# 2021 HSC Construction Marking Guidelines

## Section I

### Multiple-choice Answer Key

| Question | Answer |
|---|---|
| 1 | C |
| 2 | B |
| 3 | D |
| 4 | B |
| 5 | C |
| 6 | C |
| 7 | D |
| 8 | B |
| 9 | D |
| 10 | C |
| 11 | B |
| 12 | D |
| 13 | A |
| 14 | C |
| 15 | A |

# Section II

## Question 16 (a)

| Criteria | Marks |
|---|---|
| • Correctly identifies a chisel | 1 |

***Sample answer:***

Chisel.

***Answers could include:***

Firmer chisel, bevelled edge, mortice.

## Question 16 (b)

| Criteria | Marks |
|---|---|
| • Outlines TWO suitable uses for a chisel | 2 |
| • Outlines ONE suitable use for a chisel | 1 |

***Sample answer:***

Cutting joints such as rebate and housing.

***Answers could include:***

Housing; cleaning off dry glue; fitting hinges or locks; removing or paring timber.

## Question 16 (c)

| Criteria | Marks |
|---|---|
| • Describes one consequence of a poorly maintained chisel | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

A blunt chisel becomes unsafe and increases the risk of injury. Bluntness results in longer time to complete projects therefore increasing costs. Poor quality cuts result in poor finish.

## Question 16 (d)

| Criteria | Marks |
|---|---|
| • Describes both care and maintenance procedures | 3 |
| • Outlines care and/or maintenance procedures | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

To take care of the chisel it is important to use it only for its intended tasks such as cutting joints, paring timber. It should be stored to protect the cutting edge. To maintain the chisel it needs to be honed and stropped.

***Answers could include:***

Care:

- Only use for cutting of appropriate materials
- Store safely and to protect cutting edge
- To be used as a chisel not for opening paint tins or to remove nails
- Use appropriate hammer/mallet.

Maintenance:

- Grind, hone, strop or deburr
- Check ferrule is secure and in place
- Check handle, replace as needed.

## Question 17

| Criteria | Marks |
|---|---|
| • Demonstrates in-depth knowledge of personal attributes | 5 |
| • Demonstrates sound knowledge of personal attributes | 4 |
| • Demonstrates general knowledge of personal attributes | 3 |
| • Shows a basic understanding of personal attributes | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

There are many personal attributes that construction workers should display to ensure they are successful within the industry.

All workers should be well groomed and well presented. This includes being appropriately dressed and groomed for their roles. Items which could interfere with their role or cause a problem should not be taken to work.

Attendance and punctuality require workers to be physically on the work site and adequately prepared prior to the expected starting time.

Workers are required to perform tasks as per their skill level and to industry standards. They should also avoid practices in their private lives that could impair their ability and judgement on site.

All safe work practices must be adhered to at all times. Workers should adhere to safe housekeeping and be aware of duty of care requirements and code of conduct compliance.

***Answers could include:***

Any combination of the following:

- Attendance and punctuality
- Ethical behaviour
- Honesty
- Work performance
- Taking directives
- Attention to detail
- Personal presentation and grooming
- Attitude
- Confidentiality
- Consistency of service
- Safe work practices.

## Question 18 (a)

| Criteria | Marks |
|---|---|
| • Correctly calculates the total labour cost | 2 |
| • Shows some logical steps in calculating the labour costs | 1 |

***Sample answer:***

$2.5 \times \$62.00 = \$155.00$ (Tradesperson)
$2.5 \times \$21.00 = \$52.50$ (Apprentice)
Add together = \$207.50 (Total)

Or

$2.5 \times \$83.00 = \$207.50$

Total answer = \$207.50

## Question 18 (b)

| Criteria | Marks |
|---|---|
| • Correctly calculates the perimeter for the concrete slab | 3 |
| • Shows some relevant calculations for the concrete slab | 2 |
| • Shows a relevant calculation | 1 |

***Sample answer:***

Semi-circle perimeter $+ 5 + 6 + 6$ = total perimeter

$(0.5 \times 2 \times 3.14 \text{ (pi)} \times 2.5) + 5 + 6 + 6 = 24.85$ m
$(7.85 \text{ m} + 5 + 6 + 6 = 24.85)$

## Question 18 (c)

| Criteria | Marks |
|---|---|
| • Calculates the correct volume of concrete needed in $m^3$ (including 10% wastage) | 4 |
| • Calculates the volume with minor errors in correct answer without 10% wastage | 3 |
| • Shows some relevant calculations for the concrete needed | 2 |
| • Shows a relevant calculation | 1 |

***Sample answer:***

Area:

0.5 (semi-circle) $\times$ 3.14(pi) $\times$ (2.5 $\times$ 2.5) (radius squared) + 5 (width) $\times$ 6 (length) = 39.81$m^2$

Volume:

39.81$m^2$ (area) $\times$ 0.1m (slab thickness) = 3.98$m^3$

Then add 10% wastage. 3.98 $\times$ 1.1 = 4.38$m^3$

## Question 18 (d)

| Criteria | Marks |
|---|---|
| • Describes in detail a range of WHS considerations | 4 |
| • Describes a range of WHS considerations | 3 |
| • Identifies WHS considerations | 2 |
| • Provides a piece of relevant information | 1 |

***Sample answer:***

The factors that need to be considered include: all workers must have a valid White Card to gain access to the site; the employer must provide appropriate and correct training for machinery and plant operation; employer must provide clean drinking water and amenities; all electrical equipment must be in a serviceable condition and fitted with a current electrical tag before use.

***Answers could include:***

Sun protection, weather conditions, good housekeeping, correct training, PPE, electrical tags, ELCB, site access, first aid station, toilet facilities, drinking water, site must be well organised, site accessibility, waste material has been removed, appropriate load lifting is considered.

## Question 19 (a)

| Criteria | Marks |
|---|---|
| • Lists TWO reasons why cross-sectional plans are used | 2 |
| • Lists ONE reason why cross-sectional plans are used | 1 |

***Sample answer:***

Cross-sectional plans show information such as footing size, wall thickness and construction, design of sub-floor, floor construction, roof construction, roof pitch, section sizes and spacing of structural members.

This type of plan shows detail and information not found on any other plans.

## Question 19 (b)

| Criteria | Marks |
|---|---|
| • Describes the features found on an elevation | 3 |
| • Identifies some features found on an elevation | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

Provides information relating to vertical measurements and external finishes, eg height of finished floor level (FFL), finished ceiling level (FCL), design of the building, position of doors, window sill height above floor level, finish to external walls.

## Question 19 (c)

| Criteria | Marks |
|---|---|
| • Explains why the relationship between plans and specifications is important in construction | 4 |
| • Describes the relationship between plans and specifications | 3 |
| • Identifies the importance of either plans OR specifications | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

The specifications are a precise description of all construction detail that is shown on the plans. Plans show the overall appearance and position of the building. Specifications must be used in conjunction with the plans to complete the project to ensure: the customer receives what they have requested; the project is delivered and complies with industry standards.

Both the documents are legally required to be approved by council prior to the commencement of any work. This will ensure the safety and integrity of the building and that the building will minimise interference with the environment and neighbouring structures.

Builders must follow details, such as the strength and steel reinforcement used in concrete and grades of timber beams, to ensure stability.

***Answers could include:***

Features found on specifications may contain the composition of concrete used for footings, species and grades of timber used, brick type, mortar colour, colour of internal and external finishes.

Plans and specifications are both needed to obtain council approval before any building can commence. These are legal requirements.

# Section III

## Question 20

| Criteria | Marks |
|---|---|
| • Demonstrates a comprehensive understanding of the roles that key bodies and authorities have in ensuring worker safety<br>• Provides a logical and cohesive response, using relevant examples | 13–15 |
| • Demonstrates a sound understanding of the roles that key bodies and authorities have in ensuring worker safety<br>• Provides a clear and organised response, using relevant examples | 10–12 |
| • Demonstrates an understanding of the roles that key bodies and authorities have in ensuring worker safety<br>• Uses some general examples | 7–9 |
| • Demonstrates an understanding of the roles that key bodies and authorities have in ensuring worker safety or uses some general examples | 4–6 |
| • Provides limited information about a role of either key bodies OR authorities in ensuring worker safety OR considers something to do with a government act or legislation | 1–3 |

***Answers could include:***

- The Work Health and Safety Act 2011 (NSW) provides a framework to protect the health, safety and welfare of everyone with regards to NSW workplaces, worksites and all related work activities. It replaces the previous Act which was the Occupational Health and Safety Act (OHS.)
- The WHS Regulations require stakeholders to ensure provision of general workplace facilities for workers, first aid, emergency plans, training and instructions and to impose duties or isolate work.
- The current aims of the WHS Act are to:
  - Ensure the health and safety of all employees on all work sites including construction sites
  - Protect visitors on work sites, such as suppliers or contractors
  - Promote a work environment that meets the physical, mental and psychological needs of workers
  - Include codes of practice standards and joint consultation procedures to improve workplace health and safety
- Key bodies and authorities have a primary responsibility to improve work, health and safety and workers compensation arrangements. This is a partnership between governments, unions and industry, working together towards the goal of improving worker safety by eliminating death and reducing injury and disease in the workplace.
- SafeWork NSW also provides licences and registration for potentially dangerous work and/or advice. They also investigate workplace incidents and accidents and enforce all work, health and safety laws.

- SafeWork NSW can inspect workplaces at any time without notice and impose fines. They can collect evidence and seize machinery that is needed as evidence for any court action involving serious injury and/or death. SafeWork NSW also have the power to close any work sites that do not comply with safety regulations or that are deemed dangerous.
- SafeWork NSW can provide the following services to help prevent injury:
  - Free advisory visits to work sites
  - Workplace inspections
  - Financial support for education, training and development projects in workplace safety and injury management
  - Partnership events in rural and remote communities to spread safety messages
  - Provide awareness programs and advertising programs
  - Government regulation for example COVID conditions such as QR codes, PPE, square metre rules, hand sanitising.

# Section IV

## Question 21 (a)

| Criteria | Marks |
|---|---|
| • Describes in detail the benefits of teamwork in a construction workplace | 5 |
| • Describes benefits of teamwork in a construction workplace | 4 |
| • Outlines some benefits of teamwork in a construction workplace | 3 |
| • Identifies some benefits of teamwork in a construction workplace | 2 |
| • Provides some relevant information | 1 |

***Sample answer:***

The benefits of teamwork on a construction site are many and varied.

Teamwork can reduce the time required to perform or complete a task which results in a reduction of labour costs and improved profits of the business.

Working as a team can reduce the risk of injury to workers eg using a two-person lift instead of a one-person lift. Reduced injuries results in fewer sick days, lower workers compensation insurance costs and less down time.

Teamwork provides the opportunity for the sharing and development of skills amongst employees. This in turn makes each employee more valuable to the employer which allows greater scope of work possible.

All these factors combined increase the business viability and job security and make for a more harmonious workplace.

***Answers could include:***

- Teaches conflict resolution
- Promotes a wider sense of ownership
- Fosters creativity and learning
- Blends complementary strengths.

## Question 21 (b)

| Criteria | Marks |
|---|---|
| • Provides a comprehensive explanation of the benefits of effective workplace communication with good workplace examples | 10 |
| • Provides a sound explanation of the benefits of effective workplace communication with workplace examples | 8–9 |
| • Provides an explanation of the benefits of effective workplace communication with some workplace examples | 6–7 |
| • Demonstrates a general knowledge of the benefits of effective workplace communication and/or gives some workplace examples | 4–5 |
| • Outlines the benefits of effective workplace communication in general terms or gives some workplace examples | 2–3 |
| • Provides some information about effective workplace communication | 1 |

***Answers could include:***

- Speech is one of the most common, efficient, effective and important methods of workplace communication. It is used consistently as feedback can be provided instantaneously and the receiver of the message is able to repeat the message to the sender to ensure the correct understanding. The use of correct terminology and industry terms will avoid confusion, for example correct tool names and processes.
- Written communication is very effective as it provides a permanent record that is less likely to be misunderstood. However, it does require people to be able to read and write to an appropriate level.
- Effective written communication will enable people to:
  - Read and interpret plans
  - Follow safety warnings and procedures
  - Correctly follow instructions
  - Prepare accurate estimates
  - Prepare and follow builders' quantities
  - Order materials.
- Signage is an important part of written communication, including safety signage. These signs are universal and can be understood by people once they have received training.
- When providing any form of written communication it should be written neatly and in plain language making this form of communication easier to understand.
- Non-verbal forms of communication are also of benefit. This type of communication can be used in noisy situations, over long distances and to overcome any language barriers. It is important to note that there are cultural differences with some hand signals and gestures.
- Other forms of non-verbal communication include alarms, signals, whistles, buzzers and bells. These can be used to signify an emergency, lunch breaks and stoppages in work, or to warn of moving equipment such as reversing trucks, fork lifts or dangerous machinery.
- Electronic devices can be used for various types of verbal and written communication. Verbal communication can be conducted with the use of phones, mobile phones and two-way radios. Written communication can use laptops and mobile phones and includes emails and SMS messaging.

- The overall benefits of effective communication may include:
  - Increased efficiency
  - Improved production quality and quantity
  - Reduced number of accidents and injuries
  - More efficient use of time
  - Improved financial benefit
  - Increased staff loyalty
  - Good team building
  - Reduced conflict
  - Increased employee engagement
  - Reduced staff absence.

# 2021 HSC Construction Mapping Grid

**Section I**

| Question | Marks | Unit of competency / Element of competency | Employability skills (Please put an X where appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Communication | Teamwork | Problem-solving | Initiative and enterprise | Planning and organising | Self-management | Learning | Technology |
| 1 | 1 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | | | | | X | |
| 2 | 1 | CPCCCM1012A – Work effectively and sustainably in the construction industry – page 15 | | | | | | | X | |
| 3 | 1 | CPCCCM1012A – Work effectively and sustainably in the construction industry – page 23 | | | X | | | | | |
| 4 | 1 | CPCCCM1013A – Plan and organise work – page 31 | | | | | X | | | |
| 5 | 1 | CPCCCM2001A – Read and interpret plans – page 56 | | | | | X | | | |
| 6 | 1 | CPCCCM2005B – Use construction tools and equipment – page 70 | X | | | | | | | |
| 7 | 1 | CPCCCM1012A – Work effectively and sustainably in the construction industry – Page 26 | | | | | | | X | |
| 8 | 1 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | | | | | X | |
| 9 | 1 | CPCCOHS2001A – Apply OHS requirements, policies and procedures in the construction industry – page 2 | | | | | | | X | |
| 10 | 1 | CPCCWHS1001 – Prepare to work safely in the construction industry – page 3 | | | | | | | | X |
| 11 | 1 | CPCCCM1012A – Work effectively and sustainably in the construction industry – page 12 | | | X | | | | | |
| 12 | 1 | CPCCWHS1001 – Prepare to work safely in the construction industry – page 5 | | | | X | | | | |
| 13 | 1 | CPCCOHS2001A – Apply OHS requirements, policies and procedures in the construction industry – page 6 | | X | | | | | | |
| 14 | 1 | CPCCCM1015A – Carry out measurements and calculations – page 49 | | | X | | | | | |

| Question | Marks | Unit of competency / Element of competency | Employability skills (Please put an X where appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Communication | Teamwork | Problem-solving | Initiative and enterprise | Planning and organising | Self-management | Learning | Technology |
| 15 | 1 | CPCCCM2001A – Read and interpret plans and specifications – page 57 | | | X | | | | | |

**Section II**

| Question | Marks | Unit of competency / Element of competency | Employability skills (Please put an X where appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Communication | Teamwork | Problem-solving | Initiative and enterprise | Planning and organising | Self-management | Learning | Technology |
| 16 (a) | 1 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | X | | X | | X | |
| 16 (b) | 2 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | X | | X | | X | |
| 16 (c) | 2 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | X | | X | | X | |
| 16 (d) | 3 | CPCCCM2005B – Use construction tools and equipment – page 70 | | | X | | X | | X | |
| 17 | 5 | CPCCCM1012A – Work effectively and sustainably in the construction industry – page 14 | X | X | | X | | X | | |
| 18 (a) | 2 | CPCCCM1015A – Carry out measurements and calculations – page 49 | X | X | X | | | | | |
| 18 (b) | 3 | CPCCCM1015A – Carry out measurements and calculations – page 49 | | | X | | X | | | |
| 18 (c) | 4 | CPCCCM1015A – Carry out measurements and calculations – page 49 | | | X | | X | | | |
| 18 (d) | 4 | CPCCWHS1001 – Prepare to work safely in the construction industry – page 1 and 2<br>CPCCOHS2001A – Apply OHS requirements, policies and procedures in the construction industry – page 1 and 2 | | | X | | X | | | |
| 19 (a) | 2 | CPCCCM2001A – Read and interpret plans and specifications – page 57 | | | X | X | X | | | |
| 19 (b) | 3 | CPCCCM2001A – Read and interpret plans and specifications – page 57 | | | X | X | X | | | |
| 19 (c) | 4 | CPCCCM2001A – Read and interpret plans and specifications – page 58 | | | X | X | X | | | |

**Section III**

| Question | Marks | Unit of competency / Element of competency | Employability skills (Please put an X where appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Communication | Teamwork | Problem-solving | Initiative and enterprise | Planning and organising | Self-management | Learning | Technology |
| 20 | 15 | CPCCWHS1001 – Prepare to work safely in the construction industry – page 1 and 2<br><br>CPCCOHS2001A – Apply OHS requirements, policies and procedures in the construction industry – page 1 and 2 | X | X | X | X | X | X | X | X |

**Section IV**

| Question | Marks | Unit of competency / Element of competency | Employability skills (Please put an X where appropriate) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Communication | Teamwork | Problem-solving | Initiative and enterprise | Planning and organising | Self-management | Learning | Technology |
| 21 (a) | 5 | CPCCCM1012A – Work effectively – page 20 | X | X | X | X | X | | X | |
| 21 (b) | 10 | CPCCCM1014A – Conduct workplace communication – page 40 and 41<br><br>CPCCCM1013A – Plan and organise work – page 32 | X | X | X | X | X | X | X | X |