

School of Construction & the Built Environment

#### ACTIVITY ASSESSMENT SHEET AND ASSESSMENT CRITERIA

#### BTEC Extended Diploma in Construction

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| Unit: | 6Building Technology in Construction | Assessment Ref. | 1/1 |
| Assessment title: | Low rise construction, Site Investigations Substructure design | Date issued: | 19.09.16  |
| Issued by: | Meirion Lewis | Date due: | 12/12/16 |
| Student name: |  | Date received: |  |
| Programme: | BTEC Diploma | Year: | 2016-17 |

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| **Assessment method/s used** | Class Exercise |  | Drawing Exercise | **** | End of Module Exam |  | Laboratory Activity |  |
| Observation |  | Portfolio Building |  | Practical Activity |  | Questioning |  |
| Report | **** | Research Based |  | Test |  |  |  |



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| Grading Criteria to be assessed in this exercise: | P1, P2, P3, P4, M1, D1 |

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| *Brief has been Internally Verified*  | **** | *When?* | *Sept, 2013* | *By Who?* | *CJ* |
| Interim Assessment (no grade award until all module assessments are completed) |  | Overall Grade Achieved |  | Points Awarded |  |

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| **STAFF COMMENTS** | ACTION PLAN |
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| Student signature: |  | Date: |  |
| Tutor signature: |  | Date: |  |
| Internally Verified by: |  | Date: |  |

**Aim and purpose**

This unit aims to give learners the opportunity to gain an understanding of common forms of low-rise construction, including the design and construction of their foundations, the techniques used in the construction of superstructures and the implications of issues and constraints on building construction.

**Unit Introduction**

Today’s buildings use combinations of traditional and modern techniques and materials in their construction, and these are influenced by the functional requirements of building elements and by legislation. This has become more apparent with the Government’s awareness of sustainable construction. Learners need to be aware of these factors in order to underpin their understanding of building technology.

This unit will introduce learners to the common forms of low-rise construction used for domestic and commercial buildings, including their substructures and superstructures. They will be shown how the recent development and use of prefabricated building components and systems has had a major impact on construction, particularly in terms of reducing site costs and contract completion time. Learners will develop an understanding of building technology by investigating and evaluating how techniques, materials, plant equipment and resources are used to construct buildings that will satisfy the functional and aesthetic needs of their users. They will come to understand that the impact of these technologies on lifecycle costs and the environment are of major importance, and that the choice of construction methods and materials must comply with all relevant legislation and constraints. These include the building regulations, elements of which are intended to reduce environmental impacts by using codes for sustainable homes. Consideration is given to specific provisions within the Health and Safety at Work Act and the Construction Design and Management Regulations, where they relate to site safety.

**Learning outcomes**

**On completion of this unit a learner should:**

1 Understand common forms of low-rise construction currently used commercial buildings

2 Understand foundation design and construction

3 Understand the techniques used in the construction of superstructures commercial buildings

4 Understand the implications of issues and constraints on building construction.

## Assessment Brief: Site investigations and foundation design

## Assessment Tasks:

A). Explain the different forms of low-rise construction currently used for domestic and commercial buildings.

B). Explain the importance of site investigations and geotechnical engineering prior to designing a foundation.

C). Investigate types of foundations used in low rise buildings and give a description on each type with the aid of photographs or drawings.

D) Choose the type of foundation suitable from either of the following list of low rise buildings and state the reason for your choice. Justify suitable materials and techniques chosen for the project and evaluate the environmental performance of the chosen materials and techniques.

1. Detached house close to mature trees.

2. Detached bungalow on made up ground.

3. 3 storey block of flats on clay subsoil.

4. Semi-detached houses on shrinkable clay.

5. Two Storey nursing home on soft ground with a high water table.

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| **Task Description** | **Criteria Claimed** | **Page** | **Tutor Comment** | **Achieved**  | **IV** |
| P1 explain the different formsof low-rise constructioncurrently used for domesticand commercial buildings. | P1 |  |  |  |  |
| Explain how the procedures tutor-specified scenariosused in subsoil investigationprovide information for thedesign of substructures. | P2 |  |  |  |  |
| Describe the principlesof foundation design | P3 |  |  |  |  |
| Explain the methods usedto construct different typesof foundation. | P4 |  |  |  |  |
| Justify the selection of suitablematerials and techniques foruse in the construction ofsubstructures for low-risedomestic and commercialbuildings, for two differenttutor-specified scenarios. | M1 |  |  |  |  |
| Evaluate the environmentalperformance of modernmaterials and techniques used in the construction of substructures for low-risedomestic and commercialbuildings, for two different projects. | D1 |  |  |  |  |

## Achievement Progress

The following target dates identify what grades should be achieved by key dates throughout the academic year.

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| *Key date* | *Performance Criteria that should be achieved by…..* |
| Christmas |  |
| February half term |  |
| Easter |  |
| Whitsun |  |

## Additional Guidance

A close adherence to the grading criteria and the unit specification will enable you to maximise your potential to achieve the highest possible grade.