitable prices for a build

Learners who did well:

- Learners used the client brief as a starting point which they were then able to develop and analyze
- Learners had clearly researched the task in Part A prior to the exam which they were then able to use in their response to Part B which helped clearly help them to be able justified their work

- Information relating to the size of rooms and circulation space was clear and appropriately justified in relation to the scenario and the number of rooms required
- Learners had considered other users - the end user requirements of a disabled, or person of limited modality had been considered and justified
- They explained the client's needs in relation to the time frame for the build and appropriate build type.
- They provided information about how the site level could be addressed and the issues related to using a brownfield site
- They calculated the cost/m² of the project
- Some learners considered the likely penalties to be incurred if the contract ran over.

Activity 3 – Building size, form and type of construction

Learners who did not do so well:

- They did not give information on the building size and shape and some sizes were not feasible. They also failed to consider the 85% size restriction.
- They did not justify, to an acceptable depth, the reasons for their choice of size, shape or construction methods.
- Learners did not fully consider significant constructions elements. For example, they only discussed foundations, but did not discuss superstructure, walls, roofs, roof garden.

Learners who did well:

- Included relevant details and justification of appropriate sizes of the site and building given with justifications
- They gave the reasons for their choice of size, shape or construction methods
- They considered the local area and people and discussed how it could impact them and the area
- They justified other elements of the building such as grey water and how the roof garden was to be constructed to ensure that it was safe, water tight and how it could be maintained.

Activity 4 – Sketches

Learners who did not do so well:

- They did not attempt all three drawings, which is essential
- They gave very little, if any, annotation or very little detail given e.g. living room no other description
- Submitted poor quality drawings which were not 3D
- The 3 views submitted did not relate to each other; a plan view of the whole apartment, a 3D view of a single room
- The 3D external views failed to show or describe using annotation, how 65 apartments could be contained within

Learners who did well:

- Presented three good drawings completed to a good standard

- All views met the clients vision in terms of the number of apartments and special requirements
- Submitted drawings that included appropriate dimensions to scale and included windows and door openings, both internally and to get into the apartment

Activity 5 – Virtual modelling of the design

External

Learners who did not do so well:

- Produced work with a lack of detail in the CAD drawings. The views presented were not very good to be able to see the detail, often too dark or too small. It was also difficult to assess how 65 apartments would fit into the proposed building
- Learners did not appear to make the most of the advice given here in that 5 hours and 30 minutes is suggested

Learners who did well:

- Completed CAD drawings with good very detail and realistic concepts designs capable of providing the required 65 apartments
- Submitted work which showed a clear relationship between the external and the internal drawings
- Provided print outs which showed multiple drawings sometimes given from different angles
- Included good details for the roof top garden linked to the clients vision

Internal

Learners who did not achieve well:

- Submitted drawings which were incomplete, missing features such as doors, windows and any attempt at colour rendering. The drawings lacked detail such as missing kitchens or bathrooms.
- Spatial awareness had not been fully considered in terms of the layout of the apartment.
- Submitted partially completed concepts in that they only showed one room as opposed the whole apartment
- Produced drawings which were difficult to judge and asses due to the projection angle

Learners who did well:

- Produced internal apartment concepts to match the clients vision with detailed spacious layouts which were fully rendered to include flooring and wall coverings

Centre administration

- Centres are reminded that attendance registers must be completed and sent in with all scripts
- It is a requirement that the Learners and centre assessors sign the Learner Authentication sheets and attach one for each learner to their script
- Any additional sheets that learners use if they run out of space **MUST** be on exam board, approved supplementary sheets, and not the learners own paper. It is difficult to make a judgment as to whether the work submitted was done under direct supervised exam conditions or whether it was done outside.

Summary

- Based on the performance of learners in this series the following recommendations are made for future series:
 - Learners make more use of the time given once Part A has been released to undertake appropriate research in relation to the scenario
 - Focus on the specific scenario rather than generic concepts
 - Make greater use of their research when completing Part B
 - Ensure that all four aspects of Activity are addressed rather than just one or two
 - Demonstrate greater technical knowledge when responding to building size, form and type of construction, including justifications for their decisions
 - Justify the size of rooms and buildings using math's
 - Calculate build costs and justify the project can be delivered in relation to peroxided budget
 - Make sure the sketches in Activity 4 are annotated
 - Produce CAD models which are printed out in colour to show how the clients vision has been met

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