Level 3- Principal Learning
Construction and the Built Environment (CBE3U7)

SPECIMEN MARK SCHEME

UNIT 7 - VALUE AND USE OF THE BUILT ENVIRONMENT: PROTECTING AND MAINTAINING

Level 3 Diploma Principal Learning

Construction and the Built Environment CBE3U7

Unit 7
Value and use of the built environment: protecting and maintaining

Specimen Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting, they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Dr Michael Cresswell Director General

Centres should please note the following.

- The Advanced Diploma is a level 3 qualification, as are GCE 'A' levels
- The Advanced Diploma attracts 420 UCAS points, is equivalent to 3.5 GCE 'A' levels at Grade A, and is designed to provide entry to higher education
- The qualification has been designed to ensure that a minimum of half of the learning opportunities in each unit are **applied** learning opportunities.

It follows from the first two bullets that a high level of skill, knowledge and understanding are required to achieve the Advanced Diploma. The third bullet implies that at least half of any external assessment should have an applied context.

The questions in this paper have been designed to provide learners with opportunities to apply the skill, knowledge and understanding developed in the unit to realistic contexts in an applied fashion. A detailed knowledge of the contexts is not essential. The contexts and scenarios used are merely vehicles for assessing the learning that comprises the unit, by testing the learners' ability to apply what they have learned.

The intention is that tutors will use the sample external assessments to support their teaching and learning strategies.

The answers provided in the mark scheme are indicative and, as such, only examples of many possible 'correct' answers. Many other similar answers will attract marks, as long as they are correct, and address the appropriate learning outcomes and assessment criteria.

1

- Building materials deteriorate due to (any three):
- normal activities by building users (wear and tear)
- passive and extreme climatic effects (solar radiation, rainfall, high winds/storms)
- local industry/transport sources of air pollution
- vandalism
- poor quality of building materials used

3 x 3 marks

Strategies (any three):

- keeping good records (to identify replacement and repair needs)
- planning properly for maintenance work to minimise response times and possible negative impact on users
- having good communication lines between building owners / operators and maintenance employees / contractors
- planning for flexibility for future changes to be easily incorporated
- contracting a property maintenance company (outsourcing)

3 x 3 marks (*18 marks*)

2

Three separate cycles of the system shown in an annotated sketch:

- Water / glycol in ground loop
- Refrigerant in heat pump loop
- Water in heating system radiators **3 x 3 marks**

Energy savings from the system explained:

Sub-soil temperature constant keeps water/glycol at constant temperature; refrigerant exchanges heat with water/glycol cycle and in turn transfers heat to the heating system water.

No need for a gas or oil fuel boiler. **3 marks** (*12 marks*)

3

BREEAM stands for Building Research Establishment Environmental Assessment Method. It was created in 1990 as a way of assessing the likely environmental performance of a building at the design stage. **2 marks**

There are a number of key aspects to the assessment (any two noted will be worth two marks):

- Energy efficiency /CO_2
- Water efficiency
- Use of materials
- Surface water run-off management
- Waste
- Pollution
- Health & wellbeing of occupants
- Construction site management
- Site ecology protection / enhancement **2 marks**

A BREEAM award is 'pass', 'good', 'very good' or 'excellent'. **2 marks**

BREEAM analysis can illustrate a building owner's commitment to sustainability. **2 marks**

BREEAM will lead to better homes, workplaces and other aspects of the built environment. **2 marks**

From 1 May 2008 all new homes in England will be assessed against the BREEAM Code for Sustainable Homes. **2 marks** (*12 marks*)

4

The three categories: I, II, III	**2 marks**	
Category I – Internationally important in terms of architectural style or quality.	**2 marks**	
Category II – National importance in terms of architectural style or quality.	**2 marks**	
Category III – Regional importance in terms of architectural style or quality.	**2 marks**	
Designed by a famous architect.	**2 marks**	
Site of an historic event or incident.	**2 marks**	(*12 marks*)

5

Architect - usually the building design team's principal member. Their work is to produce the drawings and specification details that describe the scale and shape of the proposed building as well as the materials to be used in creating the building envelope. Architecture lead body in the UK is the RIBA (Royal Institute of British Architects).

Structural engineer - responsible for ensuring that the strength of a buildings foundation, walls and roof are strong enough to withstand loads and stresses that they will encounter (e.g. from the weight of materials, people, wind and machinery). The structural engineer's lead body in the UK is the (IStructE) Institution of Structural Engineers.

Clerk of Works - the client's eyes and ears on-site. They work closely with the client and architect and determine that work is carried out to a high standard on site and to the client's requirements. **2 x 3 marks** (*6 marks*)

Question Paper total – 60 marks