

**WJEC LEVEL 1/2 AWARDIN DESIGNING THE BUILT ENVIRONMENT**

**ASSIGNMENT**

**UNIT 3: Building Structures and Materials**

**For certification from 2015**

**CANDIDATE ASSIGNMENT BRIEF**

JMG Homes Ltd has obtained outline planning permission for the construction of 20 houses on a site on the outskirts of a small town in North West Wales.

**Site conditions**

This is a green field site in an exposed location, with good views over open countryside to the south west. Ground conditions are good, with sub soils suitable for standard foundations. The site slopes from east to west and is well drained.

The eastern site boundary borders a public highway.

**Services**

Vehicular access is to be provided via a new junction off the adjacent highway. The site is clear of overhead power lines, there is an electricity sub-station nearby and a water main in the highway. Mains drainage and gas supplies would require significant extensions to existing systems in the town.

**Design**

The development is to comprise a mix of 4 bed detached homes and 3 bed semi-detached homes, arranged to take advantage of the available views. Each house will have a garage, parking space(s), and a landscaped garden, with timber decking.

**Planning conditions**

Details of all external finishes are to be approved prior commencement on site. The planning drawings indicate slate roofs and white rendered walls to match existing buildings in the surrounding area.

**Feedback from previous developments.**

JMG have obtained feedback from recent purchasers of their homes. The feedback indicates that:

* Energy efficiency and sustainability are important considerations to prospective purchasers.
* Noise from attached houses is a major cause of complaint.

JMG cost studies indicate that reductions in construction time will have a significant impact on overall costs.

**TASKS**

JMG have asked you to prepare a feasibility report for the development. This report will be in written format and broken down into four separate sections / tasks; building elements, structural selection, material upgrades and sustainability.

**1) Building Elements (**AC1.1**)** *(1hour)*

The typical section (Resource 1), is to be used as part of the feasibility report. Some of the main building elements of the house have been labelled.

**Complete the drawing by adding text to identify the foundations, external walls and windows. Your labels should describe the function of each of these elements.**

*Resource 1 – Typical section.*

**2) Structural selection (**AC 1.2 and 1.3**)** *(2 hours)*

Two options are being considered for the construction of the houses.

* Use of a brick / block cavity wall structure, or
* Use of a timber frame structure.

Foundation work, floors and roof constructions will be similar for both options.

**Study the scenario provided and recommend which of the two options should be used. Your recommendation should compare the suitability of the two options and explain any external factors that you have considered.**

**3) Material upgrade** (AC 2.1, 2.2 and 2.3) *(1 hour)*

JMG have identified that the following changes to their standard specifications will be required.

* Upgrade of ground floor slabs to suspended floors to suit sloping site levels.
* Upgrade party walls to reduce noise transmission.
* Re-design upper floors in 4 bed houses to suit increased spans.
* Replace concrete roof tiles to comply with planning conditions.

**Include recommendations for achieving the upgrades and advise on any cost implications arising.**

**4) Sustainability** (AC 3.1, 3.2, 3.3 and 3.4) *(2 hours)*

**Add text to complete the page(s) for the report. Use more than one page if needed. The page(s) should explain how use of solar energy could affect the house designs and recommend sustainable features for the new development.**

*Resource 2 – page(s) for the feasibility report*

**SUMMARY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Task Number** | **Evidence** | **AC** | **Controls** |
| 1. | Completed drawing | **AC1.1**describe functions of building elements | **Time**1 hour  **Resources**Access to Assignment, Resource 1 and ICT software. No access to Internet or any other resources  **Supervision** You will be supervised throughout  **Collaboration** Individual task  **Feedback** You cannot be given feedback on the work you produce until it has been marked |
| 2. | Written report | **AC1.2** explain how external factors affect structures  **AC1.3**assess suitability of structural forms of buildings | **Time**2hours  **Resources**Access to Assignment and ICT software. No access to Internet or any other resources  **Supervision** You will be supervised throughout  **Collaboration** Individual task  **Feedback** You cannot be given feedback on the work you produce until it has been marked |
| 3. | Written report | **AC2.1** describe properties of materials  **AC2.2** explain how properties of materials can be changed  **AC2.3** explain how materials affect economics of buildings | **Time**1hour  **Resources**Access to Assignment and ICT software. No access to Internet or any other resources  **Supervision** You will be supervised throughout  **Collaboration** Individual task  **Feedback** You cannot be given feedback on the work you produce until it has been marked |
| 4. | Completed pages for feasibility report | **AC3.1** explain how forms of energy impact on design  **AC3.2** describe sustainable materials used in constructing buildings  **AC3.3** describe how materials used in constructing buildings can be sourced sustainably  **AC3.4** explain how use of buildings can be made sustainable | **Time**2hours  **Resources**Access to Assignment, Resource 2 and ICT software. No access to Internet or any other resources  **Supervision** You will be supervised throughout  **Collaboration** Individual task  **Feedback** You cannot be given feedback on the work you produce until it has been marked |

**ASSESSOR INFORMATION**

**WJEC Approach to Assessment**

The following principles apply to the assessment of each internally assessed unit of WJEC Level 1/2 Award in Designing the Built Environment:

* Units are assessed through summative controlled assessment. Details of controls for this unit are provided in this model assignment.
* All assessment criteria must be met under controlled conditions, as specified in this model assignment, for the unit learning outcomes to be achieved.
* Performance bands for merit and distinction can only apply once a candidate has achieved all assessment criteria. Evidence must clearly show how the candidate has met the standard for the higher grades.

WJEC Level 1/2 Award in Designing the Built Environmenthas adopted the principles of controlled assessment as set out in the Joint Council for Qualifications document ‘*GCE, ELC and Project Qualifications – instructions for conducting coursework’*. This document can be accessed through the JCQ website ([www.jcq.org.uk](file:///C:\Users\griffsa\AppData\Local\Microsoft\Windows\Temporary%20Internet%20Files\Content.Outlook\7JJXMU1M\www.jcq.org.uk)). Each centre must ensure that internal assessment is conducted in accordance with these controls.

There are three stages of assessment that will be controlled:

* Task setting
* Task taking
* Task marking.

**Task setting**

WJEC has produced this model assignment for the assessment of this unit. Centres are, however, allowed to modify the assignment, as outlined in the ‘Accepted changes to assignments’ section of this model assignment. This will allow centres to tailor the assessment to local needs. This model assignment has been written to ensure the following controls are in place:

* Each unit is assessed through one assignment.
* Each assignment must have a brief that sets out an applied purpose. An applied purpose is a reason for completing the tasks that would benefit a business or scientific investigation. Further details are in the Statement of Purpose in Section 1.2 of the specification.
* The assignment can specify a number of tasks but tasks must be coherent i.e. show how the assessment requirements all contribute to the achievement of the applied purpose of the assignment.
* The assignment must provide each candidate with the opportunity to address all assessment criteria and all performance band requirements.
* The assignment must indicate the acceptable forms of evidence.
* Where a centre has adapted the model assignment, there must be evidence of quality assuring its fitness for purpose.
* Sample documentation for this activity is provided with each model assignment.

**How the Candidate assignment brief meets these controls**

This is a single assignment that addresses all assessment criteria for this unit. There is a clear applied purpose: to consider the feasibility of a proposed building project. The context for the tasks is fictitious.All tasks are coherently related to the applied purpose. The summary table makes clear the evidence requirements.

**Task taking**

There are five areas of task taking that are controlled: time, resources, supervision, collaboration and resubmission.

**Time**

‘Time’ has limited control. There are **6** hours available for assessment of this unit. The Candidate assignment brief suggests how this time can be allocated.

**Resources**

‘Resources’ has limited control. The assignment makes clear the type of resources that Candidates must have access to. Resource 1 is a typical section with partially completed labelling and is to be used for task 1. Resource 2 is a template for specified aspects of the feasibility report. Tasks 2 and 3 require written responses with no associated resources or templates. Candidates can have access to ICT software but should not have access to class notes, the internet or any other resources other than those specified in the summary table of tasks.

**Supervision**

‘Supervision’ has medium control. Candidates must be supervised by an assessor whilst completing all tasks. They can work unsupervised when completing the research element of Task 2. Centres must have in place systems to ensure Candidates cannot access evidence they have been developing outside of supervised activities.

**Authentication**

Supervision is in place to ensure the authenticity of evidence produced for summative assessment. Assessors are not expected to provide input or guidance to Candidates during the controlled assessment time. This includes providing formative feedback on the evidence being produced. Assessors can provide guidance on the requirements of the task and remind Candidates of the performance bands and how they can be interpreted.

Candidates can review and redraft evidence independently within the time controls for the assessment. Candidates cannot redraft based on feedback from an assessor.

Candidates must sign the declaration in this model assignment to confirm that all evidence submitted for moderation is their own work and that any sources used have been acknowledged.

Assessors must sign the declaration in this model assignment to confirm that evidence submitted for moderation was completed under the controlled conditions set out in the model assignments**.**

**Collaboration**

‘Collaboration’ refers to group work and has limited control. For this model assignment group work is not permitted.

**Task marking**

All marking of evidence must be made against the performance band statements given in each unit specification. Evidence marked must comply with the controlled requirements set out in this model assignment.

Written evidence must be annotated to show how it relates to the assessment criteria and performance band requirements.

Marking should only be undertaken by a designated assessor. An assessor should have appropriate expertise in the subject and level for a specified unit. The assessor is responsible for ensuring that:

* Assessment is conducted under specified controlled conditions.
* They are clear of the requirements of the learning outcomes, assessment criteria and performance band statements prior to commencing controlled assessment.
* Evidence presented for assessment is authentic.
* Assessment decisions are accurately recorded.
* Evidence is appropriately annotated.
* Observation records contain sufficient detail for objective corroboration of decisions.
* Judgements are only made against the performance band statements.

**ACCEPTED CHANGES TO THIS MODEL ASSIGNMENT**

**Assignment Brief (Task setting)**

**Type of evidence**

If a new context is generated, it is anticipated that it will be accompanied by an equivalent Resource 1 and Resource 2 for candidate use. It is envisaged that these will be provided electronically and that they will be structured in such a way that they carry out the same function as those associated with the model assignment. They should allow for the collection of evidence for tasks 1 and 4 and not limit the candidates in their attempts to provide this evidence.

**Tasks**

No changes allowed, except for the specific context of the assignment briefeg the provision of a different proposed building project.

**Purpose**

This cannot be amended and must require candidates to consider the feasibility of a given building project.

**Context**

Any new context needs to be realistic, credible, ensure all assessment criteria can be met and provide a similar level of demand to the context provided in the model assignment. An equivalent to both Resource 1 and Resource 2 can be created by centres – their purpose is to generate responses linked to tasks 1 and 4 respectively.

**How Assessment is Managed (Task taking)**

**Time**

The time suggested for each task, as set out in the Candidate assignment brief, takes account of the contribution of the task to the overall assessment requirements. There can be no changes to the total time allocated for the complete assessment.

**Resources**

Candidates must have access to an assessment grid. Details of essential resources are provided in the summary table of the Candidate assignment brief and the task taking: resources section of this assessor guidance. Resource 1 and 2 can be created by centres in order to address the adapted context.

**Collaboration**

Group work is not allowed for this unit.

**Supervision**

No changes are allowed.

**Feedback**

No changes are allowed.

**WJEC LEVEL 1/2 AWARD IN DESIGNING THE BUILT ENVIRONMENTMARK RECORD SHEET**

**UNIT 3: Building Structures and Materials**

|  |  |
| --- | --- |
| **Candidate Name:** | |
| I confirm that the evidence submitted for assessment has been produced by me without any assistance beyond that allowed. | |
| **Signature:** | **Date:** |

|  |  |
| --- | --- |
| **Assessor Name:** | |
| The assignment brief used for summative assessment is attached, together with evidence of quality assurance.  I confirm that the evidence submitted by the Candidate has been produced under the controlled conditions set out in the qualification specification and model assignment. | |
| **The overall grade for this unit is:** | |
| **Signature:** | **Date:** |

|  |  |
| --- | --- |
| **Lead Assessor Name:** | |
| I confirm that the evidence submitted by this Candidate for summative assessment has been quality assured and the grade awarded is confirmed as accurate. | |
| **Signature:** | **Date:** |

| **Assessment Criteria** | **Performance Bands** | | | | | | | | | | **Centre use** | ***WJEC use only*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Level 1 Pass** | | **Level 2 Pass** | | | | **Level 2 Merit** | **Level 2 Distinction** | | | **Grade Awarded** | **Grade Awarded** |
| **AC1.1**describe functions of building elements |  | |  | | | |  |  | | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC1.2** explain how external factors affect structures |  | |  | | | |  |  | | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC1.3** assess suitability of structural forms of buildings |  | |  | | | |  |  | | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC2.1** describe properties of materials |  | |  | |  | | | |  | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC2.2** explain how properties of materials can be changed |  | |  | | | |  | |  | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC2.3** explain how materials affect economics of buildings |  |  | | |  | | | |  | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC3.1** explain how forms of energy impact on design |  |  | | | | |  | |  | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC3.2** describe sustainable materials used in constructing buildings |  | | |  | |  | |  | | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC3.3** describe how materials used in constructing buildings can be sourced sustainably |  | | |  | |  | |  | | |  |  |
| **Assessor comments:** | | | | | | | | | |
| **AC3.4** explain how use of buildings can be made sustainable |  | | |  | | |  | | |  |  |  |
| **Assessor comments:** | | | | | | | | | |