



# National Competency Standard for Health and Safety in Construction

Standard Code: CON11S18V1



## KEY FOR CODING

## Coding Competency Standards and Related Materials

DESCRIPTION	REPRESENTED BY
Industry Sector as per ESC (Three letters)	Construction Sector ( <b>CON</b> ) Fisheries and Agriculture Sector ( <b>FNA</b> ) Transport sector ( <b>TRN</b> ) Tourism Sector ( <b>TOU</b> ) Social Sector ( <b>SOC</b> ) Foundation ( <b>FOU</b> )
Competency Standard	<b>S</b>
Occupation within an industry Sector	<b>Two digits 01-99</b>
Unit	<b>U</b>
Common Competency	<b>1</b>
Core Competency	<b>2</b>
Optional/ Elective Competency	<b>3</b>
Assessment Resources Materials	<b>A</b>
Learning Resources Materials	<b>L</b>
Curricula	<b>C</b>
Qualification	<b>Q1, Q2 etc</b>
MNQF level of Qualification	<b>L1, L2 etc</b>
Version Number	<b>V1, V2 etc</b>
Year of endorsement of standard, qualification	<b>By two digits Example- 07</b>

**1. Endorsement Application for Qualification 01****2. NATIONAL CERTIFICATE III IN HEALTH AND SAFETY IN CONSTRUCTION****3. Qualification code:**

CON11SQ1L318

**Total Number of Credits: 72****4. Purpose of the qualification**

This qualification is designed to meet the needs and requirements to minimize hazards in construction industry. It includes core competency units that cover common skills and knowledge for the health and safety in construction industry.

**5. Regulations for the qualification**

National Certificate III in Health and Safety in Construction Qualification will be awarded to those who are competent in unit 1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16

**6. Schedule of Units**

<b>Unit Title</b>	<b>Unit Title</b>	<b>Code</b>
1	Observe personal and workplace hygiene practices	CON11S1U01V1
2	Practice effective workplace communication	CON11S1U02V1
3	Perform computer operations	CON11S1U03V1
4	Promote team effectiveness	CON11S1U04V1
5	Electrical Safety	CON11S1U01V1
6	Common Electrical Safety Hazards on Construction Sites	CON11S1U02V1
7	Minimizing Electrical Hazards	CON11S1U03V1
8	Materials Handling, Storage, Use and Disposal	CON11S1U04V1
9	Cranes, Derricks, Hoists, Elevators and Conveyors	CON11S1U05V1
10	Hand and Power Tools	CON11S1U06V1
11	Welding and Cutting	CON11S1U07V1
12	Personal Protective and Lifesaving Equipment	CON11S1U08V1
13	Fire Protection and Prevention	CON11S1U09V1

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14	Scaffolding	CON11S1U10V1
15	Excavation	CON11S1U11V1
16	Stairways and ladders	CON11S1U12V1
<b>7. Accreditation requirements</b>	The training and assessment leading to recognition of skills must be undertaken in a real or very closely simulated workplace environment.	
<b>8. Recommended sequencing of units</b>	As appearing under the section 06	

**1. Endorsement Application for Qualification 02****2. NATIONAL CERTIFICATE IV IN HEALTH AND SAFETY IN CONSTRUCTION****3. Qualification code:**

CON11SQ2L418

**Total Number of Credits: 192****4. Purpose of the qualification**

This qualification is designed to meet the needs of site managers and supervisors in the building and construction industry. It includes core competency units that cover common skills for the supervisors and managers in ensuring health and safety in the construction industry.

**5. Regulations for the qualification**

National Certificate IV in Health and Safety in Construction Qualification will be awarded to those who are competent in unit  
1+2+3+4+5+6+7+8+9+11+12+13+14+15+16+17+18+19+20+21+22+23

**6. Schedule of Units**

<b>Unit Title</b>	<b>Unit Title</b>	<b>Code</b>
1	Observe personal and workplace hygiene practices	CON11S1U01V1
2	Practice effective workplace communication	CON11S1U02V1
3	Perform computer operations	CON11S1U03V1
4	Promote Team effectiveness	CON11S1U04V1
5	Electrical Safety	CON11S1U05V1
6	Common Electrical Safety Hazards on Construction Sites	CON11S1U06V1
7	Minimizing Electrical Hazards	CON11S1U07V1
8	Materials Handling, Storage, Use and Disposal	CON11S1U08V1
9	Cranes, Derricks, Hoists, Elevators and Conveyors	CON11S1U09V1
10	Hand and Power Tools	CON11S1U10V1
11	Welding and Cutting	CON11S1U11V1
12	Personal Protective and Lifesaving Equipment	CON11S1U12V1

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13	Fire Protection and Prevention	CON11S1U13V1
14	Scaffolding	CON11S1U14V1
15	Excavation	CON11S1U15V1
16	Stairways and ladders	CON11S1U66V1
17	Construction Safety: Planning, Training and Jobsite Inspections	CON11S2U17V1
18	Construction Phase Plan	CON11S2U18V1
19	Leadership in Safety and Health in Construction	CON11S2U19V1
20	Workers Participant	CON11S2U20V1
21	Hazard Identification and Assessment	CON11S2U21V1
22	Hazard Prevention and Control	CON11S2U22V1
23	Supervise Concreting Work	CON11S2U23V1
<b>7. Accreditation requirements</b>	The training and assessment leading to recognition of skills must be undertaken in a real or very closely simulated workplace environment.	
<b>8. Recommended sequencing of units</b>	As appearing under the section 06	

## UNIT DETAILS

Unit Title	Unit Title	Code	Level	No of credits
1	Observe personal and workplace hygiene practices	CON22S1U01V1	3	3
2	Practice effective workplace communication	CON21S1U02V1	3	3
3	Perform computer operations	CON22S1U03V1	3	3
4	Promote Team effectiveness	CON22S1U04V1	3	3
5	Electrical Safety	CON22S1U01V1	3	3
6	Common Electrical Safety Hazards on Construction Sites	CON22S1U02V1	3	3
7	Minimizing Electrical Hazards	CON22S1U03V1	3	3
8	Materials Handling, Storage, Use and Disposal	CON22S1U04V1	3	3
9	Cranes, Derricks, Hoists, Elevators and Conveyors	CON22S1U05V1	3	6
10	Hand and Power Tools	CON22S1U06V1	3	3
11	Welding and Cutting	CON22S1U07V1	3	6
12	Personal Protective and Lifesaving Equipment	CON22S1U08V1	3	6
13	Fire Protection and Prevention	CON22S1U09V1	3	6
14	Scaffolding	CON22S1U10V1	3	6
15	Excavation	CON22S1U11V1	3	6
16	Stairways and ladders	CON22S1U12V1	3	9
17	Construction Safety: Planning, Training and Jobsite Inspections	CON22S2U1V1	4	18
18	Construction Phase Plan	CON22S2U2V1	4	18

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19	Leadership in Safety and Health in Construction	CON22S2U3V1	4	18
20	Workers Participant	CON22S2U4V1	4	15
21	Hazard Identification and Assessment	CON22S2U5V1	4	18
22	Hazard Prevention and Control	CON22S2U6V1	4	18
23	Supervise Concreting Work	CON22S2U7V1	4	15



**Packaging of National Qualifications:**

National Certificate III in Health and Safety in Construction will be awarded to those who are competent in units

1+2+3+4+5+6+7+8+9+10+11+12+14+15+16

Qualification Code:

CON11SQ1L318

National Certificate IV in Health and Safety in Construction will be awarded to those who are competent in units

1+2+3+4+5+6+7+8+9+11+12+13+14+15+16+17+18+19+20

Qualification Code:

CON11SQ2L418

## COMPETENCY STANDARD FOR HEALTH AND SAFETY IN CONSTRUCTION

Unit No	Unit Title
1.	Observe personal and workplace hygiene practices
2.	Practice effective workplace communication
3.	Perform computer operations
4.	Promote team effectiveness
5.	Electrical Safety
6.	Common Electrical Safety Hazards on Construction Sites
7.	Minimizing Electrical Hazards
8.	Materials Handling, Storage, Use and Disposal
9.	Cranes, Derricks, Hoists, Elevators and Conveyors
10.	Hand and Power Tools
11.	Welding and Cutting
12.	Personal Protective and Lifesaving Equipment
13.	Fire Protection and Prevention
14.	Scaffolding
15.	Excavation
16.	Stairways and Ladders
17.	Construction Safety: Planning, Training and Jobsite Inspections
18.	Construction Phase Plan
19.	Leadership in Safety and Health in Construction
20.	Workers Participant
21.	Hazard Identification and Assessment
22.	Hazard Prevention and Control
23.	Supervise Concreting Work

## BRIEF DESCRIPTION

In the recent years, the construction industry has seen a robust expansion towards its growth. A large portion of the construction sector activity consists of public sector infrastructure projects, residential housing and resort development projects.

This unprecedented growth in the industry was driven by a number of factors. They include the launching of large scale public infrastructure projects such as development of Hulhumale', rapid urbanisation, changes to land laws, introduction of housing finance schemes and the massive repair and reconstruction efforts following the 2004 tsunami.

The construction sector is a vital part of the country's economy and it contributes significantly to the GDP. Thus, it plays an important role in delivering the basic infrastructure needed for socio-economic development. In this regard, it covers the construction of roads, highways, harbours, ports, bridges, tunnels and other civil works and also the building of factories, houses, offices, schools and apartments.

The activities in the construction sector are very labour intensive making it a significant contributor to industrial employment in many countries. According to the Household Income and Expenditure Survey 2009/2010, the construction sector employed about 5% of the total local labour force in 2010. Of the total workforce of the construction industry, expatriate employment accounted for 88% in 2010 compared to 75% in 2006. While there has been a slight decline in the number of locals employed in the construction sector between 2006 and 2010, the number of expatriate employment in the sector nearly doubled during this period highlighting the excessive dependence of the sector on expatriate workers. With the large increase in expatriate labour force, the construction sector has also become the single largest employer of the country's expatriate labour force (accounting for 43%). Although most expatriate workers in the construction industry are employed as labourers, a significant portion is also employed under the skilled crafts category, partly reflecting shortages in local craftsman.

Level III standard has been prepared to assist all employers, workers and clients in the construction industry in the Maldives in terms of the required standards that should be followed in our industry. As there is no specific Act towards Occupational Health and Safety in the Maldives still, TIVETA took this initiative to train and build skilled individuals who are competent in preventing and protecting health and safety hazards in construction industry.

Level IV as a **construction site safety manager/supervisor** is an occupational health and safety specialist who designs and implements safety regulations to minimize injuries and accidents on construction sites. He or she also might conduct daily safety audits and inspections to ensure compliance with government regulations.

This is not typically an entry-level position, and individuals will generally need some years of experience working in occupational safety before they can advance to the management level. These safety managers often split their time between offices and construction sites, and they may be required to work irregular hours during emergencies. The job holds the potential for injury, particularly during fieldwork

**UNIT 01**

<b>UNIT TITLE</b>	Observe personal and workplace hygiene practices				
<b>DESCRIPTOR</b>	<p>This unit covers the knowledge, skills and attitudes required to observe workplace hygiene procedures and maintaining of personal presentation and grooming standard.</p> <p>This unit deals with necessary skills and knowledge required for maintaining the hygiene of workers and the hygienic practices that should be applied while on the job.</p>				
<b>CODE</b>	CON11S1U01V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Observe grooming, hygiene and personal presentation standards	1.1. Grooming, hygiene and personal presentation practices maintained at high standards in line with industry norms and procedures 1.2. Adequate level of personal cleanliness observed throughout the work 1.3. Effects of poor personal hygiene understood and avoided in all practices
2. Follow hygiene procedures	2.1. Hygiene procedures followed in line with procedures and legal requirements 2.2. Hygiene standards maintained in line with procedures
3. Identify and avoid hygiene risks	3.1. Hygiene risks understood and avoided in line with general standards and guidelines

**ASSESSMENT GUIDE****Form of assessment**

- Assessment for the unit needs to be holistic and observed during assessment of other units of competency which forms the qualification.
1. Any written or oral examinations may include questions related to hygiene, illness and personal grooming standard.

**Assessment context**

Assessment may be done in workplace or a simulated work environment.

**Critical aspects**

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Maintaining adequate level of all aspects of personal hygiene and cleanliness
- Following cleaning procedures for effective cleaning of work areas
- Immediately reporting any symptoms of illness
- Undertaking routine medical check-ups
- This unit may be assessed in conjunction with all and units which form part of the normal job role

**Assessment conditions**

- Theoretical assessment of this unit must be carried out in an examination room where proper examination rules are followed.
- Assessment of hygienic work practices must be constantly evaluated.

<b>UNDERPINNING KNOWLEDGE</b>	<b>UNDERPINNING SKILLS</b>
<ul style="list-style-type: none"><li>• General knowledge of common terminologies used in hygiene including personal hygiene</li><li>• Knowledge on general symptoms of different types of diseases</li><li>• Detailed knowledge and importance of illness and injury reporting procedures</li></ul>	<ul style="list-style-type: none"><li>• Ability to follow procedures and instructions</li><li>• Competent to work according to relevant hygiene regulations and procedures</li><li>• Competent to work to meet requirements for personnel hygiene and hygienic practices</li><li>• Communication skills</li><li>• Interpersonal skills</li></ul>

**UNIT 02**

<b>UNIT TITLE</b>	Practice effective workplace communication				
<b>DESCRIPTOR</b>	This unit addresses the need for effective communication in the spa environment. It describes the ethics of communication and shows the importance of selecting the best method of communication during various situations. It also identifies the barriers to communication and explains how to overcome them. The unit also describes how to use the telephone; the procedures for answering, transferring and holding calls, making outgoing calls and taking messages. In addition, it also highlights the need for cleaning telephone equipment.				
<b>CODE</b>	CON11S1U02V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Communicate with customers and colleagues	1.1. Proper channels and methods of communication used 1.2. Workplace interactions with customers and colleagues appropriately made 1.3. Appropriate non-verbal communication used 1.4. Appropriate lines of communication followed
2. Participate in workplace meetings and discussions	2.1. Meetings and discussions attended on time 2.2. Procedures to expressing opinions and following instructions clearly followed 2.3. Questions asked and responded to effectively 2.4. Meeting and discussion outcomes interpreted and implemented correctly
3. Handle relevant work-related documentation	3.1. Conditions of employment understood correctly 3.2. Relevant information accessed from appropriate sources

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	<p>3.3. Relevant data on workplace forms and other documents filled correctly</p> <p>3.4. Instructions and guidelines understood and followed properly</p> <p>3.5. Reporting requirements completed properly</p>
4. Handle telephone	<p>4.1. Procedures for taking messages and making outgoing calls followed correctly</p> <p>4.2. Incoming calls answered correctly</p> <p>4.3. Calls put on hold and transferred properly</p> <p>4.4. Outgoing calls made efficiently</p> <p>4.5. Communication in both English and Dhivehi demonstrated correctly</p>

### RANGE STATEMENT

Procedures included:

- Organizational hierarchy and reporting order
- Communications procedures
- Telephone handling procedures

Aspects evaluated:

- Non-verbal communication
- Interpersonal skills
- General attitude to customers, colleagues and work
- Conformity to policies and procedures

**Tools, equipment and material used in this unit may include**

- Telephone
- Note pads
- Pens
- Forms and formats related to inter-personal communication



**Forms of assessment**

Assessment for the unit needs to be continuous and holistic and must include real or simulated workplace activities.

**Assessment context**

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of opportunities for communication.

**Critical aspects (for assessment)**

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of communicating effectively with others involved in or affected by the work. This unit may be assessed in conjunction with all units which form part of the normal job role.

**Assessment conditions**

It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying circumstances.

**Special notes for assessment**

Evidence of performance may be provided by customers, team leaders/members or other persons, subject to agreed authentication arrangements

**Resources required for assessment**

The following should be made available:

- A workplace or simulated workplace
- Materials and equipment

UNDERPINNING KNOWLEDGE	UNDERPINNING SKILLS
<ul style="list-style-type: none"> <li>• General knowledge of English and Divehi grammar</li> <li>• General knowledge of common telephone equipment</li> <li>• General knowledge on effective communication</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake effective customer relation communications</li> <li>• Competent in communicating basic with customers</li> <li>• Fluency in English and Dhivehi language usage</li> </ul>

**UNIT 03**

<b>UNIT TITLE</b>	Perform computer operations				
<b>DESCRIPTOR</b>	This unit covers the knowledge, skills and attitudes and values needed to perform computer operations that include inputting, accessing, producing and transferring data using the appropriate hardware and software.				
<b>CODE</b>	CON11S1U03V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Input data into computer	1.1. Data entered into the computer using appropriate program/application in accordance with company procedures 1.2. Accuracy of information checked and information saved in accordance with standard operating procedures 1.3. Input data stored in storage media according to requirements
2. Access information using computer	2.1. Correct program/application selected based on job requirement 2.2. Program/application containing the information required accessed according to company procedures 2.3. Desktop icons correctly selected, opened and closed for navigation purposes
3. Produce/output data using computer system	3.1. Entered/stored data processed using appropriate software commands 3.2. Data printed out as required using computer

	<p>hardware/peripheral devices in accordance with standard operating procedures</p> <p>3.3. Files and data transferred between compatible systems using computer software, hardware/ peripheral devices in accordance with standard operating procedures</p>
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**RANGE STATEMENT**

This unit covers computer hardware to include personal computers used independently or within networks, related peripherals, such as printers, scanners, keyboard and mouse, and storage media such as disk drives and other forms of storage. Software used must include but not limited to word processing, spreadsheets, database and billing software packages and Internet browsing software.

**Tools, equipment and materials required may include:**

- Storage device
- Different software and hardware
- Personal computers system
- Laptop computer
- Printers
- Scanner
- Keyboard
- Mouse
- Disk drive /CDs, DVDs, compressed storage device

**ASSESSMENT GUIDE**

**Forms of assessment**

The assessor may select two of the following assessment methods to objectively assess the candidate:

- Observation
- Questioning
- Practical demonstration

**Assessment context**

Assessment may be conducted out of the workplace preferably in a computer classroom

**Critical aspects (for assessment)**

Assessment must show that the candidate:

- Selected and used hardware components correctly and according to the task requirement

- Identified and explain the functions of both hardware and software used, their general features and capabilities
- Produced accurate and complete data in accordance with the requirements
- Used appropriate devices and procedures to transfer files/data accurately

**Assessment conditions**

Assessment may be conducted out of the work environment and may include assignments and projects.

**Special notes for assessment**

During the assessment the trainees shall:

- Carry out all the tasks according to the industry and organizational policies and procedures
- Meet the performance criteria of all competence
- Demonstrate accepted level of performance determined by the assessors

**Resources required for assessment**

Computer hardware with peripherals and appropriate software

**UNIT 04**

<b>UNIT TITLE</b>	Promote team effectiveness				
<b>DESCRIPTOR</b>	This unit describes the performance outcomes, skills and knowledge required to promote teamwork. It involves developing team plans to meet expected outcomes, leading the work team, and proactively working with the management of the organisation.				
<b>CODE</b>	CON11S1U04V1	<b>LEVEL</b>	4	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Plan to achieve team outcomes	<p>1.1. Identify, establish and document team purpose, roles, responsibilities, goals, plans and objectives in consultation with team members</p> <p>1.2. Support team members in meeting expected outcomes</p>
2. Develop team cohesion	<p>2.1. Provide opportunities for input of team members into planning, decision making and operational aspects of work team</p> <p>2.2. Encourage and support team members to take responsibility for own work and to assist each other in undertaking required roles and responsibilities</p> <p>2.3. Provide feedback to team members to encourage, value and reward individual and team efforts and contributions</p> <p>2.4. Recognise and address issues, concerns and problems identified by team members or refer to relevant persons as required</p>
3. Participate in and facilitate work team	<p>3.1. Actively encourage team members to participate in and take responsibility for team activities and communication processes</p>

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	<p>3.2. Give the team support to identify and resolve problems which impede its performance</p> <p>3.3. Ensure own contribution to work team serves as a role model for others and enhances the organisation's image within the work team, the organisation and with clients/customers</p>
4. Liaise with management	<p>4.1. Maintain open communication with line manager/management at all times</p> <p>4.2. Communicate information from line manager/management to the team</p> <p>4.3. Communicate unresolved issues, concerns and problems raised by the team/team members to line manager/management and ensure follow-up action is taken</p> <p>4.4. Communicate unresolved issues, concerns and problems related to the team/team members raised by line managers/management to the team and ensure follow-up to action is taken</p>

### RANGE STATEMENT

Team purpose, roles, responsibilities, goals, plans and objectives

- action plans, business plans and operational plans linked to strategic plans
- expected outcomes and outputs
- goals for individuals and the work team
- individual and team performance plans and key performance indicators
- occupational health and safety (OHS) responsibilities

Consultation

- attending meetings, interviews, brainstorming sessions

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- using email/intranet communications, newsletters or other processes and devices which ensure that all employees have the opportunity to contribute to team and individual effectiveness
- using mechanisms to provide feedback to the work team in relation to consultation outcomes

### Responsibility for own work

- individual and joint actions
- individuals and teams

### Feedback

- formal/informal gatherings between team members where there is communication on work related matters
- informal communication of ideas and thoughts on specific tasks, outcomes, decisions, issues or behaviours

## **ASSESSMENT GUIDE**

### **Assessment form**

Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended

### **Critical aspects of assessment**

Evidence of the following is essential:

- teamwork plan with details of how it was generated and how it will be monitored so that team goals can be met
- techniques in communicating information, dealing with team conflict and resolving issues
- knowledge of organisational goals, objectives and plans.

### **Assessment context**

Assessment must ensure:

- access to appropriate documentation and resources normally used in the workplace.

### **Assessment method**

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- analysis of responses to case studies and scenarios
- direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance by the candidate
- observation of demonstrated techniques in working with team dynamics
- observation of performance in role plays

or written questioning to assess knowledge of principles and techniques associated with group dynamics and processes

- evaluation of opportunities provided for input of team members into planning, decision making and operational aspects of work team
- review of feedback provided to team members
- review of teamwork plan.

<b>UNDERPINNING KNOWLEDGE</b>	<b>UNDERPINNING SKILLS</b>
organisational goals, objectives and plans organisational policy and procedures framework principles and techniques associated with: <ul style="list-style-type: none"> <li>• delegation and work allocation</li> <li>• goal setting</li> <li>• group dynamics and processes</li> <li>• individual behaviour and difference</li> <li>• leadership</li> <li>• motivation</li> <li>• negotiation</li> <li>• planning.</li> </ul>	communication skills to: <ul style="list-style-type: none"> <li>• boost team morale</li> <li>• deal with team conflict</li> <li>• deliver messages from management</li> <li>• facilitate discussion</li> <li>• mentor and coach</li> </ul> leadership skills planning and organising skills.



**UNIT 05**

<b>UNIT TITLE</b>	<b>Electrical Safety</b>				
<b>DESCRIPTOR</b>	This unit covers the range of knowledge and skills that construction workers needs to be aware and equipped in order to develop understanding of the risks, trained and competent to carry out electrical work safely and handle electrical equipment safely in a construction site.				
<b>CODE</b>	CON11S1U05V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Key Things to Consider Prior to Working on a Construction Site	1.1. Risk assessment: Identify all of the potential electrical hazards 1.2. Ensure that suitable control measure are in place to prevent them from causing harm to workers 1.3. Make sure to familiarise with the hazards to look out for.
2. Electrical Services Maps	2.1. Obtain up-to date maps from the local council that detail where any potentially hazardous wires, cables or electrical equipment are located within (or near to) the construction site 2.2. Ensure workers have familiarized yourself with these maps (if any) before beginning work
3. Safe System of Work	3.1. Be fully trained and competent to carry out the work safely 3.2. Set out a safe system of work (SSoW) which specifies the competence, skills and knowledge required to do the task 3.3. Ensure that workers read the SSoW document carefully and have taken on board all information and/or training provided by the employer

## **RANGE STATEMENT**

- Procedures included:
- Risk assessment to identify potential electrical hazards
- Obtain Electrical maps and familiarize with these maps
- Set out a safe system of work and familiarize with it lasers

### ***Tools, equipment and materials required may include:***

- Safe System Work Document

### ***Assessment guide***

#### ***Form of assessment***

Assessment for the unit needs to be holistic and observed in safety and health regulation simulated construction environment

- Any written or oral examinations may include questions related to key things to be considered in setting a safe system of work document.

#### ***Assessment context***

- Assessment may be done in workplace or a simulated work environment.

#### ***Critical aspects***

- It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:
- Ensure that suitable control measure is in place to prevent them from causing harm to workers
- Ensure that workers read the SSoW document carefully and have taken on board all information and/or training provided by the employer

#### ***Critical aspects of assessment***

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- comply with organisational quality procedures and processes
- apply and interpret relevant documentation and codes
- accurately apply national OHS requirements relating to construction workplace
- identify faults and problems impacting on OHS and proposed action to rectify.

<b>UNDERPINNING KNOWLEDGE</b>	<b>UNDERPINNING SKILLS</b>
<ul style="list-style-type: none"><li>• General knowledge of potential electrical hazards in a construction site</li><li>• General knowledge of electrical service maps</li></ul>	<ul style="list-style-type: none"><li>• Able to carry out a risk assessment to identify potential electrical hazards in a construction site</li><li>• Ability to set out Safe System of Work which specifies the competence, skills and knowledge required to do this task.</li></ul>

**UNIT 06**

<b>UNIT TITLE</b>	<b>Common Electrical Safety Hazards on Construction Sites</b>				
<b>DESCRIPTOR</b>	This unit describes the common electrical safety hazards on construction sites and how to be competed to identify these hazards. It also describes the knowledge and skills required to be aware of these risks and work safely with these hazards				
<b>CODE</b>	CON11S1U06V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Overhead power lines	<p>1.1. Be aware of the risk assessment of the working place</p> <p>1.2. When operating machinery or vehicles be cautious not to get too close to power lines then electricity will be conducted through them – as well as through anyone using or touching the equipment at the time.</p> <p>1.3. If working near power lines consult local electricity company how to to proceed safely.</p> <p>1.4. Ask the local electricity company if power lines can be switched off before work begins.</p> <p>1.5. Always assume that power lines pose a risk, never being complacent.</p>
2. Underground power cables.	<p>2.1. Underground power cables can be more hazardous than overhead ones as they are hidden from view and you may not know about them until it's too late. It's also impossible to tell by sight whether these cables are live when they are uncovered. Care needs to be</p>

	<p>taken when carrying out digging tasks on all construction sites, particularly if working on streets, pavements or near buildings.</p> <p>2.2. If need to carry out work near underground power cables then consult the local electricity company, highways authority and council for up-to-date maps of buried services</p> <p>2.3. Use suitable cable-avoidance tools</p> <p>2.4. Follow safe digging practices</p> <p>2.5. Always assume that cables will be present before beginning any sort of digging work.</p>
3. Electrical equipment and/or machinery	<p>3.1. Be trained and competent to operate electrical equipment.</p> <p>3.2. Carry out a quick visual inspection before use of electrical equipment.</p> <p>3.3. Use residual current devices where appropriate.</p> <p>3.4. Ensure that isolation devices work correctly.</p> <p>3.5. Reduce the supply voltage where possible.</p> <p>3.6. Always turn the equipment off when not in use.</p> <p>3.7. Never use electrical equipment that is showing signs of damage</p>
4. Personal Protective Equipment.	<p>4.1. Use specialist protective clothing when working with electricity</p> <p>4.2. Electrical equipment should only be used as a last resort</p> <p>4.3. Make sure the protective clothing u wear fits properly</p>

	<p>4.4. Make sure the protective clothing is worn properly and at all times and is kept in good condition</p> <p>4.5. Examples of personal protective equipment that can be used around electricity include:</p> <ul style="list-style-type: none"> <li>- Safety glasses or a face shield</li> <li>- Insulating gloves.</li> <li>- Insulating or anti-static boots.</li> <li>- A helmet with or without a face shield.</li> <li>- A flash protection kit</li> </ul>
<p>5. Electrical Safety Signs on Construction Sites</p>	<p>5.1. Use electrical safety signs to alert of any potentially high voltages</p> <p>5.2. Mount/put electrical safety signs which is clearly visible.</p> <p>5.3. Example of electrical safety signs:</p> <ul style="list-style-type: none"> <li>• Voltage warning labels</li> <li>• Electrical voltage symbol</li> <li>• Danger of death from electricity</li> <li>• Switch off when not in use</li> <li>• Electric shock warning</li> <li>• High Voltage warning</li> <li>• Overhead cables warning</li> <li>• Live wires warning</li> <li>• Buried cables warning</li> <li>• Mains voltage warning</li> <li>• Danger do not enter sign</li> <li>• Warning to isolate before removing cover.</li> </ul>

### ***Range Statement***

Procedures included:

- Safe working procedures to follow while working near overhead power lines
- Risk assessment of the working place
- Operating machinery or vehicles near overhead power lines
- Safe working procedures to follow while working near underground power cables
- Measures to be taken when carrying out digging tasks on all construction sites, particularly if working on streets, pavements or near buildings.
- Follow and use Electrical Safety Signs on Construction Sites

### ***Tools, equipment and materials required may include:***

- Electric hand tools
- Vibrators
- Pumps
- Compactors
- Rollers
- Concrete mixers
- Hand pumps for ready-mix concrete

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application
- Handling electrical equipment considering safety measures

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Carry out construction work in an area near overhead powerlines while following necessary safety procedures
- Locate underground cables and apply relevant safety procedures while carrying out digging and excavating work.
- Carry visual inspection and reduce the supply voltage where possible when using and handling electrical equipment and machinery in construction work.

- Protective clothing is worn properly and at all times and is kept in good condition and use personal protective equipment around electricity

***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- Personal protective equipment that can be used around electricity

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of the risk assessment of the working place</li><li>• General knowledge of safe working procedures while working near overhead powerlines</li><li>• General knowledge of safe working procedures while working near overhead powerlines</li><li>• General knowledge of safe procedures to follow while working near underground power cables</li><li>• General knowledge of using suitable cable-avoidance tools</li><li>• General knowledge of safe digging practices</li><li>• General knowledge of safe procedures to follow while using and handling electrical equipment and machinery in construction work</li><li>• General knowledge of proper use of personal protective equipment</li><li>• General knowledge of interpreting and following the electrical safety signs on construction sites.</li><li>•</li></ul>	<ul style="list-style-type: none"><li>• Undertake safe manual handling jobs</li><li>• Competent to follow safety regulations while working near overhead power lines and underground power cables</li><li>• Competent to work safely with workplace equipment's, materials and colleagues</li></ul>



## UNIT 07

<b>UNIT TITLE</b>	<b>Minimizing Electrical Hazards</b>				
<b>DESCRIPTOR</b>	This unit describes the skills and knowledge required to minimize electrical hazard when using electrical appliances in an construction site.				
<b>CODE</b>	CON11S1U07V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Faulty or defective equipment	1.1. Ensure electrical equipment are well installed and maintained 1.2. Ensure non-faulty wiring 1.3. Check for overloaded, overheated or shorted outlets 1.4. Prevent using flexible leads and extension cables that are prone to damage 1.5. Make sure that equipment is dead to prevent using equipment that is believed to be dead but is live 1.6. Prevent using incorrect use of replacement fuses 1.7. Do not use electrical equipment near a source of water or with wet hands
2. Installing and Maintaining Safe Equipment	2.1. Ensure that all electrical equipment selected for workers is safe for work activities and for their intended purpose 2.2. Ensure that all electrical equipment has gone through the necessary checks before being brought onto the premises. 2.3. Arrange for equipment to be regularly inspected for faults, to be isolated immediately if faults

	<p>are discovered, and to be repaired by a suitably trained person.</p> <p>2.4. Prevent all live parts of electrical equipment from being accessed during normal operation.</p> <p>2.5. Provide all employees with information and training on electrical safety and the correct use of electrical equipment.</p>
<p>3. Awareness of Electrical Hazards</p>	<p>3.1. Identify office hazards that may lead to electricity related accidents:</p> <p>3.2. Electrical cables that are frayed, loose, or have exposed wires.</p> <p>3.3. Rattling plugs.</p> <p>3.4. Electrical equipment that gives off a strange odour.</p> <p>3.5. Overheating equipment (those that are not heated by normal operation).</p> <p>3.6. Overloaded outlets or extension cords.</p> <p>3.7. Equipment that is not working properly.</p> <p>3.8. Remove any faulty equipment, wiring, plugs, etc. from the premises immediately and report to your supervisor or whoever is in charge.</p> <p>3.9. Do not overload outlets</p> <p>3.10. To prevent overloading outlet:</p> <p>3.11. take action to plug equipment elsewhere or tell the competent person, who should take action and minimise the need for overloading them.</p>

	3.12. Have a licensed electrician install additional outlets where overloading existing ones
4. Minimizing Electrical Hazard	<p>4.1. Switch off and unplug appliances when they are not in use and before cleaning</p> <p>4.2. Turn off all appliances at the end of the day</p> <p>4.3. Do not force a plug into an outlet if it does not fit.</p> <p>4.4. Do not run electrical cords through high-traffic areas, under carpets, or across doorways – this will prevent cords from being worn down and minimizes accidents</p> <p>4.5. Maintain at least 3 feet of clearance in front of all electrical panels.</p>

### ***Range Statement***

- Ensuring that all electrical equipment selected for workers is safe for work activities and for their intended purpose
- Ensure that all electrical equipment has gone through the necessary checks before being brought onto the premises.
- Identify office hazards that may lead to electricity related accidents
- Safety check procedures in minimizing electrical hazard

### ***Tools, equipment and materials required may include:***

- Electrical equipment used in construction

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application
- Handling electrical equipment and minimizing electrical hazards

### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Carry out electrical installing and maintaining procedures
- Prevent using incorrect use of replacement fuses
- Identify and isolate electrical equipment if faults are discovered
- Identify office hazards that may lead to electricity related accidents
- Take general measures to minimize electrical hazards

***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- persona protective equipment that can be used around electricity

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of installing and maintaining electrical equipment</li><li>• General knowledge of identifying defective equipment</li><li>• General knowledge of preventing overloading outlet</li><li>• General knowledge of do's and don'ts in minimizing electrical hazard</li></ul>	<ul style="list-style-type: none"><li>• Able to identify faults in electrical equipment/defective equipment</li><li>• Able to conduct non-faulty wiring</li><li>• Inspection skill to inspect electrical equipment</li><li>• Effective communication skill to communicate with employees regarding electrical safety and the correct use of electrical equipment.</li><li>• Able to identify and take preventive measures to prevent electricity related accidents</li></ul>

**UNIT 08**

<b>UNIT TITLE</b>	<b>Materials Handling, Storage, Use and Disposal</b>				
<b>DESCRIPTOR</b>	The efficient handling and storing of materials are vital to industry. In addition to raw materials, these operations provide a continuous flow of parts and assemblies through the workplace and ensure that materials are available when needed. This unit describes things to consider and properly handle and store material to prevent costly injuries.				
<b>CODE</b>	CON11S1U08V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Precautions When Moving Materials Manually	<p>1.1. When moving materials manually, workers should attach handles or holders to loads. In addition, workers should always wear appropriate personal protective equipment and use proper lifting techniques</p> <p>1.2. Seek help when load is so bulky that employees cannot properly grasp or lift it</p> <p>1.3. Seek help employees cannot see around or over a load, or Employees cannot safely handle a load</p> <p>1.4. Use personal protective equipment to needless injuries when manually moving materials such as</p> <p>1.5. hand and forearm protection, such as gloves, for loads with sharp or rough edges</p> <p>1.6. Use eye protection</p> <p>1.7. Use steel -toed safety shoes or boots</p> <p>1.8. Use metal, fiber, or plastic metatarsal guards to protect the instep area from impact or compression</p>

	<p>1.9. Use blocking materials to manage loads safely. Also be cautious when placing blocks under a raised load to ensure that the load is not released before removing their hands from under the load</p> <p>1.10. Ensure that blocking materials and timbers are large and strong enough to support the load safely</p> <p>1.11. Prevent using materials with rounded corners, splintered pieces, or dry rot for blocking.</p>
<p>2. Precautions When Moving Materials Manually Using Equipment</p>	<p>2.1. be aware of both manual handling safety concerns and safe equipment operating techniques</p> <p>2.2. avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used</p> <p>2.3. ensure that the equipment-rated capacity is displayed on each piece of equipment and is not exceeded except for load testing.</p> <p>2.4. When picking up items with a powered industrial truck, workers must do the following:</p> <p>2.5. Center the load on the forks as close to the mast as possible to minimize the potential for the truck tipping or the load falling,</p> <p>2.6. Avoid overloading a lift truck because it impairs control and causes tipping over,</p>

	<ul style="list-style-type: none"> <li>2.7. Do not place extra weight on the rear of a counterbalanced forklift to allow an overload,</li> <li>2.8. Adjust the load to the lowest position when traveling,</li> <li>2.9. Follow the truck manufacturer's operational requirements, and</li> <li>2.10. Pile and cross-tier all stacked loads correctly when possible.</li> </ul>
<p>3. Precautions to Avoid Storage Hazards</p>	<ul style="list-style-type: none"> <li>3.1. Stored materials must not create a hazard for employees. Employers should make workers aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored when stacking and piling materials.</li> <li>3.2. Keep storage areas free from accumulated materials that cause tripping, fires, or explosions, or that may contribute to the harboring of rats and other pests</li> <li>3.3. Place stored materials inside buildings that are under construction and at least 6 feet from hoist ways, or inside floor openings and at least 10 feet away from exterior walls</li> <li>3.4. Separate noncompatible material; and</li> <li>3.5. Equip employees who work on stored grain in silos, hoppers, or tanks, with lifelines and safety belts.</li> </ul>

	<p>3.6. Should consider placing bound material on racks, and secure it by stacking, blocking, or interlocking to prevent it from sliding, falling, or collapsing.</p>
<p>4. Safeguards to Follow When Stacking Materials.</p>	<p>4.1. Stacking materials can be dangerous if workers do not follow safety guidelines. Falling materials and collapsing loads can crush or pin workers, causing injuries or death. To help prevent injuries when stacking materials, workers must do the following</p> <p>4.2. Stack lumber no more than 16 feet high if it is handled manually, and no more than 20 feet if using a forklift</p> <p>4.3. Remove all nails from used lumber before stacking</p> <p>4.4. Stack and level lumber on solidly supported bracing</p> <p>4.5. Ensure that stacks are stable and self-supporting</p> <p>4.6. Do not store pipes and bars in racks that face main aisles to avoid creating a hazard to passersby when removing supplies</p> <p>4.7. stack bags and bundles in interlocking rows to keep them secure; and</p> <p>4.8. stack bagged material by stepping back the layers and cross-keying the bags at least every ten layers (to remove bags from the stack, start from the top row first).</p>



	<ul style="list-style-type: none"><li>4.9. During materials stacking activities, workers must also do the following</li><li>4.10. Store baled paper and rags inside a building no closer than 18 inches to the walls, partitions, or sprinkler heads</li><li>4.11. Band boxed materials or secure them with cross-ties or shrink plastic fiber</li><li>4.12. Stack drums, barrels, and kegs symmetrically</li><li>4.13. Block the bottom tiers of drums, barrels, and kegs to keep them from rolling if stored on their sides</li><li>4.14. Place planks, sheets of plywood dunnage, or pallets between each tier of drums, barrels, and kegs to make a firm, flat, stacking surface when stacking on end</li><li>4.15. Check the bottom tier of drums, barrels, and kegs on each side to prevent shifting in either direction when stacking two or more tiers high; and</li><li>4.16. Stack and block poles as well as structural steel, bar stock, and other cylindrical materials to prevent spreading or tilting unless they are in racks</li><li>4.17. In addition, workers should do the following</li><li>4.18. Paint walls or posts with stripes to indicate maximum stacking heights for quick reference</li><li>4.19. Observe height limitations when stacking materials</li></ul>
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	4.20. Consider the need for availability of the material; and 4.21. Consider the need for availability of the material; and
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### ***Range Statement***

- Precautions in moving materials manually such as attaching handles or holders to loads wearing appropriate personal protective equipment and use proper lifting techniques
- Use blocking materials to manage loads safely
- aware of both manual handling safety concerns and safe equipment operating techniques
- Follow the do's and don'ts when picking up items with a powered industrial truck
- Keep storage areas free from accumulated materials that cause tripping, fires, or explosions, or that may contribute to the harboring of rats and other pests

Procedures and guidelines:

- Stacking lumber
- Storing pipes and bars
- Stacking bagged materials
- Stacking drums and barrels

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Carry out stacking procedures focusing on what precautions to take when moving materials manually such as
- Seeking help when load is so bulky that employees cannot properly grasp or lift it
- Use required and appropriate personal protective equipment when moving material manually

blocking material and ensure that blocking materials and timbers are large and strong enough to support the load safely

- avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used
- When picking up items with a powered industrial truck avoid overloading a lift truck because it impairs control and causes tipping over
- When storing materials be aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored when stacking and piling materials
- When stacking materials stack the materials observe height limitations when stacking materials, consider the need for availability of the material; and consider the need for availability of the material

### ***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment that can be used around electricity
- Equipment (truck/ forklift) used to load and lift materials
- Stacking materials such as lumber, bagged materials, pipes

### ***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of installing and maintaining electrical equipment</li> <li>• General knowledge of identifying defective equipment</li> <li>• General knowledge of preventing overloading outlet</li> <li>• General knowledge of do's and don'ts in minimizing electrical hazard</li> </ul>	<ul style="list-style-type: none"> <li>• Able to identify faults in electrical equipment/defective equipment</li> <li>• Able to conduct non-faulty wiring</li> <li>• Inspection skill to inspect electrical equipment</li> <li>• Effective communication skill to communicate with employees regarding electrical safety and the correct use of electrical equipment.</li> <li>• Able to identify and take preventive measures to prevent electricity related accidents</li> </ul>

**UNIT 09**

<b>UNIT TITLE</b>	<b>Cranes, Derricks, Hoists, Elevators and Conveyors</b>				
<b>DESCRIPTOR</b>	<p>This unit of competency specifies the outcomes required to procure the physical and human resources necessary to ensure the development of on-site facilities and the availability of personnel, plant and equipment, materials and other site-essential items for construction projects.</p> <p>Knowledge of physical resource acquisition and supply processes, and identification and procurement of suitable labour through the organisation's own employees and/or subcontractors is essential.</p>				
<b>CODE</b>	CON11S1U09V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
<p>1. Safety Measures to Take Using Conveyors</p>	<p>1.1 using conveyors, workers may get their hands caught in nip points where the conveyor medium runs near the frame or over support members or rollers. Workers also may be struck by material falling off the conveyor, or they may get caught in the conveyor and drawn into the conveyor path as a result. To prevent or reduce the severity of an injury, employers must take the following precautions to protect workers</p> <p>1.2 Install an emergency button or pull cord designed to stop the conveyor at the employee's work station</p> <p>1.3 Install emergency stop cables that extend the entire length of continuously accessible conveyor belts so that the cables can be accessed from any location along the conveyor</p> <p>1.4 Design the emergency stop switch so that it must be reset before the conveyor can be restarted</p>

	<p>1.5 Ensure that appropriate personnel inspect the conveyor and clear the stoppage before restarting a conveyor that has stopped due to an overload</p> <p>1.6 Prohibit employees from riding on a materials-handling conveyor.</p> <p>1.7 Provide guards where conveyors pass over work areas or aisles to keep employees from being struck by falling material. (If the crossover is low enough for workers to run into it, mark the guard with a warning sign or paint it a bright color to protect employees.)</p> <p>1.8 Cover screw conveyors completely except at loading and discharging points. (At those points, guards must protect employees against contacting the moving screw. The guards are movable, and they must be interlocked to prevent conveyor movement when the guards are not in place.)</p>
<p>2. Safety Measures to Take Regarding Cranes</p>	<p>2.1. permit only thoroughly trained and competent workers to operate cranes.</p> <p>2.2. Operators should know what they are lifting and what it weighs. For example, the rated capacity of mobile cranes varies with the length of the boom and the boom radius. When a crane has a telescoping boom, a load may be safe to lift at a short boom length or a short boom radius, but may overload the crane when the boom is extended and the radius increases.</p>

	<p>2.3. To reduce the severity of an injury, employers must take the following precautions</p> <ul style="list-style-type: none"><li>- Equip all cranes that have adjustable booms with boom angle indicators</li><li>- Provide cranes with telescoping booms with some means to determine boom lengths unless the load rating is independent of the boom length</li><li>- Post load rating charts in the cab of cab-operated cranes. (All cranes do not have uniform capacities for the same boom length and radius in all directions around the chassis of the vehicle.)</li></ul> <p>2.4. Require workers to always check the crane's load chart to ensure that the crane will not be overloaded by operating conditions</p> <p>2.5. plan lifts before starting them to ensure that they are safe</p> <p>2.6. Tell workers to take additional precautions and exercise extra care when operating around power lines</p> <p>2.7. Teach workers that outriggers on mobile cranes must rest on firm ground, on timbers, or be sufficiently cribbed to spread the weight of the crane pad sharp edges of loads to prevent cutting slings and the load over a large enough area. (Some mobile cranes cannot operate with outriggers in the traveling position.)</p>
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	<p>2.8. Direct workers to always keep hoisting chains and ropes free of kinks or twists and never wrapped around a load</p> <p>2.9. Train workers to attach loads to the load hook by slings, fixtures, and other devices that have the capacity to support the load on the hook</p> <p>2.10. Instruct workers to</p> <p>2.11. Teach workers to maintain proper sling angles so that slings are not loaded in excess of their capacity.</p> <p>2.12. Ensure that all cranes are inspected frequently by persons thoroughly familiar with the crane, the methods of inspecting the crane, and what can make the crane unserviceable. Crane activity, the severity of use, and environmental conditions should determine inspection schedules</p> <p>2.13. Ensure that the critical parts of a crane—such as crane operating mechanisms, hooks, air, or hydraulic system components and other load-carrying components—are inspected daily for any maladjustment, deterioration, leakage, deformation, or other damage.</p>
<p>3. Safe Use of Slings.</p>	<p>3.1. Conduct inspections of slings before and during use, especially when service conditions warrant</p> <p>3.2. Remove immediately damaged or defective slings from service</p>

	<ul style="list-style-type: none"> <li>3.3. Do not shorten slings with knots or bolts or other makeshift devices</li> <li>3.4. Do not kink sling legs</li> <li>3.5. Do not load slings beyond their rated capacity</li> <li>3.6. Keep suspended loads clear of all obstructions</li> <li>3.7. Remain clear of loads about to be lifted and suspended</li> <li>3.8. Do not engage in shock loading.</li> <li>3.9. Avoid sudden crane acceleration and deceleration when moving suspended loads.</li> </ul>
<p>4. Safety precautions when operating or maintaining powered industrial trucks.</p>	<ul style="list-style-type: none"> <li>4.1. Fit high-lift rider trucks with an overhead guard if permitted by operating conditions.</li> <li>4.2. Equip fork trucks with vertical load backrest extensions according to manufacturers' specifications if the load presents a hazard.</li> <li>4.3. Locate battery-charging installations in designated areas.</li> <li>4.4. Provide facilities for flushing and neutralizing spilled electrolytes when changing or recharging batteries to prevent fires, to protect the charging apparatus from being damaged by the trucks, and to adequately ventilate fumes in the charging area from gassing batteries.</li> <li>4.5. Provide conveyor, overhead hoist, or equivalent materials handling equipment for handling batteries.</li> <li>4.6. Provide auxiliary directional lighting on the truck where</li> </ul>



	<p>general lighting is less than 2 lumens per square foot.</p> <p>4.7. Do not place arms and legs between the uprights of the mast or outside the running lines of the truck.</p> <p>4.8. Set brakes and put other adequate protection in place to prevent movement of trucks, trailers, or railroad cars when using powered industrial trucks to load or unload materials onto them.</p> <p>4.9. Provide sufficient headroom under overhead installations, lights, pipes, and sprinkler systems.</p> <p>4.10. Provide personnel on the loading platform with the means to shut off power to the truck whenever a truck is equipped with vertical only (or vertical and horizontal) controls elevatable with the lifting carriage or forks for lifting personnel.</p> <p>4.11. Secure dock boards or bridge plates properly so they won't move when equipment moves over them.</p> <p>4.12. Handle only stable or safely arranged loads.</p> <p>4.13. Exercise caution when handling tools.</p> <p>4.14. Disconnect batteries before repairing electrical systems on trucks.</p> <p>4.15. Ensure that replacement parts on industrial trucks are equivalent to the original ones.</p>
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### ***Range Statement***

- Using conveyors take safety measures such as installing an emergency button or pull cord designed to stop the conveyor at the employee's work station
- installing emergency stop cables that extend the entire length of continuously accessible conveyor belts so that the cables can be accessed from any location along the conveyor
- Equip all cranes that have adjustable booms with boom angle indicators
- Provide guards where conveyors pass over work areas or aisles to keep employees from being struck by falling material.
- Equip all cranes that have adjustable booms with boom angle indicators
- Provide cranes with telescoping booms with some means to determine boom lengths unless the load rating is independent of the boom length
- Post load rating charts in the cab of cab-operated cranes
- pad sharp edges of loads to prevent cutting slings
- Remove immediately damaged or defective slings from service
- Do not shorten slings with knots or bolts or other makeshift devices
- Do not kink sling legs
- Do not load slings beyond their rated capacity
- Keep suspended loads clear of all obstructions
- Fit high-lift rider trucks with an overhead guard if permitted by operating conditions.
- Equip fork trucks with vertical load backrest extensions according to manufacturers' specifications if the load presents a hazard

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Carry out stacking procedures focusing on what precautions to take when moving materials manually such as
- Seeking help when load is so bulky that employees cannot properly grasp or lift it
- Use required and appropriate personal protective equipment when moving material manually
- Use blocking material and ensure that blocking materials and timbers are large and strong enough to support the load safely
- avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used
- When picking up items with a powered industrial truck avoid overloading a lift truck because it impairs control and causes tipping over

## HEALTH AND SAFETY IN CONSTRUCTION

- When storing materials be aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored when stacking and piling materials
- When stacking materials stack the materials observe height limitations when stacking materials, consider the need for availability of the material; and consider the need for availability of the material

### ***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment that can be used around electricity
- Equipment (truck/ forklift) used to load and lift materials
- Stacking materials such as lumber, bagged materials, pipes

### ***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of installing and maintaining electrical equipment</li><li>• General knowledge of identifying defective equipment</li><li>• General knowledge of preventing overloading outlet</li><li>• General knowledge of do's and don'ts in minimizing electrical hazard</li></ul>	<ul style="list-style-type: none"><li>• Able to identify faults in electrical equipment/defective equipment</li><li>• Able to conduct non-faulty wiring</li><li>• Inspection skill to inspect electrical equipment</li><li>• Effective communication skill to communicate with employees regarding electrical safety and the correct use of electrical equipment.</li><li>• Able to identify and take preventive measures to prevent electricity related accidents</li></ul>

**UNIT 10**

<b>UNIT TITLE</b>	<b>Hand and Power Tools</b>				
<b>DESCRIPTOR</b>	Employees who use hand and power tools and are exposed to the hazards of falling, flying, abrasive, and splashing objects, or to harmful dusts, fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment. All electrical connections for these tools must be suitable for the type of tool and the working conditions (wet, dusty, flammable vapors). When a temporary power source is used for construction a ground-fault circuit interrupter should be used. This unit is designed to present to employees and employers a summary of the basic safety procedures and safeguards associated with hand and portable power tools				
<b>CODE</b>	CON11S1U10V1	<b>LEVEL</b>	3	<b>CREDIT</b>	3

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Hazards of Hand Tools	<p>1.1. Hand tools are tools that are powered manually. Hand tools include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance. Some examples include the following:</p> <ul style="list-style-type: none"> <li>- If a chisel is used as a screwdriver, the tip of the chisel may break and fly off, hitting the user or other employees</li> <li>- If a wooden handle on a tool, such as a hammer or an axe, is loose, splintered, or cracked, the head of the tool may fly off and strike the user or other employees.</li> <li>- If the jaws of a wrench are sprung, the wrench might slip</li> <li>- If impact tools such as chisels, wedges, or drift pins have mushroomed heads, the heads</li> </ul>

	<p>might shatter on impact, sending sharp fragments flying toward the user or other employees</p> <p>1.2. Wrenches must not be used when jaws are sprung to the point that slippage occurs. Impact tools such as drift pins, wedges, and chisels must be kept free of mushroomed heads.</p>
<p>2. Dangers of Power Tools</p>	<p>2.1. Appropriate personal protective equipment such as safety goggles and gloves must be worn to protect against hazards that may be encountered while using hand tools</p> <p>2.2. Workplace floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools</p> <p>2.3. Power tools must be fitted with guards and safety switches; they are extremely hazardous when used improperly. The types of power tools are determined by their power source: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated</p> <p>2.4. To prevent hazards associated with the use of power tools, workers should observe the following general precautions</p> <p>2.5. Never carry a tool by the cord or hose</p> <p>2.6. Never yank the cord or the hose to disconnect it from the receptacle</p> <p>2.7. Keep cords and hoses away from heat, oil, and sharp edges</p> <p>2.8. Disconnect tools when not using them, before servicing and</p>

	<p>cleaning them, and when changing accessories such as blades, bits, and cutters</p> <p>2.9. Keep all people not involved with the work at a safe distance from the work area</p> <p>2.10. Secure work with clamps or a vise, freeing both hands to operate the tool</p> <p>2.11. Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool</p> <p>2.12. Maintain tools with care; keep them sharp and clean for best performance</p> <p>2.13. Follow instructions in the user's manual for lubricating and changing accessories</p> <p>2.14. Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts</p> <p>2.15. Remove all damaged portable electric tools from use and tag them: "Do Not Use".</p>
3. Guards	<p>3.1. The exposed moving parts of power tools need to be safeguarded. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded</p> <p>3.2. Machine guards, as appropriate, must be provided to protect the operator and others from the following</p> <ul style="list-style-type: none"><li>- Point of operation</li><li>- In-running nip points</li><li>- Rotating parts</li></ul>

	<ul style="list-style-type: none"><li>- Flying chips and sparks</li><li>3.3. Safety guards must never be removed when a tool is being used</li><li>3.4. Portable circular saws having a blade greater than 2 inches (5.08 centimetres) in diameter must be equipped at all times with guards</li><li>3.5. Upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except where it makes contact with the work material.</li><li>3.6. Lower guard must automatically return to the covering position when the tool is withdrawn from the work material.</li></ul>
4. Operating Controls and Switches	<ul style="list-style-type: none"><li>4.1. Hand-held power tools must be equipped with a constant-pressure switch or control that shuts off the power when pressure is released: drills; tappers; fastener drivers; horizontal, vertical, and angle grinders with wheels more than 2 inches (5.08 centimeters) in diameter; disc sanders with discs greater than 2 inches (5.08 centimeters); belt sanders; reciprocating saws; saber saws, scroll saws, and jigsaws with blade shanks greater than 1/4-inch (0.63 centimeters) wide; and other similar tools.</li><li>4.2. These tools also may be equipped with a "lock-on" control, if it allows the worker to also shut off the control in a</li></ul>

	<p>single motion using the same finger or fingers</p> <p>4.3. Hand-held power tools must be equipped with either a positive "on-off" control switch, a constant pressure switch, or a "lock-on" control: disc sanders with discs 2 inches (5.08 centimeters) or less in diameter; grinders with wheels 2 inches (5.08 centimeters) or less in diameter; platen sanders, routers, planers, laminate trimmers, nibblers, shears, and scroll saws; and jigsaws, saber and scroll saws with blade shanks a nominal 1/4-inch (6.35 millimeters) or less in diameter</p> <p>4.4. Other hand-held power tools such as circular saws having a blade diameter greater than 2 inches (5.08 centimeters), chain saws, and percussion tools with no means of holding accessories securely must be equipped with a constant-pressure switch.</p>
5. Electric Tools	<p>5.1. Employees using electric tools must be aware of several dangers. Among the most serious hazards are electrical burns and shocks</p> <p>5.2. To protect the user from shock and burns, electric tools must have a three-wire cord with a ground and be plugged into a grounded receptacle, be double insulated, or be powered by a low-voltage isolation transformer</p>



	<ul style="list-style-type: none"> <li>5.3. When using electric tools follow the general practices:</li> <li>5.4. Operate electric tools within their design limitations</li> <li>5.5. Use gloves and appropriate safety footwear when using electric tools</li> <li>5.6. Store electric tools in a dry place when not in use</li> <li>5.7. Do not use electric tools in damp or wet locations unless they are approved for that purpose.</li> <li>5.8. Keep work areas well lighted when operating electric tools.</li> <li>5.9. Ensure that cords from electric tools do not present a tripping hazard</li> </ul>
<p>6. Hydraulic Power Tools</p>	<ul style="list-style-type: none"> <li>6.1. The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed</li> <li>6.2. All jacks -- including lever and ratchet jacks, screw jacks, and hydraulic jacks -- must have a stop indicator, and the stop limit must not be exceeded. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack, and the load limit must not be exceeded</li> <li>6.3. A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up. Put a block under the base of the jack when the foundation is not</li> </ul>

	<p>firm, and place a block between the jack cap and load if the cap might slip</p> <p>6.4. To set up a jack, make certain of the following</p> <p>6.5. The base of the jack rests on a firm, level surface;</p> <p>6.6. The jack is correctly centered</p> <p>6.7. The lift force is applied evenly</p> <p>6.8. All jacks must be lubricated regularly</p> <p>6.9. Each jack must be inspected according to the following schedule: (1) for jacks used continuously or intermittently at one site -- inspected at least once every 6 months</p> <p>6.10. For jacks sent out of the shop for special work -- inspected when sent out and inspected when returned</p> <p>6.11. For jacks subjected to abnormal loads or shock -- inspected before use and immediately thereafter</p>
7. Liquid Fuel Tools	<p>7.1. Fuel-powered tools are usually operated with gasoline. The most serious hazard associated with the use of fuel-powered tools comes from fuel vapors that can burn or explode and also give off dangerous exhaust fumes. The worker must be careful to handle, transport, and store gas or fuel only in approved flammable liquid containers, according to proper procedures for flammable liquids</p>

	<p>7.2. Before refilling a fuel-powered tool tank, the user must shut down the engine and allow it to cool to prevent accidental ignition of hazardous vapors</p> <p>7.3. When a fuel-powered tool is used inside a closed area, effective ventilation and/or proper respirators such as atmosphere-supplying respirators must be utilized to avoid breathing carbon monoxide</p> <p>7.4. Fire extinguishers must also be available in the area.</p>
8. Pneumatic Tools	<p>8.1. Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. There are several dangers associated with the use of pneumatic tools. First and foremost is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool</p> <p>8.2. Pneumatic tools must be checked to see that the tools are fastened securely to the air hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool must also be used and will serve as an added safeguard</p> <p>8.3. If an air hose is more than 1/2-inch (12.7 millimeters) in diameter, a safety excess flow valve must be installed at the source of the air supply to</p>

	<p>reduce pressure in case of hose failure</p> <p>8.4. When using pneumatic tools, a safety clip or retainer must be installed to prevent attachments such as chisels on a chipping hammer from being ejected during tool operation.</p> <p>8.5. Pneumatic tools that shoot nails, rivets, staples, or similar fasteners and operate at pressures more than 100 pounds per square inch (6,890 kPa), must be equipped with a special device to keep fasteners from being ejected, unless the muzzle is pressed against the work surface.</p> <p>8.6. Airless spray guns that atomize paints and fluids at pressures of 1,000 pounds or more per square inch (6,890 kPa) must be equipped with automatic or visible manual safety devices that will prevent pulling the trigger until the safety device is manually released.</p> <p>8.7. Eye protection is required, and head and face protection is recommended for employees working with pneumatic tools</p> <p>8.8. Screens must also be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.</p> <p>8.9. Compressed air guns should never be pointed toward anyone. Workers should never "dead-end" them against themselves or</p>
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	<p>anyone else. A chip guard must be used when compressed air is used for cleaning</p> <p>8.10. Use of heavy jackhammers can cause fatigue and strains. Heavy rubber grips reduce these effects by providing a secure handhold. Workers operating a jackhammer must wear safety glasses and safety shoes that protect them against injury if the jackhammer slips or falls. A face shield also should be used.</p> <p>8.11. When using heavy jackhammers to reduce fatigue and strains use heavy rubber grips</p>
<p>9. Portable Abrasive Wheel Tools</p>	<p>9.1. Portable abrasive grinding, cutting, polishing, and wire buffing wheels create special safety problems because they may throw off flying fragments. Abrasive wheel tools must be equipped with guards that:</p> <p>9.2. cover the spindle end, nut, and flange projections</p> <p>9.3. maintain proper alignment with the wheel.</p> <p>9.4. do not exceed the strength of the fastenings.</p> <p>9.5. Before an abrasive wheel is mounted, it must be inspected closely for damage and should be sound- or ring-tested to ensure that it is free from cracks or defects</p> <p>9.6. To test, wheels should be tapped gently with a light, non-metallic instrument</p> <p>9.7. If the wheels sound cracked or dead, they must not be used</p>

	<p>because they could fly apart in operation. A stable and undamaged wheel, when tapped, will give a clear metallic tone or "ring."</p> <p>9.8. To prevent an abrasive wheel from cracking, it must fit freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place without distorting the flange</p> <p>9.9. Take care to ensure that the spindle speed of the machine will not exceed the maximum operating speed marked on the wheel.</p> <p>9.10. An abrasive wheel may disintegrate or explode during start-up. Allow the tool to come up to operating speed prior to grinding or cutting.</p> <p>9.11. The employee should never stand in the plane of rotation of the wheel as it accelerates to full operating speed</p> <p>9.12. Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of wheel breakage</p> <p>9.13. When using a power grinder:</p> <ul style="list-style-type: none"><li>- Always use eye or face protection</li><li>- Turn off the power when not in use</li><li>- Never clamp a hand-held grinder in a vise.</li></ul>
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### ***Range Statement***

- Follow and take appropriate safety measures to prevent injuries from misuse and improper maintenance. Such as:
- Breaking and flying off, the chisel and hitting the user or other employees in cases when chisel is used as a screwdriver
- Flying off and hitting the user or other employee by a cracked wooden handle of a tool when the hammer or an axe is loose or splintered
- Sending sharp fragments flying toward the user or other employees in case of wedges or drift pins
- Use appropriate personal protective equipment when using hand tools
- Follow and take safety measures to prevent hazard associated with the use of power tools
- Safeguarding the exposed moving parts of power tools
- General practices to follow when using electric tools to prevent serious hazards such as electrical burns and shocks
- Using hydraulic power tool have a stop indicator, and the stop limit must not be exceeded.
- When using hydraulic power tool make certain the base of the jack rests on a firm level surface, the jack is correctly centered and the lift force is applied evenly
- careful to handle, transport, and store gas or fuel only in approved flammable liquid containers, according to proper procedures for flammable liquids
- Follow safety procedures when refilling a fuel-powered tool tank and using it inside a closed area,
- Check pneumatic tools to see that the tools are fastened securely to the air hose to prevent them from becoming disconnected
- Portable abrasive grinding, cutting, polishing, and wire buffing wheels inspected closely for damage and should be sound- or ring-tested to ensure that it is free from cracks or defects

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

- It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:
- Impact tools such as drift pins, wedges, and chisels must be kept free of mushroomed heads to prevent hazards

## HEALTH AND SAFETY IN CONSTRUCTION

- Keep workplace floors clean and dry as possible to prevent accidental slips with or around dangerous hand tools
- Wear proper apparel for the task
- Remove all damaged portable electric tools from use and tag them: "Do Not Use".
- Hand-held power tools must be equipped with either a positive "on-off" control switch, a constant pressure switch, or a "lock-on" control
- When using electric tools follow the general practices:
- Operate electric tools within their design limitations
- Use gloves and appropriate safety footwear when using electric tools
- Store electric tools in a dry place when not in use
- Do not use electric tools in damp or wet locations unless they are approved for that purpose.
- Keep work areas well lighted when operating electric tools.
- Ensure that cords from electric tools do not present a tripping hazard
- When using liquid fuel tools careful to handle, transport, and store gas or fuel only in approved flammable liquid containers, according to proper procedures for flammable liquids.
- Use heavy rubber grips when using heavy jackhammers to reduce fatigue and strains
- When using a power grinder always use eye or face protection, turn off the power when not in use and never clamp a hand-held grinder in a vise.

### ***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment that can be used around electricity such as safety gloves and goggles
- Equipment such as wrenches, hammers, belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, hydraulic power tools
- Stacking materials such as lumber, bagged materials, pipes



***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of handling and maintaining hand tools in preventing work hazards</li> <li>• General knowledge of appropriate personal protective tools and safety measures to take when using power tool</li> <li>• General knowledge of safe guarding exposed moving parts of power tools</li> <li>• General knowledge of safety measures and precautions in handling electrical tool to prevent electrical burns and shocks.</li> <li>• General knowledge of important measures and steps to take when siting up hydraulic power tools</li> </ul>	<ul style="list-style-type: none"> <li>• Able to identify faults in electrical equipment/defective equipment</li> <li>• Able to conduct non-faulty wiring</li> <li>• Inspection skill to inspect electrical equipment</li> <li>• Effective communication skill to communicate with employees regarding electrical safety and the correct use of electrical equipment.</li> <li>• Able to identify and take preventive measures to prevent electricity related accidents</li> <li>• Ability to handle and maintain hand tools to minimize hazards.</li> </ul>

**UNIT 11**

<b>UNIT TITLE</b>	Welding and Cutting				
<b>DESCRIPTOR</b>	Burning, cutting and welding operations (referred to as hot work) are commonly associated with renovation and construction activities. Potential health, safety, and property hazards result from the fumes, gases, sparks, hot metal and radiant energy produced during hot work. This unit describes the safety measures to be taken and the procedures to be followed				
<b>CODE</b>	CON11S2U11V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Preparing Hot Work Procedures	<p>1.1. Burning, cutting and welding operations (referred to as hot work)</p> <p>1.2. Areas where hot work is done should be properly designated and prepared. Combustible and flammable materials within the work area should be protected against fire hazards and the operation should not pose a hazard to others in nearby areas. To help achieve this, the following controls should be used</p> <p>1.3. Cutting and welding operations are performed only by authorized, properly trained individuals</p> <p>1.4. If possible, hot work must be performed in a properly designed shop area equipped with all necessary controls and adequate ventilation</p> <p>1.5. Move combustible materials at least 35 feet from the work site. If this is not possible, protect combustible materials with metal guards or by flameproof curtains or covers (other than ordinary tarpaulins)</p>

	<p>1.6. Cover floor and wall openings within 35 feet of the work site to prevent hot sparks from entering walls or falling beneath floors or to a lower level</p> <p>1.7. Fire resistant curtains and/or tinted shields must be used to prevent fire, employee burns, and ultra-violet light exposure</p>
<p>2. Welding and Cutting Personal Protective Equipment</p>	<p>2.1. Eye, face, hand/arm, head and body protection (leather gloves, leather apron, gauntlets, safety glasses with side shields, welders helmet or welders goggles) are required that are appropriate to the potential hazards encountered during welding, cutting, brazing, soldering, grinding or other spark producing operations.</p> <p>2.2. Use protective shades for a variety of welding, cutting and brazing operations for construction activities to reduce eye damage.</p> <p>2.3. Select the shades appropriate to welding operation as given in the table</p>
<p>3. Handling and Use Welding Equipment</p>	<p>3.1. Only standard electric arc welding equipment such as generators, motor generator units, transformers, etc. should be used</p> <p>3.2. All electric welding machines must be properly grounded, and all electrical cables inspected prior to use for damage, excess fraying and loose connections</p>

	<p>3.3. Insulated connectors should be used on both the ground and positive lead. There must be no splices or connections within 10' of the electrode holder (stinger)</p> <p>3.4. Wherever practicable, shield anyone in work area from the direct rays of the arc. Barricade hot material with a fire blanket or other non-combustible tarp.</p> <p>3.5. Regulators and gauges must only be repaired by qualified suppliers.</p> <p>3.6. Inspect the work area and look for potential hazards. Move combustibles within 35 feet of the work area away from the work area. If combustibles can't be moved, cover them with a non-combustible tarp. Make sure equipment is in good working order</p> <p>3.7. Make sure a fire extinguisher is nearby. Post a fire watch if conditions warrant. Make sure a multi-rated dry chemical fire extinguisher is nearby. If aluminum, magnesium or other combustible metals are being welded, metals fire extinguisher needs to be directly available.</p> <p>3.8. Cover manholes, pits, sewers, doors, windows, wall cavities, floor openings and any other openings where it would be possible for a spark to fall and create a fire</p> <p>3.9. Shield nearby workers from flash burn. Communicate fire,</p>
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	<p>burn and flash burn hazards to them</p> <p>3.10. Make sure you know the location of the nearest phone and fire alarm pull station.</p>
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### ***Range Statement***

- Preparing the area for hot work procedure to reduce fire hazards hazard to others in nearby areas such as:
- Move combustible materials at least 35 feet from the work site.
- Cover floor and wall openings within 35 feet of the work site to prevent hot sparks from entering walls or falling beneath floors or to a lower level
- Use appropriate personal protective equipment when carrying out welding and cutting to protect eye, face, hand/arm, head and body.
- Select the shades appropriate to welding operation
- Moving and storing cylinders, make sure the cylinder valves are closed, caps are on, and the space is dry. If acetylene is being used, properly ventilate. Tilt and roll on bottom edges. Avoid dropping
- Usage of only standard electric arc welding equipment such as generators, motor generator units, transformers
- Properly ground all electric welding machines before start, and inspect all electrical cables for damage, excess fraying and loose connections.
- When handling and use welding equipment take appropriate measures outlined in element.

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

Take appropriate measures when using hand tools to prevent hazards and hazards to other employees working in the area. This include:

- Using wrenches
- Using chisel used as a screwdriver.
- Using wrenches must not be used when jaws are sprung to the point that slippage occurs.

## HEALTH AND SAFETY IN CONSTRUCTION

- Keeping impact tools such as drift pins, wedges and chisels free of mushroomed heads.
- Use of appropriate personal protective equipment such as safety goggles and gloves must be worn to protect against hazards that may be encountered while using hand tools

### ***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment that can be used around electricity such as safety gloves and goggles
- Equipment such as wrenches, hammers, belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, hydraulic power tools
- Stacking materials such as lumber, bagged materials, pipes

### ***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of handling and maintaining hand tools in preventing work hazards</li><li>• General knowledge of appropriate personal protective tools and safety measures to take when using power tool</li><li>• General knowledge of safe guarding exposed moving parts of power tools</li><li>• General knowledge of safety measures and precautions in handling electrical tool to prevent electrical burns and shocks.</li><li>• General knowledge of important measures and steps to take when siting up hydraulic power tools</li></ul>	<ul style="list-style-type: none"><li>• Able to identify faults in electrical equipment/defective equipment</li><li>• Able to conduct non-faulty wiring</li><li>• Inspection skill to inspect electrical equipment</li><li>• Effective communication skill to communicate with employees regarding electrical safety and the correct use of electrical equipment.</li><li>• Able to identify and take preventive measures to prevent electricity related accidents</li><li>• Ability to handle and maintain hand tools to minimize hazards.</li></ul>

**UNIT 12**

<b>UNIT TITLE</b>	<b>Personal Protective and Lifesaving Equipment.</b>				
<b>DESCRIPTOR</b>	This unit describes the personal protective and lifesaving equipment that is required in hazardous work and prevent injurious and health risks in construction.				
<b>CODE</b>	CON21S2U12V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Head protection.	1.1. Protective helmets (hard hats) must be worn by employees who work in areas where there is a possibility of head injury from impact, falling or flying objects, or electricity implemented.
2. Deal with emergency situations	2.1. Hearing protection must be worn when noise levels cannot be reduced by engineering or other means
3. <b>Eye and face protection</b>	3.1. Eye and face protection must be used to protect against physical, chemical, or radiation agents. Protection must be reasonably comfortable, fit snugly, and not unduly interfere with employee movement 3.2. Protection against radiant energy (UV light) and other hazards requires filter lens shades of 2 to 4 for soldering and brazing, 7 to 9 for gas welding, and 9 to 12 for arc welding. 3.3. Protection for laser light must provide protection for the specific wavelength of energy
4. Respiratory protection	4.1. Have a written plan for procedures to select and use respirators.

**HEALTH AND SAFETY IN CONSTRUCTION**

	<p>4.2. Respirators must be regularly cleaned and disinfected, stored properly, and inspected</p> <p>4.3. Users must be properly trained in selection, use, and maintenance of respirators</p> <p>4.4. Respirators must fit properly</p> <p>4.5. The proper form of air must be supplied, for example, compressed oxygen may not be used in supplied-air respirators and oxygen must not be used with airline respirators</p> <p>4.6. Written procedures must be prepared to cover use of respirators in dangerous atmospheres.</p>
5. Safety belts, lifelines, and lanyards.	<p>5.1. If safety belts, lifelines, and lanyards have been used for in-service loading, they must immediately be removed for service in employee safeguarding.</p>
6. Safety nets.	<p>6.1. Safety nets must be provided if workplaces are higher than 25 feet above the surface and ladders, scaffolds or other safety equipment is impractical</p>
7. Inventory and storage	<p>7.1. Life jackets or buoyant work vests must be provided to employees where the danger of drowning exists</p> <p>These must be inspected for defect before and after each use</p> <p>7.2. Ring buoys must be no more than 200 feet apart and available for emergency rescue operations.</p>



	7.3. A lifesaving skiff must also be available where employees work over or near water.
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### ***Range Statement***

- Use of personal protective equipment according to safety requirement such as :
- Protective helmets
- Hearing protection such as ear plugs
- Eye and face protection equipment
- Respiratory protection equipment
- Safety belts
- Safety nets
- Life jackets or buoyant work vests
- A lifesaving skiff

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks and use of personal protective equipment in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Use of protective helmets when there is a possibility of head injury from impact, falling or flying objects, or electricity
- Protection against radiant energy (UV light) and other hazards requires filter lens shades
- Wear appropriate eye and face protection to protect against physical, chemical, or radiation agents
- A written plan for procedures to select and use respirators and respirators must be regularly cleaned and disinfected, stored properly, and inspected
- Safety nets must be provided if workplaces are higher than 25 feet above the surface and ladders, scaffolds or other safety equipment is impractical.
- Life jackets or buoyant work vests must be provided to employees where the danger of drowning exists
- Ring buoys must be no more than 200 feet apart and available for emergency rescue operations

**Resources required for assessment**

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment such as:
  - Protective helmets (hard hats)
  - Hearing protection
  - filter lens shades
  - Hearing protection
  - Respirators
  - safety belts, lifelines
  - Safety nets
  - Ring buoys
  - A lifesaving skiff

**Underpinning knowledge and skills**

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of using appropriate personal protective equipment when required</li> <li>• General knowledge of wearing personal protection reasonably comfortable, fit snugly, and not unduly interfere with employee movement</li> <li>• General knowledge of the respirator selecting procedures and use of respirators</li> <li>• General knowledge of the height at which the safety net must be used, how much feet apart ring buoys must available for emergency rescue operations</li> <li>• General knowledge of cleaning, disinfecting and storing respirators.</li> </ul>	<ul style="list-style-type: none"> <li>• Able to choose appropriate personal protective equipment according to safety requirement</li> <li>• Able to select filter lens shades depending on the work</li> <li>• Able to follow the written procedures</li> <li>• Able to maintain safety procedures in order to protect oneself as well as the other employees</li> <li>• Able to act promptly and follow emergency procedures when required</li> </ul>

**UNIT 13**

<b>UNIT TITLE</b>	<b>Fire Protection and Prevention</b>				
<b>DESCRIPTOR</b>	This unit describes the employer and employee's responsibilities for the development of a fire protection program to be followed throughout all phases of the construction and demolition work, and providing for the firefighting equipment as specified in this subpart. As fire hazards occur, there shall be no delay in providing the necessary equipment				
<b>CODE</b>	CON11S2U13V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Fire protection: Fire Equipment	<p>1.1. Access to all available firefighting equipment should be maintained at all times.</p> <p>1.2. All fire equipment should be conspicuously located.</p> <p>1.3. All firefighting equipment shall be periodically inspected and maintained in operation condition.</p> <p>1.4. Defective equipment shall be immediately replaced.</p> <p>1.5. Should provide trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life.</p>
2. Fire protection: Water	<p>2.1. A temporary or permanent water supply, of sufficient volume, duration, and pressure, required to properly operate the firefighting equipment shall be made available as soon as combustible materials accumulate.</p> <p>2.2. Where underground water mains are to be provided, they shall be installed, completed,</p>

	and made available for use as soon as practicable.
3. Fire protection: Portable firefighting equipment	<p>3.1. Fire extinguishers and small hose lines: A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.</p> <p>3.2. One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.</p> <p>3.3. One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairway.</p> <p>3.4. A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the jobsite.</p> <p>3.5. Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.</p> <p>3.6. Portable fire extinguishers shall be inspected periodically and maintained in accordance</p>
4. Fire protection: Fire hose and connections.	4.1. Provide adapters, or equivalent, to permit connections if the fire hose connections are not

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	<p>compatible with local firefighting equipment.</p> <p>4.2. During demolition involving combustible materials, charged hose lines, supplied by hydrants, water tank trucks with pumps, or equivalent, shall be made available</p> <p>4.3. The operation of sprinkler control valves shall be permitted only by properly authorized persons.</p>
5. Fire protection: Fire alarm devices	<p>5.1. Establishment of an alarm system, e.g., telephone system, siren, etc., on the site and the local fire department</p> <p>5.2. The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances</p>
6. Fire protection: Fire cutoffs.	<p>6.1. Fire walls and exit stairways, required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable</p> <p>6.2. Fire cutoffs shall be retained in buildings undergoing alterations or demolition until operations necessitate their removal</p>
7. Fire Prevention: Open yard storage	<p>7.1. Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.</p> <p>7.2. Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish,</p>

	<p>equipment, or other articles or materials.</p> <p>7.3. The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular procedure provided for the periodic clean-up of the entire area</p> <p>7.4. When there is a danger of an underground fire, that land shall not be used for combustible or flammable storage.</p> <p>7.5. Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10 feet of a building or structure.</p> <p>7.6. Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in the yard area.</p>
<p>8. Fire Prevention: Temporary building</p>	<p>8.1. No temporary building shall be erected where it will adversely affect any means of exit</p> <p>8.2. Temporary buildings, when located within another building or structure, shall be of either non- combustible construction or of combustible construction having a fire resistance of not less than 1 hour.</p> <p>8.3. Temporary buildings, located other than inside another building and not used for the storage, handling, or use of</p>

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	flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure.
9. Fire Prevention: Indoor storage	<p>9.1. Storage shall not obstruct, or adversely affect, means of exit</p> <p>9.2. All materials shall be stored, handled, and piled with due regard to their fire characteristics.</p> <p>9.3. Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.</p> <p>9.4. Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting.</p> <p>9.5. Stable piling shall be maintained at all times</p> <p>9.6. Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes</p>

***Range Statement***

Procedures to protect and prevent Fire in construction site:

**For Fire Protection:**

- Maintaining, conspicuously locating, inspecting, removing defected fire equipment how to use fire equipment
- Availability of water, adequate duration and pressure of water supply to operate the firefighting equipment
- Inspection and maintaining of portable fire extinguishers for fire protection
- Adapters, or equivalent, to permit connections if the fire hose connections are not compatible with local firefighting equipment

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- Establishment of an alarm system, e.g., telephone system, siren, etc., on the site and the local fire department
- Fire walls and exit stairways and Fire doors, with automatic closing devices
- Fire cut-offs

### **For Fire Prevention:**

- Storage site free from accumulation of unnecessary combustible materials.
- Combustible materials piled with due regard to the stability of piles and in no case higher than 20 feet.
- No combustible material be stored outdoors within 10 feet of a building or structure
- Location of temporary buildings 10 feet from another building or structure
- Materials stored, handles and piled with due regard to their fire characteristics.
- Pile materials to minimize the spread of fire internally and to permit convenient access for firefighting.

### ***Tools, equipment and materials required may include:***

- Portable fire equipment
- Alarm system, e.g., telephone system, siren, etc.

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Locate and maintain the fire equipment
- Identify any defect in fire equipment
- Know how to use fire equipment
- Inspect portable fire extinguishers for fire protection
- The fire alarm code and reporting instructions
- Retain fire cut off in buildings undergoing alterations or demolition until operations necessitate their removal
- Driveways between and around combustible storage piles free from accumulation of rubbish, equipment, or other articles or materials.
- Portable fire extinguishing equipment convenient and spaciouly accessible locations in the yard area
- Storage not obstruct, or adversely affect, means of exit

#### ***Resources required for assessment***

The following should be made available:

- A portable fire equipment



*Underpinning knowledge and skills*

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of fire protection procedures which include:               <ul style="list-style-type: none"> <li>- easy accessible to fire equipment</li> <li>- locating maintaining fire equipment</li> <li>- availability of water supply to operate properly fire equipment</li> <li>- ensuring availability accessibility and inspecting portable fire extinguishers</li> </ul> </li> <li>• General knowledge of fire prevention procedures which include:               <ul style="list-style-type: none"> <li>- Provide adapters, or equivalent, to permit connections if the fire hose connections are not compatible with local firefighting equipment</li> <li>- alarm code and reporting instructions</li> <li>- Fire walls and exit stairways of the construction work area</li> <li>- procedure of keeping driveways storage and method of piling to prevent fire</li> <li>- procedure of keeping storage area and storage safe from fire</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Able to follow fire prevention and fire protection procedure</li> <li>• Able to use fire equipment and fire extinguishers</li> <li>• Able to act promptly and accordingly in case of fire emergency</li> <li>• Able to effectively communicate and report in case of fire</li> <li>• Able to protect oneself and others in the working area in case of emergency.</li> </ul>

**UNIT 14**

<b>UNIT TITLE</b>	<b>Scaffolding</b>				
<b>DESCRIPTOR</b>	Scaffolding is widely used during construction and renovation activities. In its simplest form, a scaffold is any temporary elevated or suspended work surface used to support workers and/or materials. This unit describes the nature of hazards related to scaffolds like falls and electrocution, appropriate use of scaffolds and handling of materials and procedures in dealing with different hazards, including the use of personal fall arrest systems and falling object protection systems.				
<b>CODE</b>	CON11S2U14V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Scaffolding Requirements	<p>1.1. The footing of scaffolding must be sound and rigid, capable of supporting the weight.</p> <p>1.2. Scaffolding must not be placed on unstable objects, such as bricks or blocks.</p> <p>1.3. Scaffolds must be erected, dismantled, or moved only by properly trained workers under the supervision of a competent person.</p> <p>1.4. Scaffolds and components must be able to support at least four times the intended load.</p> <p>1.5. Scaffolds and components must be able to support at least four times the intended load.</p> <p>1.6. To protect against falling objects, screens must be installed between the toe board and midrail if anyone is required to pass under the scaffolding.</p> <p>1.7. All planking or platforms must be overlapped a minimum of twelve (12) inches and secured</p>

	<p>from movement. Scaffold planks shall extend over their end support at least six (6) inches but no more than twelve (12) inches.</p> <p>1.8. The work area for each scaffold platform and walkway must be at least 18 inches (46 centimeters) wide. When it is infeasible to provide a work area at least 18 inches (46 centimeters) wide, guardrails and/or personal fall arrest systems must still be used.</p> <p>1.9. A ladder or other safe means of access must be provided.</p> <p>1.10. Access must be provided when the scaffold platforms are more than 2 feet (0.6 m) above or below a point of access. Direct access is acceptable when the scaffold is not more than 14 inches (36 centimeters) horizontally and not more than 24 inches (61 centimeters) vertically from the other surfaces. Cross braces shall not be used as a means of access</p> <p>1.11. scaffold must be protected by a guardrail or personal fall arrest system on all sides except the side where the work is being done.</p>
<p>2. Right load</p>	<p>2.1. Weight supported by a scaffold can make or break accidents in the workplace. That is why you should NEVER exceed the manufacturer's recommended load rating</p>

	<p>2.2. Supported scaffolds should be able to support not just their own weight but at least four times the maximum intended load</p> <p>2.3. Make sure, that ties attaching scaffolds to buildings are secure during wind and weather</p> <p>2.4. Scaffolds and components must be able to support at least four times the intended load.</p>
<p>3. Do's in Scaffolding</p>	<p>3.1. Install and use scaffolding accessories based on the manufacturer's recommended procedures</p> <p>3.2. Place scaffolds on stable ground</p> <p>3.3. Lock scaffold wheels when in use</p> <p>3.4. Remove tools or debris on scaffold platforms</p> <p>3.5. Equip all open sides and ends of scaffold platforms with proper guardrails, midrails, and toeboards</p> <p>3.6. Wear a hard hat when working on or under a scaffold</p> <p>3.7. Wear sturdy, nonslip shoes when working on a scaffold.</p> <p>3.8. Wear sturdy, nonslip shoes when working on a scaffold.</p> <p>3.9. Remove anything placed on scaffolds at the end of the work shift.</p> <p>3.10. Maintain at least a 10-foot distance between scaffolds and electric power lines.</p> <p>3.11. Avoid striking scaffolds with materials or vehicles.</p>

### ***Range Statement***

- Scaffold requirements:
- - Sound footing of scaffold
- - must be able to support at least four times the intended load
- - screens must be installed between the toe board and midrail
- - must be protected by a guardrail or personal fall arrest system on all sides except the side where the work is being done
- Procedures to follow and stick to prevent hazards related to scaffolds

### **Requirements of Scaffold**

- Sound footing of scaffold
- must be able to support at least four times the intended load
- Inspection and maintaining of portable fire extinguishers for fire protection
- screens must be installed between the toe board and midrail
- must be protected by a guardrail or personal fall arrest system on all sides except the side where the work is being done

### **Procedures to follow and stick to prevent hazards related to scaffolds :**

- NEVER exceed the manufacturer's recommended load rating
- Supported scaffolds should be able to support not just their own weight but at least four times the maximum intended load
- Place scaffolds on stable ground
- Lock scaffold wheels when in use
- Remove tools or debris on scaffold platforms
- Equip all open sides and ends of scaffold platforms with proper guardrails, midrails, and toeboards
- Wear sturdy, nonslip shoes when working on a scaffold.
- Wear sturdy, nonslip shoes when working on a scaffold
- Remove anything placed on scaffolds at the end of the work shift.
- Maintain at least a 10-foot distance between scaffolds and electric power lines.
- Avoid striking scaffolds with materials or vehicles.

### ***Tools, equipment and materials required may include:***

- Scaffold materials

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices when setting up and working with a scaffold

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

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- Safety procedures and measures to consider when setting up the scaffold and working on a scaffold to minimize scaffold related hazard.
- footing of scaffolding must be sound and rigid, capable of supporting the weight
- must be able to support at least four times the intended load.
- ties attaching scaffolds to buildings are secure during wind and weather
- place scaffold on stable ground.
- Lock scaffold wheels when in use
- Remove tools or debris on scaffold platforms
- Equip all open sides and ends of scaffold platforms with proper guardrails, midrails, and toe boards
- Wear a hard hat when working on or under a scaffold
- Wear sturdy, nonslip shoes when working on a scaffold.  
Wear sturdy, nonslip shoes when working on a scaffold.
- Remove anything placed on scaffolds at the end of the work shift.

### *Resources required for assessment*

The following should be made available:

- Scaffolding material

### *Underpinning knowledge and skills*

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of setting up a scaffold considering the safety requirements of scaffold which include:<ul style="list-style-type: none"><li>• footing of scaffolding</li><li>• scaffold support strength</li><li>• scaffold guard rail</li><li>• ties attaching scaffolds to buildings</li></ul></li><li>• General knowledge of safety measures to take when working on a scaffold which include;<ul style="list-style-type: none"><li>• Place scaffolds on stable ground</li><li>• Lock scaffold wheels when in use</li><li>• Remove tools or debris on scaffold platforms</li><li>• Equip all open sides and ends of scaffold platforms with proper guardrails, midrails, and toeboards</li><li>• Wear a hard hat when working on or under a scaffold</li><li>• Wear sturdy, nonslip shoes when working on a scaffold.</li><li>• Wear sturdy, nonslip shoes when working on a scaffold.</li><li>• Remove anything placed on scaffolds at the end of the work shift.</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Able to set up a scaffold considering the safety measures</li><li>• Able to work on a scaffold taking all the safety measures to prevent scaffold related hazards</li></ul>

**UNIT 15**

<b>UNIT TITLE</b>	<b>Excavation</b>				
<b>DESCRIPTOR</b>	Excavation is used in construction to create building foundations, reservoirs and roads. Some of the different processes used in excavation include trenching, digging, dredging and site development. This unit describes the skills and knowledge required before the excavation process can begin, and things to examine to make sure that the natural habitat and artifacts surrounding it are persevered throughout excavation.				
<b>CODE</b>	CON11S2U15V1	<b>LEVEL</b>	3	<b>CREDIT</b>	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Hazards associated with excavation work	1.1. Surface encumbrances 1.2. Excavation collapse 1.3. Loose rock or soil 1.4. Contact with underground services and/or overhead power lines 1.5. Falling loads - Materials falling onto people working in the excavation 1.6. Mobile equipment - People and vehicles falling into the excavation 1.7. Vehicular traffic - People being struck by plant 1.8. Undermining of nearby structures 1.9. Access/egress to/from excavation 1.10. Hazardous atmospheres 1.11. Ground water 1.12. Accidents to members of the public
2. Prior to Excavation	2.1. Investigate if a dangerous atmosphere is present or liable to be present?

	<p>2.2. See if the space is adequately ventilated to maintain adequate oxygen content and prevent the accumulation of harmful substances.</p> <p>2.3. Find out what the use and history of the location of work is when carrying out risk assessment. Buried underground pipe work or a leakage in sewage system may present a hidden hazard.</p> <p>2.4. Investigate if a dangerous atmosphere is potentially present; the excavation must be treated as a confined space.</p> <p>2.5. A safe system of work must be developed and put in place, including the making of appropriate emergency arrangements. The safe system of work may involve the provision of adequate ventilation, testing of atmosphere, or other precautions, as devised by a competent person.</p>
<p>3. Precautions can be taken to avoid contact with underground services and/or overhead lines</p>	<p>3.1. Look around for obvious signs of underground services, e.g. valve covers or patching of the road surface.</p> <p>3.2. Use locators to trace any services and mark the ground accordingly. Make sure persons using these scanners are trained and understand their use.</p> <p>3.3. Make sure that the person supervising excavation work has</p>



	<p>service plans and knows how to use them.</p> <p>3.4. Everyone carrying out the work should know about safe digging practices and emergency procedures.</p> <p>3.5. Survey the area for overhead obstructions such as electricity lines.</p> <p>3.6. Erect goal posts and bunting if/as require</p>
<p>4. Measures Taken to Prevent Excavation Collapse</p>	<p>4.1. Batter the sides and the ends to a safe angle.</p> <p>4.2. Where it is not possible to batter, support the walls with timber, sheeting or proprietary support systems.</p> <p>4.3. Do not go into unsupported excavations that have not been battered to a suitable slope.</p> <p>4.4. Do not allow any vehicle or item of plant near an edge of an excavation that may be likely to cause collapse.</p> <p>4.5. Keep equipment and materials piled, grouped or stacked at a suitable safe distance from the edge of the excavations. Never work ahead of the support.</p> <p>4.6. Remember that even work in shallow trenches can be dangerous. You may need to provide support if the work involves bending or kneeling in the trench.</p> <p>4.7. Ensure adequate protective measures are taken even in rock cut excavations.</p>

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<p>5. Measures taken to prevent materials falling onto workers in excavations</p>	<p>5.1. Do not store spoil or other materials close to the sides of excavations. The spoil may fall into the excavation and the extra loading will make the sides more prone to collapse</p> <p>5.2. Make sure the edges of the excavation are protected against falling materials. Provide toe boards where necessary</p> <p>5.3. Always wear a hard hat when working in excavations</p> <p>5.4. In rock cut excavations where the rock is friable, netting should be used</p>
<p>6. Measures taken to prevent people and vehicles falling into the excavation</p>	<p>6.1. Fence off all excavations in public places to prevent pedestrians and vehicles falling into them.</p> <p>6.2. Where children might get onto a site out of hours precautions should be taken such as backfilling or securely covering excavations.</p> <p>6.3. If possible excavations in public roads or streets should be backfilled or covered over at night to minimize the risk of accidents to the public.</p> <p>6.4. Do not leave materials lying beside the area of work if not required for imminent use beside the excavation</p>
<p>7. Excavation and the Stability of a nearby structure</p>	<p>7.1. Ensure excavations do not affect the footings of scaffolds or the foundations of nearby structures. Walls may have very shallow foundations that can be undermined by even small trenches</p>

	<p>7.2. Decide if it is necessary to remove a structure in close proximity to excavation.</p> <p>7.3. Decide if the structure needs temporary support before digging starts. Surveys of the foundations and the advice of a structural engineer may be needed</p> <p>7.4. If shoring support is required, it should be installed in such a way that the stability of the structure is not compromised at any stage of the installation/excavation process</p>
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### ***Range Statement***

- Identify and be aware of hazards associated with excavation work:
- Excavation collapse
- Loose rock or soil
- Falling loads - Materials falling onto people working in the excavation
- Mobile equipment - People and vehicles falling into the excavation
- Ground water
- Procedures to follow prior to excavation:
- See if the space is adequately ventilated to maintain adequate oxygen content and prevent the accumulation of harmful substances
- making of appropriate emergency arrangements
- know about safe digging practices and emergency procedures
- Take safety measures and precautions to prevent excavation hazard
- support the walls with timber, sheeting or proprietary support systems
- not allow any vehicle or item of plant near an edge of an excavation that may be likely to cause collapse
- Keep equipment and materials piled, grouped or stacked at a suitable safe distance from the edge of the excavations
- wear a hard hat when working in excavations
- where the rock is friable, netting should be used
- Fence off all excavations in public places to prevent pedestrians and vehicles falling into them.
- Ensure excavations do not affect the footings of scaffolds or the foundations of nearby structures

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of excavation tasks and use of personal protective equipment in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Find out what the use and history of the location of work is when carrying out risk assessment. Buried underground pipe work or a leakage in sewage system may present a hidden hazard.
- A safe system of work must be developed and put in place, including the making of appropriate emergency arrangements
- Use locators to trace any services and mark the ground accordingly
- Do not allow any vehicle or item of plant near an edge of an excavation that may be likely to cause collapse.
- Do not store spoil or other materials close to the sides of excavations. The spoil may fall into the excavation and the extra loading will make the sides more prone to collapse
- precautions should be taken such as backfilling or securely covering excavations
- Do not leave materials lying beside the area of work if not required for imminent use beside the excavation
- Decide if the structure needs temporary support before digging starts

***Resources required for assessment***

The following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- personal protective equipment such as:
  - Protective helmets (hard hats)
  - Excavation equipment

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of identifying hazards associated with excavation work such as excavation collapse, loose rock or soil or underground service or overhead powerlines</li><li>• General knowledge of making safe system of work which involve the provision of adequate ventilation, testing of atmosphere, or buried underground pipe work or a leakage in sewage system which may present a hidden hazard.</li><li>• General knowledge of measures to be taken to prevent excavation collapse</li><li>• General knowledge of measures to be taken to prevent materials falling onto workers in excavations</li><li>• General knowledge of measures to be taken to prevent people and vehicles falling into the excavation</li><li>• General knowledge of measures to be taken regarding the stability of a nearby structure</li></ul>	<ul style="list-style-type: none"><li>• Able to choose appropriate personal protective equipment according to safety requirement</li><li>• Able to select filter lens shades depending on the work</li><li>• Able to follow the written procedures</li><li>• Able to maintain safety procedures in order to protect oneself as well as the other employees</li><li>• Able to act promptly and follow emergency procedures when required</li></ul>

**Unit 16**

<b>UNIT TITLE</b>	<b>Stairways and ladders</b>				
<b>DESCRIPTOR</b>	In this unit it will describe the important safety measures to be taken while using stairways and ladders.				
<b>CODE</b>	CON11S1U16V1	Level	4	Credit	6

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Safe entry and exit	<p>1.1. Provide with a safe way of entering and leaving work area</p> <p>1.2. Safe entry and exit must take into account both normal operations and emergency situations. For example: a proper climbing device</p> <p>1.3. Means of entry or exit must be maintained in a good state of repair e.g. access ladders have all rungs in place, the hinges and panic bars on doors operate properly, the braking mechanism of an emergency escape buggy operates smoothly</p> <p>1.4. Means of entry and exit must be kept clear of materials, equipment, waste, and other obstructions. Doing so allows workers to safely move into and out of work areas, preventing slips, trips, and falls.</p>
2. Doors	<p>2.1 Doors must be appropriately selected and then maintained so that workers can open them without substantial effort. Doorways must be kept free of obstructions.</p> <p>2.2 Enclosed areas may pose a hazard to workers entering them. Examples of enclosed areas include freezers, refrigerators, and rooms that present conditions hazardous to workers. The type of door and hardware used is left up to the employer.</p> <p>2.3 The door must be kept in good working order and must be provided with a means of opening it from the inside. This is an obvious requirement for freezers and refrigerators. Enclosed areas that pose a hazard to workers also require doors that can be opened from the inside.</p>
3. Walkways, runways and ramps	<p>3.1. Permanent and temporary walkways, runways and ramps must be strong enough to support all expected loads</p> <p>3.2. At least 600 mm wide to permit the safe movement of equipment and workers,</p> <p>3.3. Where applicable, be equipped with guardrails and toe boards.</p> <p>3.4. Runways and ramps surface must be non-slip, abrasive surface.</p>

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4. Stairways	<ul style="list-style-type: none"><li>4.1. Stairway, the width of the treads and the height of the rise must not change. This reduces the likelihood of workers tripping or stumbling due to unexpected changes as they move up or down the stairway.</li><li>4.2. Stairways with five or more risers must be equipped with a handrail</li><li>4.3. A stairway having an open or unprotected side must not only have a handrail, but must also have an intermediate rail or equivalent safeguard e.g., filled in with expanded metal, solid plywood barricade, etc. In effect, a “guardrail” is being placed across the open or unprotected side of the stairway</li></ul>
5. Ladders	<ul style="list-style-type: none"><li>5.1. A ladder should be used only if there is no other safe and recognizable way of doing so. Walking down an earthen ramp or walking up a set of stairs are preferred to using a ladder</li><li>5.2. Ladders made by fastening cleats or steps across a single rail or post must not be built, let alone used. Such a device is unstable and unsafe for use.</li><li>5.3. Only transparent, nonconductive finishes such as varnish, shellac, or a clear preservative should be used</li><li>5.4. Ladders should be kept free of any waste products such as drywall mud, cement, paint, adhesives or sealants.</li></ul>
6. Crawl Board or Roof Ladder	<ul style="list-style-type: none"><li>6.1. The bracket at the upper end of a crawl board or roof ladder should be deep enough to reach over the ridge of the roof and overlap the roof framing.</li><li>6.2. Eaves troughs must not be used to support a crawl board or roof ladder. An eaves trough may not be strong enough to support the combined weight of the crawl board or ladder and the worker using it</li></ul>
7. Portable Ladders	<ul style="list-style-type: none"><li>7.1. Never work from the top two treads of a stepladder unless permitted to do so by the manufacturer’s specifications</li><li>7.4. Always face the stepladder treads when using a stepladder</li><li>7.5. Never use a stepladder for entry to or exit from another work area.</li><li>7.6. Never lean to one side or overreach while using a stepladder</li><li>7.7. Unless permitted by the stepladder manufacturer, never use a stepladder as a support for a working platform as the ladder is too unstable</li><li>7.8. Always visually inspect the ladder before each use</li><li>7.9. Always place a stepladder on a firm, flat surface</li><li>7.10. Do not place a stepladder on boxes or scaffolds to gain extra height.</li><li>7.11. Always take care when positioning a stepladder in corridors or driveways where it could be hit by</li></ul>

	a person or vehicle. Set up suitable barriers where necessary. Set base on secure, even surface. Shim the base if necessary
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### ***Range Statement***

Inspect, maintain and follow the following practices when using ladder for the health and safety in construction

- Maintain entry or exit in a good state of repair e.g. access ladders have all rungs in place, the hinges and panic bars on doors operate properly, the braking mechanism of an emergency escape buggy operates smoothly
- Door kept in good working order and be provided with a means of opening it from the inside.
- Non-slip, abrasive surface.
- Walkways, runways and ramps walkways, runways and ramps
- Ladders kept free of any waste products such as drywall mud, cement, paint, adhesives or sealants
- take care when positioning a stepladder in corridors or driveways where it could be hit by a person or vehicle. Set up suitable barriers where necessary. Set base on secure, even surface. Shim the base if necessary

### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks and use of ladders, portable ladders in construction work or area
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Provide with a safe way of entering and leaving work area
- The door must be kept in good working order and must be provided with a means of opening it from the inside.
- Runways and ramps surface must be non-slip, abrasive surface
- Stairways with five or more risers must be equipped with a handrail
- Ladders should be kept free of any waste products such as drywall mud, cement, paint, adhesives or sealants
- Always face the stepladder treads when using a stepladder

### ***Resources required for assessment***



following should be made available:

- A workplace or simulated workplace
- Situations requiring safe working practices
- Instructions on safe working practice
- Ladders
- Crawl Board or Roof Ladder
- Portable Ladders

### ***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of providing with a safe way of entering and leaving work area</li> <li>• General knowledge of appropriately selecting and then maintaining so that workers can open them without substantial effort and keeping doorways free of obstructions.</li> <li>• General knowledge of maintaining walkways, runways and ramps safe such as guardrails and 600mm wide to permit the safe movement of equipment and workers</li> <li>• General knowledge of safety precautions to take when using ladders, crawl board or roof ladder and portable ladders</li> </ul>	<ul style="list-style-type: none"> <li>• Able to maintain safety procedures in order to protect oneself as well as the other employees</li> <li>• Able to act promptly and follow emergency procedures when required</li> </ul>

## UNIT 17

<b>UNIT TITLE</b>	<b>Construction Safety: Planning, Training and Jobsite Inspections</b>				
<b>DESCRIPTOR</b>	<p>General contractors manage a variety of considerations as they oversee a building's construction. One of the most important concerns a general contractor must control, particularly in the construction industry, is safety.</p> <p>In construction the most important concerns is controlling, is safety. This unit describes the skills and knowledge required in managing and maintaining a safe jobsite and minimizing the risk from these and many other hazards</p>				
<b>CODE</b>	CON11S1U17V1	Level	4	Credit	9

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Steps to a Superior Safety Program	<p>1.1. Do it For the Right Reason: rather than viewing regulations as rule regulations as rules to follow, use them as steps to help t be safe.</p> <p>1.2. Enforce employees to follow the regulation all the time</p> <p>1.3. Enforce standards, pay for the training and equipment and establish the concept that safety is the ONLY way of doing business.</p>
2. Plan Ahead	<p>2.1. Devote time before construction starts to identify those risks and establish a plan to address them</p> <p>2.2. Communicate safety analysis every day to workers so they know what hazards to expect and how to work around them.</p> <p>2.3. Offer training to employees, keep them informed of trends and upcoming changes.</p>
3. Train Relentlessly	<p>3.1. Make sure all the employees complete all required training and then get additional training</p> <p>3.2. Train people above the minimum standards. Every time people are trained, they become more capable and more focused on safety.</p>
4. Inspect Regularly	<p>4.1 Inspect regularly. Inspections are the most effective means of catching and countering bad habits</p> <p>4.2 Get superintendents, project managers, even company leadership involved with inspections to emphasize their importance</p>
5. Planning: Stopping Mishaps Before They Occur	<p>5.1. Before work starts, assess the tasks to be performed and identify hazards, then eliminate them or engineer them out.</p>

	5.2. Start this process
	5.3. Make safety plan and make it available to everyone involved in our projects

### ***Range Statement***

- Follow the rules and regulations and use them as steps to help to be safe
- Make a construction plan to identify the construction work risks, and to address them
- Plan training programs regarding safety and health measures
- Conduct and train workers on safety health measures
- Before work starts, assess the tasks to be performed and identify hazards, then eliminate them or engineer them out
- Make safety plan and make it available to everyone involved in our projects

### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of tasks such as planning, identifying and conducting risk assessment
- Planning and conducting training programs for the workers
- Identifying hazards in a simulated working environment and then eliminating them or engineer them out

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Make a plan of the construction work or task
- Make a risk assessment to identify the possible risks/hazards and address these issues before the start of construction work
- Enforce employees to follow the regulation all the time.

#### ***Resources required for assessment***

The following should be made available:

- Construction work plan
- Simulated working environment
- Safety plan

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of construction industry rules and regulations</li> <li>• General knowledge of formulating a plan of possible risks and how to address these risks</li> <li>• General knowledge of basic health safety measures to be taken while working in construction site</li> <li>• General knowledge of appropriately selecting and then maintaining so that workers can open them without substantial effort and keeping doorways free of obstructions.</li> <li>• General knowledge of maintaining walkways, runways and ramps safe such as guardrails and 600mm wide to permit the safe movement of equipment and workers</li> <li>• General knowledge of safety precautions to take when using ladders, crawl board or roof ladder and portable ladders</li> </ul>	<ul style="list-style-type: none"> <li>• Able to analyse and interpret possible risk factors before the work starts</li> <li>• Able to address risk factors accordingly</li> <li>• Able to effectively communicate and transmit information to a group of people</li> <li>• Able inspect on a regular basis</li> <li>• Ability to assess identify the working hazard and eliminate them or engineer them out</li> <li>• Able to make safety plan and make available to everyone involved in our projects.</li> </ul>

**UNIT 18**

<b>UNIT TITLE</b>	<b>Construction Phase Plan</b>				
<b>DESCRIPTOR</b>	A simple plan before the work starts is usually enough to show that you have thought about health and safety. This unit describes how to plan and organize the job, and work together with others involved to make sure that the work is carried out without risks to health and safety.				
<b>CODE</b>	CON11S1U18V1	Level	4	Credit	18

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Prepare Plan	<p>1.1 Make a plan of</p> <ul style="list-style-type: none"> <li>- When you'll start and finish</li> <li>- When services will be connected/disconnected</li> <li>- Build stages, such as groundwork or fit out</li> <li>- Find out information from the client about the property, eg: <ul style="list-style-type: none"> <li>- Where the services and isolation points are</li> </ul> </li> </ul> <p>1.2 Access restriction to the property</p> <p>1.3 If there is any asbestos present</p>
2. Working together	<p>2.1 Record the details of anybody else working on the job, including specialist companies and laborer</p> <p>2.2 Explain how to communicate with others (e.g.: via a daily update)</p> <p>2.3 Provide information about the about the job, coordinate your work with theirs and keep them updated of any changes, to site rules, to health and safety information what you will do if the plan or materials change or if there are any delays, who will be making the key decisions about how the work is to be done.</p>
3. Organize	<p>3. Identify the main dangers on site and how you will control them, eg:</p> <ul style="list-style-type: none"> <li>- The need for scaffolding if working at height</li> <li>- How structures and excavations will be supported to prevent collapse</li> <li>- How you will prevent exposure to asbestos and building dust</li> <li>- How you will keep the site safe and secure for your client, their family and members of the public.</li> </ul> <p>3.1. Make sure that there is toilet, washing and rest facilities</p> <p>3.2. Name the person responsible for ensuring the job runs safely.</p> <p>3.3. Explain how supervision will be provided.</p>

**Range Statement**

Procedures for construction phase plan

**Prepare plan:**

- starting and finishing date and time
- When services will be connected/disconnected
- Build stages, such as groundwork or fit out

### **Working together**

- Record details
- Communication procedure
- Keep worker updated to site rules, to health and safety information

### **Organise:**

- Main dangers on site and how you will control them
- Structures and excavations support to prevent collapse
- Availability of toilet, washing and rest facilities
- Supervision procedure

### ***Tools, equipment and materials required may include:***

Nil

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of preparing plan, team building and organising workers to reduce health and safety hazards in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Prepare a plan of duration of work and build stages
- Update workers with the safety rules and procedures of communication and reporting
- Identify the main dangers on site and how you will control them

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of preparing construction phase plan which include time line and build states such as ground work or fit out</li><li>• General knowledge of the risks and hazards of the site</li><li>• General knowledge of the measures procedures to address the identified risks and hazards</li><li>• General knowledge of the construction site rules and plan of line of authority</li></ul>	<ul style="list-style-type: none"><li>• Able to prepare reliable well researched construction plan</li><li>• Able to work as a team</li><li>• Able to conduct and act as a team leader</li><li>• Effective communicating skill to communicate to a group of people and transmit important messages clearly and thoroughly</li><li>• Organising skill to identify possible risks and site hazards and take action to prevent those hazards</li><li>• Organizing skill for supervision</li></ul>

## UNIT 19

<b>UNIT TITLE</b>	<b>Leadership in Safety and Health in Construction</b>				
<b>DESCRIPTOR</b>	This unit describes vision and resources needed to implement an effective safety and health program				
<b>CODE</b>	CON11S1U19V1	Level	4	Credit	18

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Communicate your commitment to a safety and health program	1.1. Communicate the policy to all workers and relevant stakeholders, including, as applicable 1.2. Establish a written policy signed by top management describing the organization's commitment to safety and health and pledging to establish and maintain a safety and health program. 1.3. Labor unions 1.4. Suppliers and vendors
2. Define program goals and expectations	2.1. Establish specific goals and objectives. The goals and objectives should focus on specific actions that will improve workplace safety. 2.2. Establish realistic, attainable, and measurable goals that demonstrate progress toward improving safety and health 2.3. Develop plans to achieve the goals by assigning tasks and responsibilities to particular individuals, setting time frames, and determining resource needs 2.4. Communicate the goals and plans to your workers, as well as contractor, subcontractor, and temporary staffing agency workers
3. Allocate resources	3.1. Provide the resources needed to implement the safety and health program 3.2. Pursue program goals, and address program deficiencies when they are identified. 3.3. Integrate safety and health into planning and budgeting processes and align budgets with program needs 3.4. Estimate the resources needed to establish and implement the program 3.5. Allow time in workers' schedules for full participation in the program. 3.6. Provide and direct resources (money and staff time) to operate and maintain the program, meet safety and health commitments, and pursue program goals. 3.7. Make arrangements to ensure that resources such as first-aid and medical treatment are available if a worker is injured at work or suffers a work-related illness
4. Expect performance	4.1. Define and communicate responsibilities and authorities for implementing and maintaining



	<p>the program and hold people accountable for performance</p> <p>4.2. Ensure that top leadership and local management share the same safety and health performance goals and priorities.</p> <p>4.3. Set an example for workers by following the same safety procedures you expect them to follow.</p> <p>4.4. Establish ways for management and all workers to communicate freely and often about safety and health issues, without fear of retaliation</p>
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### ***Range Statement***

Procedures for implementing an effective safety and health program

- Establish a written policy signed by top management describing the organization's commitment to safety and health and pledging to establish and maintain a safety and health program
- Communicate the policy to all workers and relevant stakeholders, including, as applicable
- Establish realistic, attainable, and measurable goals that demonstrate progress toward improving safety and health
- Provide the resources needed to implement the safety and health program
- Pursue program goals, and address program deficiencies when they are identified.
- Estimate the resources needed to establish and implement the program
- Make arrangements to ensure that resources such as first-aid and medical treatment are available if a worker is injured at work or suffers a work-related illness
- Define and communicate responsibilities and authorities for implementing and maintaining the program and hold people accountable for performance
- Establish ways for management and all workers to communicate freely and often about safety and health issues, without fear of retaliation

### ***Tools, equipment and materials required may include:***

Nil

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of communicating written policy to workers, developing plans to achieve the goals by assigning tasks and responsibilities to particular individuals, setting time frames, and determining resource needs and setting an example worker by following the same safety procedures you expect them to follow in a simulated or a real working environment
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Written policy signed by top management describing the organization's commitment to safety and health and pledging to establish and maintain a safety and health program and communicating this policy to the workers
- Establish realistic, attainable, and measurable goals and plans to achieve the goals
- Communicate the goals and plans to the workers
- Integrate safety and health into planning and budgeting processes and align budgets with program needs
- Estimate the resources needed to establish and implement the program
- Establish ways for management and all workers to communicate freely and often about safety and health issues, without fear of retaliation

### ***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• General knowledge of organisational policy on safety and health to maintain health and safety of the workers</li> <li>• General knowledge of establishing realistic goals and planning how to achieve those goals</li> <li>• General knowledge of the measures procedures to address the identified risks and hazards</li> <li>• General knowledge of responsibilities and authorities for implementing and maintaining the program and hold people accountable for performance</li> </ul>	<ul style="list-style-type: none"> <li>• Effective communication skill to communicate organisational policies to workers</li> <li>• Skills to formulate realistic attainable goals</li> <li>• Skills in working with a group of people</li> <li>• Team building skill</li> <li>• Ability to delegate tasks to the workers to achieve the established goal within the time frame.</li> <li>• Able to allocate resources according to its requirement</li> <li>• Able to maintain the line of authority in working environment</li> <li>• Able to implement and maintain the program and hold people accountable for performance</li> </ul>

**Unit 20**

<b>UNIT TITLE</b>	<b>Workers Participant</b>				
<b>DESCRIPTOR</b>	Workers often know the most about their jobs and any potential hazards. A safety and health program will be ineffective without meaningful participation of workers and (if applicable) their representatives in establishing and operating the program. This unit describes the importance of participating and how to participate workers				
<b>CODE</b>	CON11S1U20V1	Level	4	Credit	18

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Encourage workers to report safety and health concerns	1.1 Establish a process for workers to report injuries, illnesses, close calls/near misses, and other safety and health concerns; respond to reports promptly. Reporting processes may have an anonymous component to reduce any fear of reprisal 1.2 Empower all workers to temporarily suspend or shut down any work activity or operation they feel is unsafe. 1.3 Involve workers in finding solutions to reported issues. 1.4 Emphasize that management will use reported information only to improve workplace safety and health, and that no worker 1.5 Acknowledge and provide positive reinforcement to workers who actively participate in the program. 1.6 Maintain an open-door policy that invites workers to talk to managers about safety and health
2. Involve workers in all aspects of the program	2.1. Provide opportunities for workers to participate in all aspects of the program, such as: 2.2. Developing the program. 2.3. Reporting hazards and developing solutions that improve safety and health. 2.4. Analyzing hazards in each step of routine and non-routine jobs, tasks, and processes. 2.5. Defining/documenting safe work practices. 2.6. Conducting site inspections. 2.7. Developing and revising safety procedures. 2.8. Participating in incident and close call/near miss investigations. 2.9. Serving as trainers for current coworkers and new hires. Developing, implementing, and evaluating training programs
3. Give workers access to safety and health information	3.1. Give workers information they may need to understand safety and health hazards. 3.2. Make specific types of information available to workers. 3.3. Safety Data Sheets 3.4. Injury and illness data (may need to be aggregated to eliminate personal identifiers). 3.5. Results of environmental exposure monitoring

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	<p>conducted in the workplace.</p> <p>3.6. Other useful information for workers to review:</p> <p>3.7. Chemical and equipment manufacturer safety recommendations.</p> <p>3.8. Workplace inspection reports.</p> <p>3.9. Incident investigation reports.</p> <p>3.10. Workplace job hazard analyses.</p>
4. Remove barriers to participation	<p>4.1. Ensure that workers from all levels of the organization can participate regardless of their skill level, education, or language.</p> <p>4.2. Ensure that other policies and programs do not discourage worker participation</p> <p>4.3. Authorize sufficient resources to facilitate worker participation; for example, hold safety and health meetings during workers' regular working hours</p>

### **Range Statement**

Procedures for participating workers in establishing and operating the health and safety program of the construction site.

- Establish a process for workers to report injuries, illnesses, close calls/near misses, and other safety and health concerns
- Involve workers in finding solutions to reported issues.
- Provide opportunities for workers to participate in all aspects of the program, such as developing program, reporting hazards and developing solutions that improve safety and health and **analysing** hazards in each step of routine and non-routine jobs, tasks, and processes
- Developing, implementing, and evaluating training programs
- Give workers information they may need to understand safety and health hazards.
- Ensure that workers from all levels of the organization can participate regardless of their skill level, education, or language.

### **Tools, equipment and materials required may include:**

Nil

### **Assessment guide**

#### **Forms of assessment**

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of encouraging workers to report safety and health concerns involving workers in improving and maintaining health and safety and removing barriers to workers participation in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### **Assessment context**

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### **Critical aspects (for assessment)**

It is essential that competence is fully observed and there is ability to transfer competence to

changing circumstances and to respond to unusual situations in the critical aspects of:

- Emphasize that management will use reported information only to improve workplace safety and health, and that no worker
- Acknowledge and provide positive reinforcement to workers who actively participate in the program
- Provide opportunities for workers to participate in all aspects of the program
- Serve as trainers for current co-workers and new hires. Developing, implementing, and evaluating training programs
- Authorize sufficient resources to facilitate worker participation; for example, hold safety and health meetings during workers' regular working hours

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of encouraging and empowering workers to report safety and health concerns</li><li>• General knowledge of safe work practices and conducting site inspection</li><li>• General knowledge of conducting training programs</li><li>• General knowledge of Chemical and equipment manufacturer safety recommendations, inspection reports, incident investigation reports and workplace job hazard analyses.</li><li>• General knowledge of organisational policies and programs to ensure that policies and programs do not discourage worker participation</li></ul>	<ul style="list-style-type: none"><li>• Able to empower and encourage workers</li><li>• Team corporation building skill</li><li>• Able to positively reinforce workers to actively participate in health and safety programs</li><li>• Able to work collaboratively with team members and delegate tasks</li><li>• Effectively communicate to team members regarding information they may need to understand safety and health hazards</li><li>• Ability to eliminate discrimination and in equality among team members to e ensure that workers from all levels of the organization can participate regardless of their skill level, education, or language.</li></ul>

**Unit 21**

<b>UNIT TITLE</b>	<b>Hazard Identification and Assessment</b>				
<b>DESCRIPTOR</b>	This unit describes identify and assess hazards in order to fix them is a core element of any effective safety and health program. Failure to identify or recognize hazards is frequently one of the “root causes” of workplace injuries, illnesses, and incidents and indicates that the safety and health program is ineffective. Hazard assessment can lead to opportunities to improve program performance.				
<b>CODE</b>	CON11S1U21V1	Level	4	Credit	15

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Collect existing information about workplace hazards	<p>1.1. Collect, organize, and review information to determine what types of hazards are present and which workers may be exposed or potentially exposed.</p> <p>1.2. Information available in the workplace may include:</p> <p>1.3. Equipment and machinery operating manuals.</p> <p>1.4. Safety Data Sheets provided by chemical manufacturers.</p> <p>1.5. Inspection reports from insurance carriers, government agencies, and consultants. Previous injury and illness records, such as OSHA 300 and 301 logs, and incident investigation reports. Results of medical reports/consultations (e.g., nurse reviews or medical surveillance). Input from workers.</p>
2. Inspect the workplace	<p>2.1. Conduct regular worksite inspections to observe the workflow, inspect equipment and materials, and talk with workers. Be sure to document inspections so you can later verify that hazardous conditions are corrected. Photograph or video-record problem areas to facilitate later discussion and brainstorming and for use as a learning aid.</p> <p>2.2. Include ancillary activities in these inspections, such as facility and equipment maintenance; purchasing and office functions; and on-site contractor, subcontractor, and temporary employee activities</p> <p>2.3. Use checklists that highlight things to look for. Typical hazards fall into several major categories:</p> <ul style="list-style-type: none"> <li>-Chemical agents</li> <li>- Biological agents</li> <li>- Physical agents</li> <li>- General housekeeping</li> <li>- Equipment operation</li> </ul>

	<ul style="list-style-type: none"> <li>- Equipment maintenance</li> <li>- Fire protection</li> <li>- Fall Protection Work and process flow Work practices</li> <li>- Lack of emergency procedures</li> </ul> <p>2.4. Before changing workflows, making major organizational changes, or introducing new equipment, materials, or processes, evaluate the planned changes for potential hazards. In construction, conflicting work schedules may create hazards. Consider initiating a thorough hazard review whenever you:</p> <ul style="list-style-type: none"> <li>- Consider any facility modifications.</li> <li>- Introduce a new chemical.</li> <li>- Purchase or install new equipment.</li> <li>- Change a work practice.</li> <li>- Change equipment during maintenance activities.</li> <li>- Schedule construction activities that may expose other workers to hazards.</li> <li>- Receive new safety and health information</li> </ul>
<p>3. Conduct incident investigations</p>	<p>3.1. Develop a clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs. The plan should cover items such as</p> <ul style="list-style-type: none"> <li>- Who will be involved.</li> <li>- Lines of communication</li> <li>- Materials, equipment, and supplies needed.</li> <li>- Reporting forms and templates</li> </ul> <p>3.2. Investigate with a team that includes both management and worker representation</p> <p>3.3. Train investigation teams on incident investigation techniques and on remaining objective and open-minded throughout the investigation process.</p> <p>3.4. Conduct root cause analysis to identify underlying program deficiencies that allowed the incident to happen.</p> <p>3.5. In responding to incidents that result in injury or illness, take the following steps:</p> <p>3.6. Provide first-aid and emergency care for injured worker</p> <p>3.7. Take any measures necessary to prevent additional incidents.</p> <p>3.8. Report incidents as required to internal and external authorities</p> <p>3.9. Interview any witnesses separately.</p> <p>3.10. Preserve the scene.</p> <p>3.11. Collect physical evidence.</p> <p>3.12. Conduct interviews.</p>

	<ol style="list-style-type: none"><li>3.13. Collect and review other information.</li><li>3.14. Assemble and analyze all available evidence.</li><li>3.15. Document your findings and recommendations to address the root causes.</li><li>3.16. Develop a corrective action plan and identify those responsible for implementing the plan by following the action items listed under “Hazard Prevention and Control</li><li>3.17. Communicate the results of the investigation and recommended corrective actions to affected workers and their supervisors for training purposes</li></ol>
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### ***Range Statement***

Procedures for identifying and assessing hazards in order to fix them for an effective safety and health program.

- Collect, organize, and review information to determine what types of hazards are present and which workers may be exposed or potentially exposed.
- Conduct regular worksite inspections to observe the workflow, inspect equipment and materials, and talk with workers
- Document inspections so you can later verify that hazardous conditions are corrected
- Use checklists that highlight things to look for
- evaluate the planned changes for potential hazards
- Conduct incident investigations
- Develop a clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs
- Train investigation teams on incident investigation techniques and on remaining objective and open-minded throughout the investigation process
- Communicate the results of the investigation and recommended corrective actions to affected workers and their supervisors for training purposes

### ***Tools, equipment and materials required may include:***

Nil

### ***Assessment guide***

#### ***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of collecting existing information about workplace hazards / inspecting the workplace/conducting incident investigations in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

#### ***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

#### ***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:



## HEALTH AND SAFETY IN CONSTRUCTION

- Collect existing information such as inspection reports from insurance carriers, government agencies, and consultants. Previous injury and illness records.
- Conduct regular worksite inspections to observe the workflow, inspect equipment and materials, and talk with workers
- Consider initiating a thorough hazard review whenever you:
  - Consider any facility modifications.
  - Introduce a new chemical.
  - Purchase or install new equipment.
  - Change a work practice.
  - Change equipment during maintenance activities.
  - Schedule construction activities that may expose other workers to hazards.
  - Receive new safety and health information
- A clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs
- Conduct root cause analysis to identify underlying program deficiencies that allowed the incident to happen.
- Develop a corrective action plan and identify those responsible for implementing the plan by following the action items listed under “Hazard Prevention and Control”

### *Underpinning knowledge and skills*

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of collecting, organising and reviewing information such as equipment and machinery operating manuals, safety data sheets provided by chemical manufacturers and inspection reports</li><li>• General knowledge of inspecting equipment and materials and workplace workflow</li><li>• General knowledge of developing a clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs</li><li>• General knowledge of investigation techniques</li></ul>	<ul style="list-style-type: none"><li>• Organising and interpreting skill to review information about workplace hazards</li><li>• Inspection skill to inspect the worksite regularly</li><li>• Critical thinking and evaluating skill in changing workflows and changing major organizational changes</li><li>• Investigation skill to conduct investigation in case of injury</li><li>• Training skill to train the team</li><li>• Interviewing skill to interview witnesses during investigation</li><li>• Effective communication skill in communicating the results of the investigation and recommended corrective actions to affected workers and their supervisors for training purposes</li></ul>

**UNIT 22**

<b>UNIT TITLE</b>	<b>Hazard Prevention and Control</b>				
<b>DESCRIPTOR</b>	Effective controls protect workers from workplace hazards generally; prevent injuries, illnesses, and incidents; minimize or eliminate safety and health risks; and help employers provide workers with safe and healthy working conditions. This unit describe skills and knowledge to prevent and control the hazards you identified in the previous section of these guidelines				
<b>CODE</b>	CON11S1U22V1	Level	4	Credit	18

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Identify control options	<p>1.1. Investigate control measures used in other workplaces and determine whether they would be effective.</p> <p>1.2. Get input from workers who may be able to suggest solutions based on their knowledge of the facility, equipment, and work processes.</p>
2. Select controls	<p>2.1. Plan to eliminate or control all serious hazards (that is, hazards that are causing or are likely to cause death or serious physical harm) immediately.</p> <p>2.2. Use interim controls, if needed, while you are developing and implementing permanent controls.</p> <p>2.3. Select controls according to a hierarchy that emphasizes engineering solutions (including elimination or substitution) first, followed by safe work practices, administrative controls, and finally PPE.</p>
3. Develop and update a hazard control plan	<p>3.1. List hazards that need controls in order of priority and who will be involved.</p> <p>3.2. Assign responsibility for installing/implementing the controls to a specific person or persons who have the power or ability to implement the controls</p> <p>3.3. Establish a target completion date.</p> <p>3.4. Plan how you will track progress toward completion.</p> <p>3.5. Plan how you will verify the effectiveness of controls after they are installed or implemented</p>
4. Select controls to protect workers during non-routine operations and emergencies	<p>4.1. Plan to protect workers during non-routine operations and foreseeable emergencies, such as fires and explosions, chemical releases, hazardous material spills, unplanned equipment shutdowns, natural disasters, and weather and medical emergencies</p> <p>4.2. Develop procedures to control hazards that may arise during non-routine operations</p> <p>4.3. Develop or modify plans to control hazards that may arise in emergency situations.</p> <p>4.4. Procure any equipment needed to control</p>

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	<p>emergency-related hazards.</p> <p>4.5. Assign responsibilities for implementing the emergency plan</p> <p>4.6. Conduct emergency drills to ensure that procedures and equipment provide adequate protection during emergency situations.</p>
<p>5. Follow up to confirm that controls are effective</p>	<p>5.1. To ensure that control measures remain effective, track progress in implementing controls, inspect controls once they are installed, and follow routine preventive maintenance practices.</p> <p>5.2. Conduct regular inspections (and industrial hygiene monitoring, if indicated) to confirm that engineering controls are operating as designed</p> <p>5.3. Confirm that work practices, administrative controls, and PPE use policies are being followed.</p> <p>5.4. Conduct routine preventive maintenance of equipment, facilities, and controls to help prevent incidents due to equipment failure.</p> <p>5.5. Track progress and verify implementation by asking the following questions:</p> <p>5.6. Have all control measures been implemented according to schedule?</p> <p>5.7. Have engineering controls been properly installed and tested?</p> <p>5.8. Have workers been appropriately trained so they understand the controls, including safe work practices and PPE use requirements?</p> <p>5.9. Are controls being used correctly and consistently?</p>
<p>6. Implement selected controls in the workplace</p>	<p>6.1. Implement hazard control measures according to the priorities established in the hazard control plan.</p> <p>6.2. When resources are limited, implement measures on a “worst-first” basis according to the hazard ranking priorities established during hazard identification and assessment. (Note, however, that irrespective of limited resources, employers must protect workers from recognized, serious hazards.)</p> <p>6.3. Quick fixes include general housekeeping, removal of obvious tripping hazards (e.g., electrical cords), and basic lighting, regardless of the level of hazard they control.</p>

### **Range Statement**

Procedures for identifying and assessing hazards in order to fix them for an effective safety and health program.

- Collect, organize, and review information to determine what types of hazards are present and which workers may be exposed or potentially exposed.
- Conduct regular worksite inspections to observe the workflow, inspect equipment and materials, and talk with workers
- Document inspections so you can later verify that hazardous conditions are corrected
- Use checklists that highlight things to look for

- evaluate the planned changes for potential hazards
- Conduct incident investigations
- Develop a clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs
- Train investigation teams on incident investigation techniques and on remaining objective and open-minded throughout the investigation process
- Communicate the results of the investigation and recommended corrective actions to affected workers and their supervisors for training purposes

***Tools, equipment and materials required may include:***

Nil

***Assessment guide***

***Forms of assessment***

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- Direct observation of collecting existing information about workplace hazards / inspecting the workplace/conducting incident investigations in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application

***Assessment context***

Assessment of this unit must be completed on the job or in a simulated work environment which reflects a range of safe working practices.

***Critical aspects (for assessment)***

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Collect existing information such as inspection reports from insurance carriers, government agencies, and consultants. Previous injury and illness records.
- Conduct regular worksite inspections to observe the workflow, inspect equipment and materials, and talk with workers
- Consider initiating a thorough hazard review whenever you:
  - Consider any facility modifications.
  - Introduce a new chemical.
  - Purchase or install new equipment.
  - Change a work practice.
  - Change equipment during maintenance activities.
  - Schedule construction activities that may expose other workers to hazards.
  - Receive new safety and health information
- A clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs
- Conduct root cause analysis to identify underlying program deficiencies that allowed the incident to happen.
- Develop a corrective action plan and identify those responsible for implementing the plan by following the action items listed under “Hazard Prevention and Control

***Underpinning knowledge and skills***

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"><li>• General knowledge of collecting organising and reviewing information such as equipment and machinery operating manuals, safety data Sheets provided by chemical manufacturers and inspection reports</li><li>• General knowledge of inspecting equipment and materials and workplace workflow</li><li>• General knowledge of developing a clear plan and procedure for conducting incident investigations so an investigation can begin immediately after an incident occurs</li><li>• General knowledge of investigation techniques</li></ul>	<ul style="list-style-type: none"><li>• Organising and interpreting skill to review information about workplace hazards</li><li>• Inspection skill to inspect the worksite regularly</li><li>• Critical thinking and evaluating skill in changing workflows and changing major organizational changes</li><li>• Investigation skill to conduct investigation in case of injury</li><li>• Training skill to train the team</li><li>• Interviewing skill to interview witnesses during investigation</li><li>• Effective communication skill in Communicate the results of the investigation and recommended corrective actions to affected workers and their supervisors for training purposes</li></ul>

## Unit 23

<b>UNIT TITLE</b>	<b>Supervise concreting work</b>				
<b>DESCRIPTOR</b>	This unit describes specifies the outcomes required to oversee site preparation for concreting work, initiate or direct concreting operations, and monitor concreting procedures to ensure timely completion of concreting works to the required quality standards. The unit involves team leadership and the coordination and monitoring of concreting procedures.				
<b>CODE</b>	CON11S1U23V1	Level	4	Credit	10

<b>ELEMENTS OF COMPETENCIES</b>	<b>PERFORMANCE CRITERIA</b>
1. Supervise preparation for concreting work.	<p>1.1. Work instructions are communicated to team members and questions are invited and addressed</p> <p>1.2. Team members' understanding of <b><i>work health and safety (WHS)</i></b> and <b><i>environmental requirements</i></b> is confirmed.</p> <p>1.3. Team members' selection of <b><i>materials, tools and equipment</i></b> is confirmed as consistent with job requirements</p> <p>1.4. Reported tool and equipment faults are processed according to WHS requirements and replacements are sourced as required</p> <p>1.5. Team members' manual handling and placement of materials, tools and equipment at the site are monitored and directed to ensure safety and efficiency</p>
2. Supervise preparation of site for concrete pour	<p>2.1. Site excavation and preparation of sub-grade are monitored and directed to ensure safety, quality and timeliness</p> <p>2.2. Formwork installation is monitored and directed to ensure compliance with work plans and specifications</p> <p>2.3. Levelling procedures are conducted or monitored and directed to ensure levels are set according to work plans and specifications</p> <p>2.4. Site is inspected to ensure compliance with plans and specifications and readiness for timely start of concrete pour</p>
3. Monitor and manage concrete material delivery	<p>3.1. Quantities and specifications for concrete are confirmed with supplier according to order placed</p> <p>3.2. Concrete delivery is monitored and managed to ensure continuous and timely concrete supply for the project.</p> <p>3.3. Progress of concrete pour is monitored to assess potential shortfall or over-supply, and additional quantities of concrete essential for project completion are calculated and ordered as required, or order is reduced</p>
4. Supervise	4.1. Removal and storage or disposal of tools, equipment

## HEALTH AND SAFETY IN CONSTRUCTION

site clean-up.	<p>materials and waste are directed and monitored to ensure compliance with workplace, safety and environmental requirements.</p> <p>4.2. Team members are debriefed and opportunities for learning are identified and actioned as required.</p> <p>4.3. Project documentation is completed and processed according to workplace and project requirements</p>
5. Monitor and manage concreting on-site work.	<p>5.1. Concrete pour, compacting and levelling procedures are monitored and directed to ensure compliance with safety and environmental requirements and work plans and specifications.</p> <p>5.2. Finishing techniques and procedures are monitored and directed to ensure compliance with safety and environmental requirements and work plans and specifications</p> <p>5.3. Weather conditions and contingencies are monitored and resources directed as required to ensure safety, quality and timeliness of project completion</p> <p>5.4. Completed work is checked for compliance with work specifications and team members are coordinated to address areas of non-compliance as required</p>

### Range statement

The range statement relates to the unit of competency as a whole.

Work health and safety requirements must include:

- assistance of others or the use of manual or mechanical lifting devices with handling activities where size, weight or other issues, such as disability, are a factor
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- hazard control
- hazardous materials and substances
- personal protective equipment (PPE) prescribed under legislation, regulations and workplace policies and practices
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
  - earth leakage boxes
  - lighting
  - power cables, including overhead service trays, cables and conduits
  - signage and restricted access barriers
  - surrounding structures
  - traffic control
  - trip hazards
  - work site visitors and the public
  - working at heights
  - working in confined spaces
  - working in proximity to others
  - working outdoors in warm climates
  - use of firefighting equipment
  - use of tools and equipment

**workplace environmental requirements and safety.**

- clean-up management
- dust suppression
- noise management
- storm water management
- vibration management
- waste management

**Ensuring the accuracy of concrete supply must include:**

- composition
- slump test measurement
- temperature.

**Tools, equipment and materials required may include:**

- agitators
- brooms
- floats
- grinders
- hoses
- rollers
- screeds
- shovels
- PPE
- trowels, including power trowels
- water blasters
- wheelbarrows.

**Assessment guide**

*Form of assessment*

Assessment for this unit must verify the practical application of the required skills and knowledge, using a combination of the following methods:

- direct observation of tasks in real or simulated work conditions
- questioning to confirm the ability to consistently identify and correctly interpret the essential
- underpinning knowledge required for practical application
- review of relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

**Guidance information for assessment**

- This unit could be assessed on its own or in combination with other units relevant to the job function.
- Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
- Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.



**Assessment context**

Assessment may be done in workplace or a simulated work environment.

**Critical aspects**

It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:

- Supervise team members conducting a minimum of three concreting projects in a residential, commercial or industrial setting, ensuring timely completion of each project to required quality standards and specifications
- locate, interpret and apply relevant information, standards and specifications to supervised concreting work
- communicate to team members and comply with:
- monitor a site safety plan and WHS requirements, regulations and codes of practice applicable to workplace operations
- Organisational policies and procedures relating to supervising concreting work while maintaining quality requirements outlined in job specifications
- monitor and direct team members to:
- safely and effectively operate and use plant, tools and equipment
- safely handle concreting materials and components

**Underpinning knowledge and skills**

<b>Underpinning knowledge</b>	<b>Underpinning skills</b>
<ul style="list-style-type: none"> <li>• Concreting procedures for different types of projects and safe work methods for different conditions</li> <li>• Principles of task management</li> <li>• regulations, standards and codes of practice relevant to concreting work</li> <li>• Team leadership strategies</li> <li>• Tools, equipment and materials required for concreting work and safe operating and maintenance procedures</li> <li>• Types, properties and limitations of different types of concrete</li> </ul>	<ul style="list-style-type: none"> <li>• learning skills to develop and build understanding of:</li> <li>• types of concrete materials and supply volumes required for different types of concreting work</li> <li>• effects of weather conditions on progress of concrete work</li> <li>• numeracy skills to assess and calculate resources required for different stages of concrete work in various weather conditions</li> <li>• oral communication skills to lead and motivate team members</li> <li>• reading skills to interpret plans, specifications and concrete manufacturer information</li> <li>• writing skills to complete equipment fault forms</li> </ul>