

GCSE

Construction

Single Award

Summer 2010

Mark Scheme

Issued: October 2010

**NORTHERN IRELAND GENERAL CERTIFICATE OF SECONDARY EDUCATION (GCSE)
AND NORTHERN IRELAND GENERAL CERTIFICATE OF EDUCATION (GCE)**

MARK SCHEMES (2010)

Foreword

Introduction

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16 and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

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Unit 2	1



Rewarding Learning

**General Certificate of Secondary Education
2010**

**Construction:
Single Award**

Unit 2: Construction Technology

[GSK21]

MONDAY 17 MAY, AFTERNOON

**MARK
SCHEME**

Section A

1 (i) Pitched roof construction [1]

- (ii)** Timber Plywood bonding and skim
 Lead Steel Underlay
 Roof tiles Fibreglass
 Felt
 UPVC (facia or gutter) Wood Preservative
 Insulation

[1] per answer up to a maximum of [4] or any other relevant answer. [4]

2 A tolerance is allowed on scaled dimension of + or –100 mm
 [1] for reading a dimension [2] for scaling a dimension.

(i) The length and width of the conference room.

Length = 5650 mm Width = 4250 mm [4]

(ii) The length and width of bedroom 2.

Length = 3600 mm Width = 2800 mm [4]

(iii) The overall length of the dwelling from the outside of the structure.

Length = 24 100 mm [2]

(iv) The width and height of the window shown at A on the attached house plans.

Width = 1900 mm Height = 1300 mm [4]

5

14

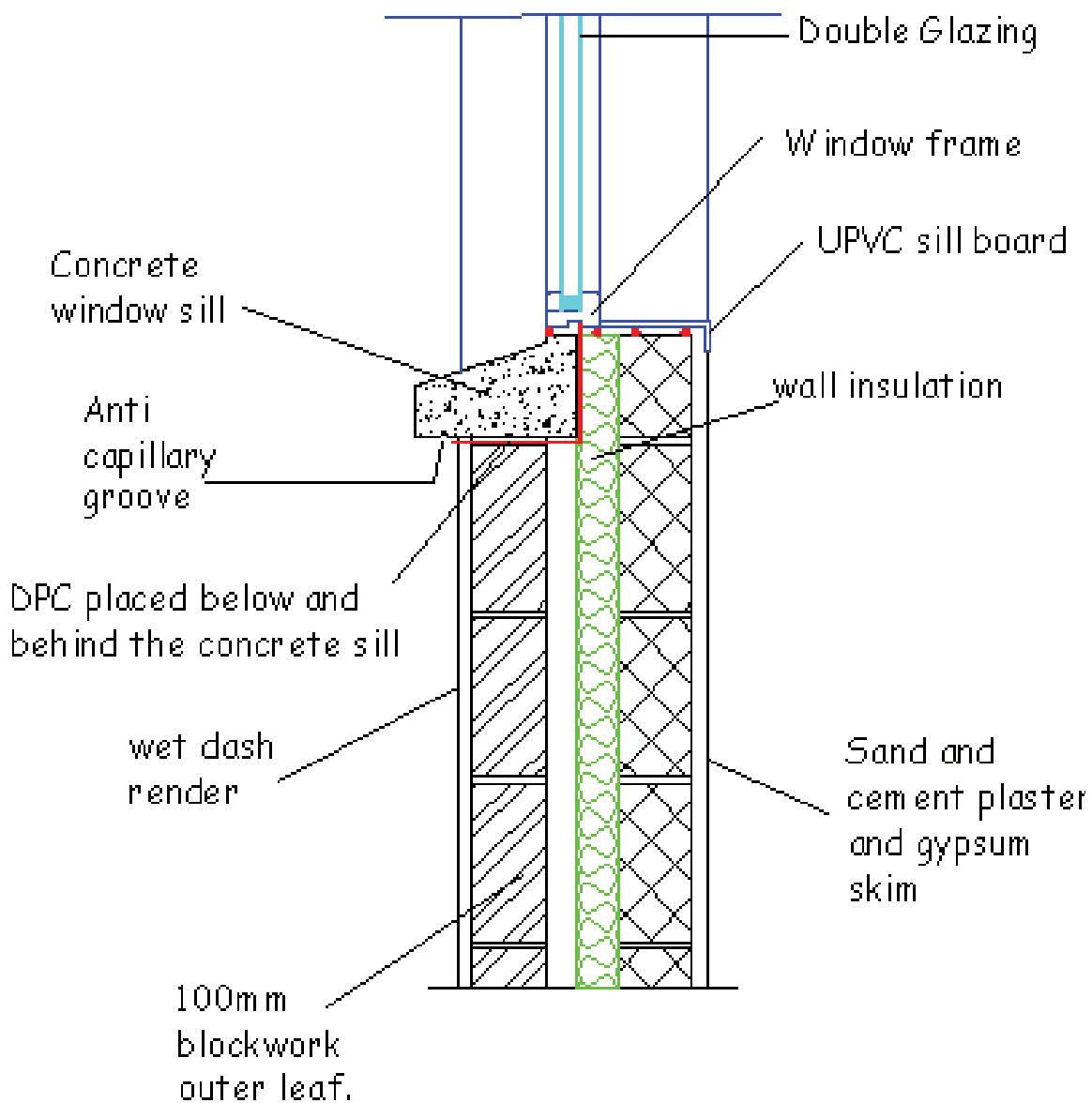
- 3 (i) Cavity wall construction [1]
- (ii) 100 mm wide concrete block walls or brick walls or solid wall or timber stud wall [1]
- (iii) Strength Privacy
 Stability Divide into spaces/rooms
 Weather exclusion Minimum maintenance
 Thermal insulation Load bearing
 Sound insulation Security
 Durability
 Fire resistance
 Appearance
- [1] per answer up to a maximum of [6] or any other relevant answer. [6]
- (iv) Stretcher bond [1]
- (v) To obtain maximum strength whilst distributing the load carried by the walls.
- Ensure lateral stability and resistance to side thrust.
- Create an acceptable appearance
- [1] per answer up to a maximum of [3] or any other relevant answer. [3]

12

			AVAILABLE MARKS
4	<p>(i) Solar energy is energy from the Sun [1] used to generate electricity and/or to heat water [1] [2]</p> <p>(ii) Reduce energy costs to generate electricity Good for the environment to heat water [1] per answer up to a maximum of [2] or any other relevant answer. [2]</p>		4
5	<p>(i) Reduce heat loss/used in a roof floor or wall. [2]</p> <p>(ii) Prevent the passage of moisture/in a cavity wall or around window or door openings. [2]</p> <p>(iii) Reduce heat loss or the passage of sound/found in a window [2]</p> <p>(iv) Tie the two skins of a cavity wall together/found in a cavity wall prevent passage of moisture [2]</p> <p>(v) The trim around it prevents the joint showing between the frame and the wall/found round the outer edge of a door frame. [1] per correct function and [1] for the correct identification of where the component is found. [2]</p>		10
6	<p>(i) Distribute the load of the walls over a larger surface area [1] Increase stability [1] Firm surface to build on/level surface [1]</p> <p>(ii) A strip of concrete placed in the ground. This strip is of regular width and depth. [3]</p> <p>(iii) Wooden pegs are driven in at suitable intervals. These pegs are levelled to the depth of concrete. Concrete will be poured to the depth of the pegs. Concrete left to harden before building starts. [4]</p> <p>(iv) Steps in strip foundation are used on sloping sites to reduce the amount of excavation and materials needed to produce an adequate foundation [2]</p> <p>(v) Reinforcement increases the strength of the foundation, particularly over pockets of soil which have a poor bearing capacity. [2]</p> <p>(vi) Pile foundations are used when underlying substrata is weak. [2]</p>		15
Section A			60

Section B

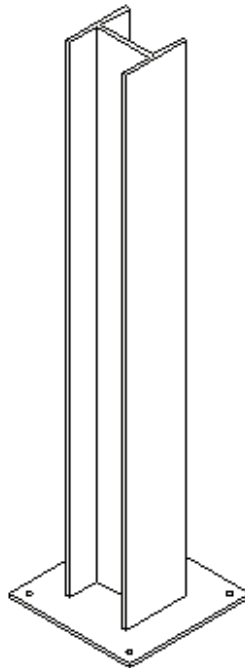
- 7 [2] for completing the sill correctly
 [1] for completing the anti capillary groove
 [2] for completing the DPC correctly ([1] for vertical and [1] for horizontal section)
 [1] for completing the double glazing
 [1] for completing the window frame
 [2] for completing the insulation correctly including section behind sill
 [1] for general appearance [10]



[1] for each correctly added annotation up to a maximum of [10] [10]

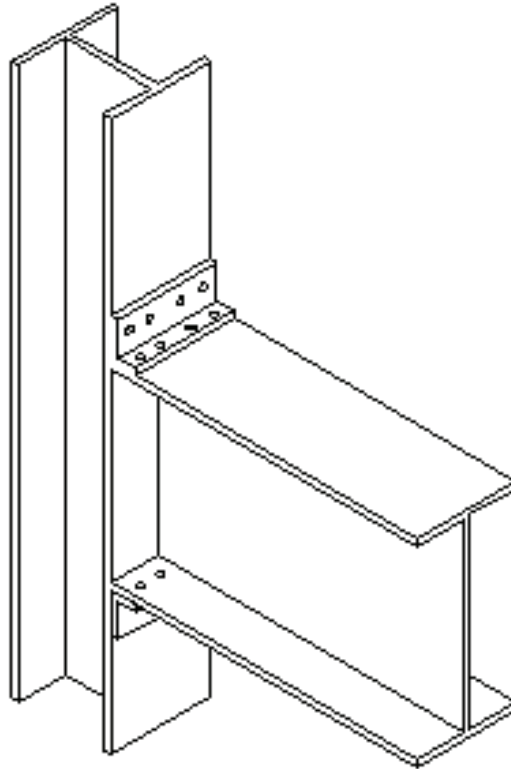
- 8 (i) Steel rectangular framed structure [2]
or steel framed structure [1] [2]
- (ii) Office blocks Car Parks
Large schools Flats
Hotels Shops
Hospitals
Or any other appropriate answer.

[1] for each correct answer up to a maximum of [4] [4]
- (iii) The structural frame carries the total load of the building and transfers it to the foundation. [2]
- (iv) A framed structure is a network of beams and columns joined by bolts to form the skeleton framework of the building [2]
- (v) [5] for a completed drawing. [5]



[5] for a completed drawing.

[5]



[1] for overall appearance

AVAILABLE MARKS

20

Section B

40

Total

100

