

GCSE

Construction

Single Award

Summer 2009

Mark Scheme

Issued: October 2009

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

MARK SCHEMES (2009)

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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Rewarding Learning

**General Certificate of Secondary Education
2009**

**Construction:
Single Award**

Unit 2: Construction Technology

[GSK21]

FRIDAY 22 MAY, MORNING

**MARK
SCHEME**

			AVAILABLE MARKS
1	(a) Cavity wall construction	[2]	10
	(b) Olive Green	[2]	
	(c) Mahogany	[2]	
	(d) Underside of roof cladding	[2]	
	(e) Firm bearing strata	[2]	
2	[1] for each correct performance requirement up to a maximum of [5]		5
	• Weather Exclusion		
	• Security/strength		
	• Provide resistance to air penetration in the form of draughts		
	• Thermal insulation		
	• Privacy (bathroom)		
	• Durability		
	• Sound Insulation		
	• Provide natural light		
	• Ventilation		
	• Residential home	[5]	

3 **Fig. 1** shows a photograph of a casement window in a cavity wall and **Fig. 2** shows a drawing of a casement window. Use the labels provided to identify all the elements of the casement window and write the correct label in the space provided. A list which includes all the labels required for **Fig. 1** and **Fig. 2** has been included, you will not require all these labels.

Top hung opening sash
 Transom
 Softwood
 Fixed light
 Damp proof membrane
 Stile
 Concrete window sill

Mullion
 Insulation
 Hinge positions
 Head
 Side hung opening sash
 Sill (bottom rail)

AVAILABLE MARKS

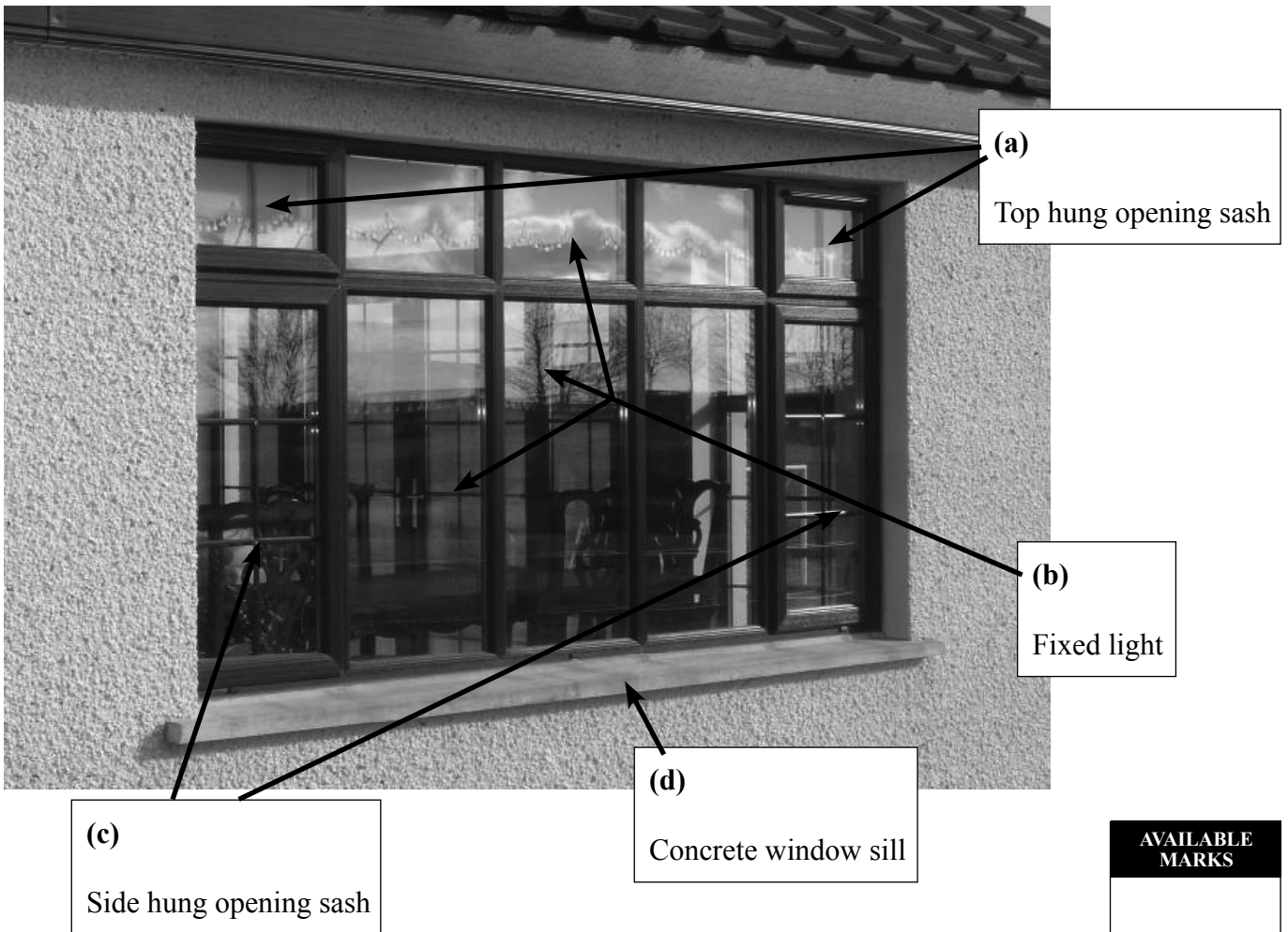


Fig. 1

[4]

AVAILABLE MARKS

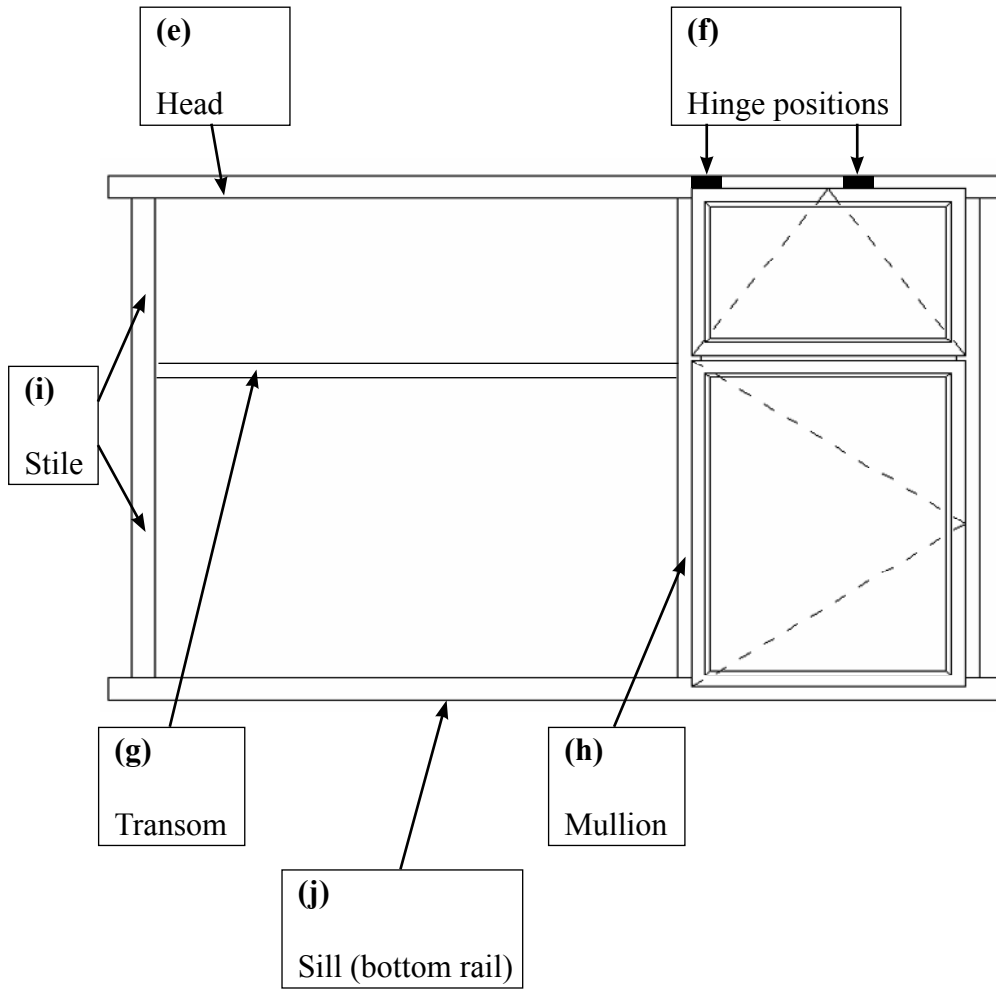


Fig. 2

[6]

10

- 5 [1] for each correct type of building under each of the following headings up to a maximum of [3]
(3 × [3])

Community

Schools

Hospitals

Health Centres

Community Centres

Sport Centres.

Concert halls

(or any other relevant type of building)

Maximum [3]

Agricultural

Cattle house (cubicle house)

Silo

Slurry store

Milking parlour

Grain storage

Hay barn

(or any other relevant type of building)

Maximum [3]

Residential “Domestic”

Terraced (or town) houses

Semi detached

Detached

Single storey

Two storey Dwellings

Apartments

Low rise buildings

High rise buildings

(or any other relevant type of building)

Maximum [3]

Maximum total marks possible

[9]

AVAILABLE
MARKS

9

6 (a) State the name of a conservation area in Northern Ireland?

AVAILABLE
MARKS

The name of any designated conservation area in N. Ireland.

Adelaide Park	Belfast
Antrim Town Centre	Co. Antrim
Ardglass	Co. Down
Armagh (Extension to Boundary)	Co. Armagh
Armagh	Co. Armagh
Ballycastle	Co. Antrim
Ballymoney	Co. Antrim
Belfast City Centre	Belfast
Bessbrook	Co. Armagh
Bushmills	Co. Antrim
Caledon	Co. Tyrone
Caledon (Extension to Boundary)	Co. Tyrone
Carnlough	Co. Antrim
Carrickfergus	Co. Antrim
Castlewellan	Co. Down
Cushendall	Co. Antrim
Cushendun	Co. Antrim
Cyprus Avenue	Belfast
Donaghadee	Co. Down
Downpatrick	Co. Down
Draperstown	Co. Londonderry
Dromore	Co. Down
Enniskillen	Co. Fermanagh
Glenarm	Co. Antrim
Gracehill (Variation to Boundary)	Co. Antrim
Gracehill	Co. Antrim
Hillsborough	Co. Down
Killough	Co. Down
Killyleagh	Co. Down
Kings Road	Belfast
Knockdene	Belfast
Linen	Belfast
Lisburn	Co. Antrim
Lisnaskea	Co. Fermanagh
Londonderry: Clarendon Street	Co. Londonderry
Londonderry: Historic City	Co. Londonderry
Londonderry: Magee	Co. Londonderry
Loughall	Co. Armagh
Lurgan	Co. Armagh
Malone	Belfast
Malone Conservation Area – Character Appraisal (Consultation Draft)	Belfast

Malone Conservation Area – Character Appraisal (Interim Statement)	Belfast
Malone Park	Belfast
McMaster Street	Co. Londonderry
Merville Garden Village	Newtownabbey
Moira	Co. Down
Moneymore	Co. Londonderry
Moy	Co. Tyrone
Newry	Co. Down
Newry (Extension to Boundary)	Co. Down
Newry (Extension to Boundary)	Co. Down
Newtownstewart	Co. Tyrone
Northland	Dungannon
Omagh	Co. Tyrone
Portaferry	Co. Down
Queen's	Belfast
Richhill	Co. Armagh
Rostrevor	Co. Down
Saintfield	Co. Down
Sion Mills	Co. Tyrone
Somerton Road/Chichester Park	Belfast
Strangford	Co. Down
Stranmillis	Belfast
The Cathedral	Belfast
Whitehead	Co. Antrim

[1]

- (b) Give **four** reasons why the area listed above has been designated as a conservation area.

[1] for any of the following terms which have been included in a reasoned account up to a maximum of [4]

Scenic heritage

Historic buildings

Environmental importance

Tourist attraction

Preserve old buildings

New development should complement the existing

Development should blend in with natural surroundings.

[4]

5

AVAILABLE
MARKS

- 7 (a) Soffit is a horizontal board fixed to the underside of the rafter outside the building. [3]
- (b) Bargeboard is an external decorative board running parallel to pitch of the roof. [3]

AVAILABLE
MARKS

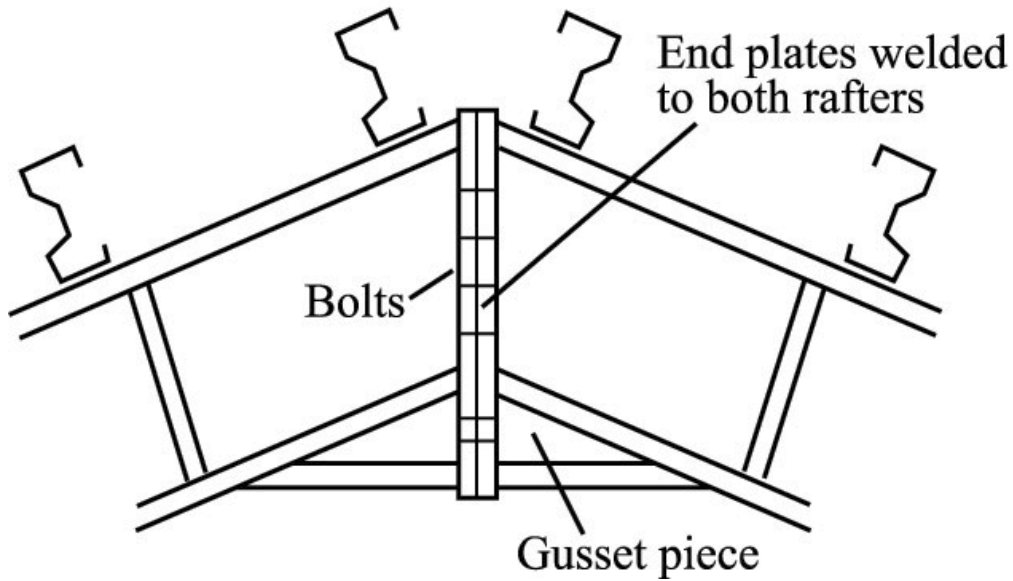
6

8 The central hall of the visitors centre shown in the pre-release materials is constructed from a Steel Portal Frame.

(a) The name of the structural joint shown at A is
Ridge joint

[2]

- (b) Partially completed drawing [3]
 Completed drawing [6]
 Completed drawing with one correct annotation [7]
 Complete drawing of ridge joint with two annotations [8]

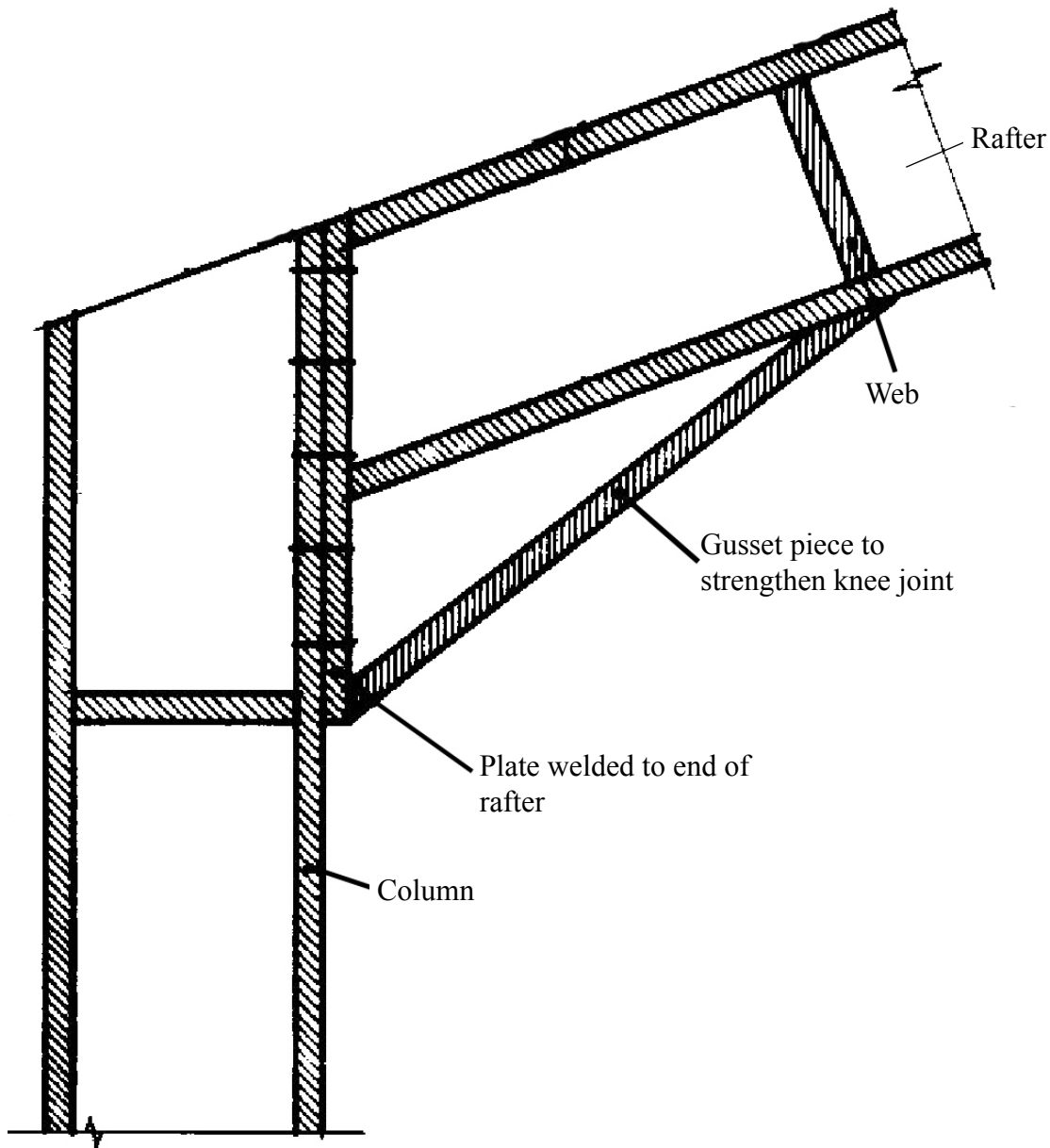


[8]

(c) The name of the structural joint shown at B is
Knee joint

[2]

- (d) Partially completed drawing [3]
Completed drawing [6]
Completed drawing with one correct annotation [7]
Complete drawing of knee joint with two annotations [8]



[8]

AVAILABLE
MARKS

20

9 List four important properties of a roof

AVAILABLE
MARKS

(a)–(d) [2] for each correct property

- A roof must be weather resistant to rain, snow, wind and sun.
- The durability of a roof should be equal to or in excess of those materials used in the remainder of the building.
- A roof should have good thermal insulation properties.
- A roof should require a minimum of maintenance.
- Aesthetically pleasing
- A roof should be constructed in such a way as to retain structural stability when dead and imposed loads are applied to it (dead load is the weight of materials used to make the roof, imposed loads are loads created by wind, snow, etc.) [8]

(e) Describe the sequence of activities to construct a pitched roof on a domestic house.

[1] For each correct description listed in the correct sequence up to a maximum of [8]. Any other appropriate description could be awarded [1] also.

The following list should appear in approximately the order shown to achieve a good descriptive answer.

- Secure wall plate in position
- Position Purlin correctly
- Mark out and cut rafter length
- Nail rafters in position
- Put on fascia board and soffit
- Secure gutter to fascia
- Nail on felt and tiling laths
- Nail tiles on roof [8]

Write down the function of the two elements named below as they relate to pitched roof construction.

(f) Fascia board

A board fixed vertically to rafter ends, which provides an additional fixing for gutters. [2]

(g) Ridge board

The ridge is a horizontal board set on edge to which the rafters are attached at the apex of the roof. [2]

Total

20

100

