2008 HSC Notes from the Marking Centre Construction

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2008 HSC NOTES FROM THE MARKING CENTRE CONSTRUCTION

Introduction

This document has been produced for the teachers and candidates of the Stage 6 course in Construction. It contains comments on candidate responses to the 2008 Higher School Certificate examination, indicating the quality of the responses and highlighting their relative strengths and weaknesses.

This document should be read along with the relevant syllabus, the 2008 Higher School Certificate examination, the marking guidelines and other support documents which have been developed by the Board of Studies to assist in the teaching and learning of Construction.

Teachers and candidates should consider that examiners may ask questions which require candidates to respond by integrating their knowledge, understanding and skills developed through studying the course and those gained through work experience.

Candidates need to be familiar with the Board's Glossary of Key Words (www.boardofstudies.nsw.edu.au/syllabus_hsc/glossary_keywords.html) which contains some terms commonly used in examination questions. However, candidates should also be aware that not all questions will start with or contain one of the key words from the glossary. Questions such as 'how?', 'why?' or 'to what extent?' may be asked or verbs may be used which are not included in the glossary, such as 'design', 'translate' or 'list'.

Section I

Question	Correct response
1	D
2	A
3	D
4	A
5	B
6	C
7	B
8	D

Question	Correct response
9	A
10	C
11	B
12	A
13	D
14	C
15	A

Section II

Question 16

(a) Better responses showed an understanding of different methods of communication and used descriptive language to identify and match appropriate examples with communication methods.

(b) Better responses answered the question by providing several relevant factors that impede effective communication.

Question 17

(a) Mid-range responses outlined first aid procedures for heat exhaustion. Procedures included reassuring the casualty, providing a cool drink, placing the casualty in a shaded area and removing unnecessary clothing. Better responses indicated the need for contacting emergency assistance.

(b) Mid-range responses made reference to aspects of workers' compensation, for example medical rehabilitation, medical costs, paid leave and remuneration for death or permanent disability. Better responses indicated a return to work plan.

Question 18

Weaker responses confused safety/lockout tagging with safety tags for electrical tools and equipment. Better responses understood the reasons why safety/lockout tags are used and provided reasons justifying their use.

Question 19

Many candidates recognised the safety signs provided, though weaker responses identified incorrect applications for the signs. Better responses provided examples that related to specific situations on construction sites.

Question 20

Weaker responses confused a Material Safety Data Sheet with a Safe Work Method Statement (SWMS). In the better responses, candidates were able to demonstrate a comprehensive understanding of a Material Safety Data Sheet with a range of relevant applications such as identification of the product and the health hazards involved, requirements for safe use and handling, and the manufacturer's name and contact details.

Question 21

(a) In better responses, candidates considered a broad range of issues that would need to be considered regarding the transportation of material around a building site using a wheelbarrow. Considerations about the condition of the wheelbarrow, the terrain and the loading and/or correct lifting procedures were discussed.

(b) Better responses identified additional areas where safety gains could be achieved such as improving site organisation and improved efficiency measures. Mid-range responses indicated that site safety was improved by conducting site cleanups.

Question 22

(a) Weaker responses struggled to relate a work activity and a potential accident with the risk assessment table. Better responses demonstrated an understanding of the severity of risks in relation to the construction industry.

(b) Mid-range responses made reference to improving safety in addition to safety harnesses when working on a roof by identifying Personal Protective Equipment (PPE) or safety rails. Better responses described the reduction of risk from a management perspective, many describing the use of the hierarchy of risk control and/or safety induction processes.

Question 23

Better responses demonstrated a clear understanding of the interpretation of a drawing and information tables. Candidates are encouraged to develop an understanding of area as opposed to perimeter, units of measurement and the application of information from the table. The concept of rounding up for the boxes of tiles and tubs of adhesive is to be encouraged. Weaker responses had difficulty in estimating realistic sizes and quantities. Candidates are reminded to check that their response is a logical possibility.

Question 24

In weaker responses, candidates had difficulty demonstrating their understanding of determining 'fall' in the context of the construction industry. These candidates completed the question as a mathematical exercise as opposed to a possible real construction situation. Others only identified alternate levelling equipment such as water, laser or dumpy levels but had little understanding of how they are used. Better responses gave a logical sequence of steps to determine the fall in the slope from *X* to *Y* using a spirit level and other relevant equipment.

Section III

Weaker responses were often very short. Candidates are encouraged to plan their essay and provide a scaffold which may be used to display their knowledge in all areas of the question. Candidates are encouraged to draw on their experiences in work placement as well as the theoretical and practical experiences in class to illustrate and provide examples in their responses.

Question 25

In better responses, candidates recognised that environmental legislation had an impact on the construction industry in both planning and construction. The examples used demonstrated an understanding and clearly showed the link between legislation and construction. They covered a range of activities conducted in the industry and showed how environmental legislation has impacted on the industry, often requiring change in practice and procedure.

Weaker responses tended to describe only environmental issues and not legislation. Some focused only on a single aspect in very brief responses, showing candidates had difficulty demonstrating any cause and effect between environmental legislation and the construction industry. Examples generally were limited to outlining a construction practice and did not provide a link to environmental legislation, with limited references to planning.

Question 26

Mid-range responses demonstrated knowledge of the safe use, maintenance and operation procedures of the saw. They conveyed information about safety and showed an awareness of the dangers of a portable electric power saw. A few responses made reference to other equipment such as the table saw, sliding compound saw, electric drill, angle grinder and, more commonly, battery operated circular saws.

Better responses provided a range of examples to describe the information in most areas of safe use, maintenance and operation procedures. However, some provided limited or no justification in support of their examples.

The best responses demonstrated a broad depth of knowledge and understanding by providing an extensive range of examples for the safe use, maintenance and operation procedures of the saw. These responses used correct industry terminology in a well-reasoned response by making reference to management responsibilities.

Question 27

In the better responses, candidates justified their examples through individual and specific descriptions of manual handling and site storage for each of the three different materials.
The best responses provided in-depth analysis of the preparation processes for moving materials, including the recognition of hazards to pedestrians, planning and assessment, the need for safety procedures (OHS) and transportation along a cleared path to a specified storage area.
Some candidates repeated the operation process for manual handling, ie bend knees/straight back, for all three products. Candidates are reminded to give reasons or provide justification for those safety methods that they describe and to use of a range of examples or evidence to support their answers.

Candidates are reminded to use OHS terminology in their responses. Terms such as signage, barricades, traffic control, PPE and risk assessment are generic terms that were used in some responses that could apply to any industry. Candidates are reminded that the best responses use a wide range of construction industry terminology.

Construction

2008 HSC Examination Mapping Grid

Question	Marks	Unit of competency / Element of competency
Section I		
1	1	BCGCM1001B Follow OHS policies and procedures BCGCM2004B Handle construction materials
2	1	BCGCM1004B Conduct workplace communication
3	1	BCGCM1001B Follow OHS policies and procedures
4	1	BCGCM2006B Apply basic levelling procedures
5	1	BCGCM2005B Use construction tools and equipment
6	1	BCGCM2005B Use construction tools and equipment BCGCM1003B Plan and organise work BCGCM1002B Work effectively in the general construction industry
7	1	BCGCM1005B Carry out measurements and calculations
8	1	BCGCM1004B Conduct workplace communication
9	1	BCGCM1001B Follow OHS policies and procedures
10	1	BCGCM1001B Follow OHS policies and procedures
11	1	BCGCM2001B Read and interpret plans and specifications
12	1	BCGCM1003B Plan and organise work
13	1	BCGCM1001B Follow OHS policies and procedures BCGCM1003B Plan and organise work
14	1	BCGCM2001B Read and interpret plans and specifications
15	1	BCGCM1005B Carry out measurements and calculations
Section II		
16 (a)	2	BCGCM1004B Conduct workplace communication
16 (b)	3	BCGCM1004B Conduct workplace communication
17 (a)	2	BCGCM2006B Apply basic levelling procedures RTC2704A Provide basic first aid
17 (b)	2	BCGCM1001B Follow OHS policies and procedures
18	2	BCGCM2005B Use construction tools and equipment BCGCM1003B Plan and organise work
19	2	BCGCM1001B Follow OHS policies and procedures BCGCM1004B Conduct workplace communication
20	3	BCGCM1001B Follow OHS policies and procedures BCGCM2004B Handle construction materials
21 (a)	3	BCGCM1001B Follow OHS policies and procedures BCGCM1003B Plan and organise work BCGCM2004B Handle construction materials
21 (b)	2	BCGCM1002B Work effectively in the general construction industry
22 (a)	2	BCGCM1002B Work effectively in the general construction industry, BCGCM1001B Follow OHS policies and procedures BCGCM2005B Use construction tools and equipment
22 (b)	3	BCGCM1002B Work effectively in the general construction industry BCGCM1001B Follow OHS policies and procedures BCGCM2005B Use construction tools and equipment

Question	Marks	Unit of competency / Element of competency
23	5	BCGCM1005B Carry out measurements and calculations
24	4	BCGCM2006B Apply basic levelling procedures
Section III		
25	15	BCGCM1001B Follow OHS policies and procedures BCGCM1002B Work effectively in the general construction industry BCGCM2005B Use construction tools and equipment
26	15	BCGCM1001B Follow OHS policies and procedures BCGCM1002B Work effectively in the general construction industry BCGCM2005B Use construction tools and equipment
27	15	BCGCM1001B Follow OHS policies and procedures BCGCM1003B Plan and organise work

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2008 HSC Construction
Marking Guidelines

The following marking guidelines were developed by the examination committee for the 2008 HSC examination in Construction, and were used at the marking centre in marking student responses. For each question the marking guidelines are contained in a table showing the criteria associated with each mark or mark range. For some questions, 'Sample Answers' or 'Answers may include' sections are included. These are developed by the examination committee for two purposes. The committee does this:

(1) as part of the development of the examination paper to ensure the questions will effectively assess students' knowledge and skills, and

(2) in order to provide some advice to the Supervisor of Marking about the nature and scope of the responses expected of students.

The examination committee develops the marking guidelines concurrently with the examination paper. The 'Sample Answers' or similar advice are not intended to be exemplary or even complete answers or responses. As they are part of the examination committee's 'working document', they may contain typographical errors, omissions, or only some of the possible correct answers.

The information in the marking guidelines is further supplemented as required by the Supervisor of Marking and the senior markers at the marking centre.

A range of different organisations produce booklets of sample answers for HSC examinations, and other notes for students and teachers. The Board of Studies does not attest to the correctness or suitability of the answers, sample responses or explanations provided. Nevertheless, many students and teachers have found such publications to be useful in their preparation for the HSC examinations.

A copy of the Mapping Grid, which maps each question in the examination to units/elements of competency as detailed in the syllabus, is also included.

Section II

Question 16 (a)

Competencies assessed: BCGCM1004B

MARKING GUIDELINES

Criteria	Marks
• List appropriate examples of information communicated	2
• List ONE appropriate example of information communicated	1

Sample answer/Answers could include:

- Memorandum of understanding
- Meetings, ie union meetings
- Directions for site information
- Signage information
- Messages regarding site information
- Delivery dockets
- General correspondence
- Workplace forms

Question 16 (b)

Competencies assessed: BCGCM1004B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a comprehensive understanding of the factors that impede effective communication	3
• Demonstrates an understanding of the factors	2
• Provides factors that impede effective communication and/or demonstrates communication methods	1

Sample answer/Answers could include:

- Instructions conveyed accurately
- Work signage is responded to with correct action
- Information is conveyed in simple English and the message is confirmed
- Questions are used to gain additional information and to clarify understanding
- Information is selected and sequenced correctly
- Goals or outcomes are identified and/or recorded

Question 17 (a)

Competencies assessed: BCGCM2006B, RTC2704A

MARKING GUIDELINES

Criteria	Marks
• Outlines the correct first-aid procedure dealing with heat exhaustion	2
• Outlines a limited understanding when dealing with heat exhaustion	1

Sample answer/Answers could include:

- Re-assure the casualty
- Provide cool drink
- Place casualty in a cool shaded area
- Remove unnecessary clothing items: boots/hat
- Report incident
- Contact emergency help/aid, 000 or 112 (mobile)

Question 17 (b)

Competencies assessed: BCGCM1001B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a sound understanding of the benefits of workers' compensation	2
• Demonstrates a basic understanding of workers' compensation	1

Sample answer/Answers could include:

- Medical rehabilitation
- Medical costs paid
- Return to work plan
- Paid leave
- Remuneration for death or permanent disability

Question 18

Competencies assessed: BCGCM2005B, BCGCM1003B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a clear understanding of safety/ lockout tags	2
• Demonstrates a basic understanding of tagging	1

Sample answer/Answers could include:

- Ease and identification
- Evidence of serviceability
- Preventing use until repaired

Question 19

Competencies assessed: BCGCM1001B, BCGCM1004B

MARKING GUIDELINES

Criteria	Marks
• Correct description /use of signs	2
• Correct description/use of ONE sign	1

Sample answer/Answers could include:

- Electric shock risk
  (electrical wires and equipment that are being worked on or are out of service or potential hazard exists)
- Emergency shower
  (chemical spill)

Question 20

Competencies assessed: BCGCM1001B, BCGCM2004B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a comprehensive understanding of how the construction industry utilises material safety data sheets	3
• Demonstrates an understanding of how the construction industry utilises material safety data sheets	2
• Demonstrates a basic understanding of material safety data sheets	1

Sample answer/Answers could include:

- Identify the product name of the hazardous substance
- Identify the chemical name of ingredients
- Precautions for safe use and handling
- Manufacturer's or importer's name and contact details
- Decide whether improvements to control measures are necessary
- Identify necessary control measures before the introduction of a new substance

Question 21 (a)

Competencies assessed: BCGCM1001B, BCGCM1003B, BCGCM2004B

MARKING GUIDELINES

Criteria	Marks
• Sound knowledge of manual handling and safety when using a wheelbarrow	3
• General knowledge of safety using a wheelbarrow	2
• Limited knowledge of moving waste material	1

Sample answer/Answers could include:

- A well maintained wheelbarrow
  - pumped up tyre
  - no holes in tray
  - handles not damaged
  - bolts tightened
- Do not wheel a load above worker's limits
- Keep arms and back straight
- Keep site clean
  - do not wheel over rubbish
  - remove hazards
- Use PPE
  - safety boots
  - hard hat
  - sunscreen

Question 21 (b)

Competencies assessed: BCGCM1002B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a sound knowledge of the advantage of site cleanups	2
• Demonstrates a basic knowledge of site cleanups	1

Sample answer/Answers could include:

- less chance of accidents (safety)
- improves site morale
- productivity
- access

Question 22 (a)

Competencies assessed: BCGCM1002B, BCGCM1001B, BCGCM20005B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a general knowledge of risk assessment	2
• Demonstrates a basic knowledge of risk assessment	1

Sample answer/Answers could include:

Risk Ranking	Activity	Example of Potential Accident
3	Putting up a frame	Minor cut or gash to hands or arms
3	Moving materials	Pinched/crushed finger/s
3	Placing a concrete slab	Injury to the lower back

5	Walking past temporary fencing	Scratch hand
5	Open site shed door	Pinched finger

Question 22 (b)

Competencies assessed: BCGCM1002B, BCGCM1001B, BCGCM2005B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a comprehensive understanding of management and risk control	3
• Demonstrates a sound knowledge of management and risk control	2
• Displays limited knowledge of the control of risk	1

Sample answer/Answers could include:

- Hierarchy of risk control
- Evaluation of process to determine an improvement in procedures to reduce the potential risk of tasks on a construction site
- Provide guidance in the potential need for alternate equipment to carry out particular tasks
- Forward planning of investment in equipment, training and induction

Question 23

Competencies assessed: BCGCM1005B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates an in-depth knowledge and interpretation of the problem • Correctly calculates the total cost	5
• Demonstrates a sound understanding of calculation • Clearly identifies and correctly uses table information	3–4
• Uses some table information correctly to calculate	1–2

Sample answer:

Area	3m x 3.750	= 11.25 m^2	**Tiles**	$45.50 per box (2.5sqm bx)
	0.6 x 0.9	= 0.54 m^2		= 11.79 ÷ 2.5
	Total	= 11.79 m^2		= 4.716 boxes
				= 5 boxes required
Adhesive	Cost	= $29 per 4 litre tub		= 5 @ $45.50
	11.80 ÷ 0.75	= 15.73 litres required		= $227.50
		= 4 tubs		
		= $29 X 4		
		= $116		
Labour	Cost	= $75 per m^2		
		= 75 x 11.79		

		= $884.25
Total Cost	Tiles	= $ 227.50
	Adhesive	= 116.00
	Labour	= 884.25
	Total cost	**= $1227.75**

Question 24

Competencies assessed: BCGCM2006B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a broad knowledge and understanding of equipment and its correct application to this problem	4
• Demonstrates a general knowledge and understanding of equipment and its use in determining fall	3
• Demonstrates a limited knowledge and understanding of equipment and its correct use	2
• Demonstrates a limited knowledge of levelling equipment (different examples)	1

Sample answer/Answers could include:

1. Drive a peg into the ground to start point *X*
2. Drive in stakes at intervals shorter than your straight edge
3. Obtain plumb on the stakes
4. From point *X* use your straight edge and spirit level and mark level on stake
5. Measure distance from mark to ground
6. Repeat process to point *Y*
7. Add up the measured falls from each stake to obtain total fall

Possible equipment
- plumb bob
- tape measure
- straight edge
- spirit level
- stakes
- mallet or lump hammer

Section III

Question 25

Competencies assessed: BCGCM1001B, BCGCM1002B, BCGCM2005B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a broad depth of knowledge and understanding of environmental protection legislation when planning and constructing • Provides an extensive range of examples between the environmental impact and the building and construction industry • Correctly uses precise industry terminology in a well-reasoned cohesive response	13-15
• Demonstrates a clear knowledge and understanding of environmental protection legislation when planning and constructing • Provides a range of linked examples between the environmental impact and the building and construction industry • Uses appropriate industry terminology in a cohesive response	10-12
• Demonstrates a general understanding of the environment when planning and constructing • Provides a link between the environment and the building and construction industry • Uses appropriate industry terminology	7-9
• Demonstrates an understanding of the environment when planning and constructing • Uses basic industry terminology	4-6
• Demonstrates a limited knowledge of the environment and the construction industry • Uses limited industry terminology	1-3

Sample answer/Answers could include:

Environmental protection legislation consists of anything that may impact on the environment. Including:

- a contaminant, an industry or activity, a technology or process, an environmental value, waste management, contamination control practices, land, air or water quality, noise and litter
- site drainage
- erosion of soil
- materials used
- environmental assessment impact statement
- post construction assessment
- EPA legislation
- waste management
- re–cycling
- wash down areas
- sediment traps
- fauna and flaura protection
- truck turnaround location

Question 26

Competencies assessed: BCGCM1001B, BCGCM1002B, BCGCM2005B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a broad depth of knowledge and understanding of the induction process for a portable power saw, by management • Provides an extensive range of examples of the safe use, maintenance and operating procedure • Correctly uses precise industry terminology in a well reasoned cohesive response	13-15
• Demonstrates a clear knowledge and understanding of the induction process for a portable power saw, by management • Provides a range of examples of the safe use, maintenance and operating procedure • Uses appropriate industry terminology in a cohesive response	10-12
• Demonstrates a general understanding of the induction process for a portable power saw • Provides a limited number of examples of the safe use, maintenance and operating procedure • Uses appropriate industry terminology	7-9
• Demonstrates an understanding of the induction process for a portable power saw • Uses basic industry terminology	4-6
• Demonstrates limited knowledge of the induction process • Uses limited industry terminology	1-3

Question 26 (continued)

Sample answer/Answers could include:

Safe Use	Maintenance	Operating Procedure
• Don't carry a plugged-in saw with finger on the switch • Stay alert when operating the saw • Never wedge or tie the lower guard open • Never remove cut material while the saw blade is moving • Make sure that depth and bevel adjustments are tight before you start the cut • Wear correct PPE • Place the wider part of the base of the work piece that is supported, not on the piece that will fall off when you make the cut • Secure the worked piece to be cut	• Never use defective equipment • Never try to do electrical repairs to any part of the tool • Check the power cord for damage • Look for cracked casing, bare wires and loose connections, loose or missing screws and blocked ventilation slots • Check safety guard retracts • Saw blade is sharp without damaged tips • Dust the body and around the motor housing so that a build-up doesn't inhibit the saw's operation	• Keep fingers and hands clear of moving parts • Don't over-reach, keep a firm footing and be well balanced • Use clamps or a vice to hold work, leaving both hands free to control the tool • Never twist or force the blade • Keep a firm grip on the handle when in operation • Barriers • Signs • Selection of suitable blade type and diameter • Supports (saw horses or bench)

Question 27

Competencies assessed: BCGCM1001B, BCGCM1003B

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a broad depth of relevant knowledge and understanding of procedures in manual handling AND storage of materials • Communicates information in a well reasoned and cohesive response • Correctly uses precise industry terminology	13-15
• Demonstrates a depth of relevant knowledge and understanding of procedures in manual handling AND storage of materials • Communicates information in a well reasoned response • Correctly uses precise industry terminology	10-12
• Demonstrates relevant knowledge and understanding of procedures in manual handling and/or storage of materials • Communicates information appropriately using industry terminology	7-9
• Demonstrates a basic knowledge and understanding of manual handling and /or storage • Communicates information using some industry terminology	4-6
• Demonstrates a limited knowledge of material handling or storage • Uses limited industry terminology	1-3

Sample answer/Answers could include:

- Lifting methods/techniques
- Storage of cement, brick and formply
- MSDS for cement
- Record keeping of the stock received
- Risk controls during the moving and final storage
- OHS
- Lifting equipment appropriate for each material
- Site safety when materials in transit and in storage area
- Work method statements covering cement handling, brick lifting and formply
- Traffic control
- Signage