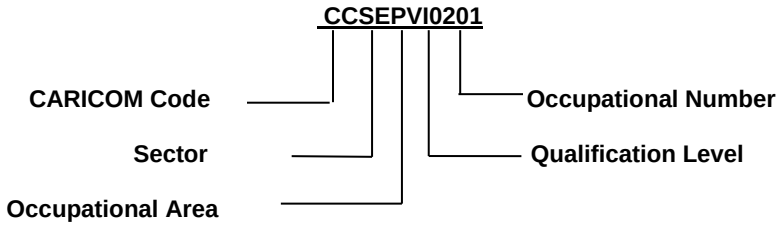
Occupational Standards for Caribbean Vocational Qualifications (CVQ)

CCSEPVI0201 CVQ Level 2 – PHOTOVOLTAIC PANEL INSTALLATION (ROOFER/FITTER)

Unit Number	Unit Title	Requirement
U49002	Undertake interactive workplace communication	Mandatory
U49102	Use access equipment to work at heights	Mandatory
U49202	Maintain health and safety in the photovoltaic panel installation environment	Mandatory
U49302	Confirm photovoltaic panel installation requirements	Mandatory
U49402	Work with photovoltaic systems	Mandatory
U49502	Locate, test, handle and position photovoltaic panels prior to installation	
U49602	Prepare the structure for photovoltaic panel installation on an existing structure	Mandatory
U49702	Fix photovoltaic panels onto a roof structure	Mandatory
U49802	Perform post photovoltaic installation activities	Mandatory
U49902	Plan to undertake a routine task	Mandatory
U50302	Mark off/out (general engineering)	Mandatory
U50402	Draw and interpret sketches and simple drawings	Mandatory
U50502	Perform manual handling and lifting	Mandatory

To obtain a Caribbean Vocational Qualification (CVQ) all Mandatory Units must be achieved.

Legend to Qualification code



Key: CC – CARICOM; SE – Solar Energy; PVI - Photovoltaic Panel Installation; 2 - Level 2; 01 - Numerical sequence

ACKNOWLEDGEMENTS

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- GQA Qualifications Limited (Glass Qualifications Authority), an awarding organization responsible for the development and accreditation of qualifications for the glass, construction, coating and print industries, in the UK

- City and Guilds - Certificate in Installing and Testing Domestic Photovoltaic Systems (2372) Qualification Handbook.

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Country of Origin
Barbados

Qualification Overview

CVQ in

Photovoltaic Panel Installation (Roofer/Fitter)

Level 2

CVQ in Photovoltaic Panel Installation (Roofer/Fitter) Level 2

Qualification Overview

The Photovoltaic Panel Installation (Roofer/Fitter) Level 2 is a competence-based qualification that covers installing photovoltaic (PV) panels and systems into roofs, onto roofs or in non-roof structures. It is suitable for those who install photovoltaic panels as PV Installers or Solar Panel Installers. It covers communicating and working with others; working at heights; PV systems; and locating, preparing, testing, handling, fixing and completing the installation of photovoltaic panels. The importance and requirements of health and safety are emphasized throughout the qualification.

The standards of competence cover significant aspects of the work required with PV panel installation; although it stops short of the actual commissioning of the installation, so there is no requirement for a qualification in electrical installation to achieve the qualification. The grouping of optional units should allow all employed in the industry equal opportunity to complete the qualification.

Who is this qualification for?

Although this qualification is at Level 2, there may be individual units at other levels that should be taken by those who are fully trained to deal with the installation process; however candidates should require minimum supervision in undertaking these tasks.

Candidates for this qualification will primarily be working on customers' premises carrying out the installation of PV panels.

The groups of optional units are intended to permit all those involved in the installation of PV panels and systems to complete the qualification. When choosing from the optional units, it is important to ensure the units selected are appropriate and achievable within the candidates' job role.

Restrictions

This qualification is approved for learners aged 16 and older. Further age limits on candidates undertaking this NVQ will depend on the legal requirements of the process or the environment. Learners, however, should be able to function at Level 1 or above and be comfortable working outdoors and at heights. Otherwise, there are no formal entry requirements for candidates undertaking this qualification. Centres must ensure that candidates have the potential and opportunity to gain evidence for the qualification in the workplace.

Occupational Standards

Occupational standards can also be used to:

- Prepare job descriptions and specifications
- Determine recruitment criteria
- Appraise staff performance objectively
- Identify skill and training gaps and needs
- Conduct labour market analyses
- Develop curriculum
- Assess the effectiveness of training programmes
- Determine compensation rewards

Benefits of CVQs to Candidates

- Provides a basis for articulation and accreditation
- Provides broad-based preparation for employment
- Is an alternative route to further/higher education
- Complements and has parallel standing with academic qualifications
- Provides enhanced employability and higher earning potential
- Facilitates and apprenticeship with actual work experience
- Equips candidates with the knowledge, skills and attitudes for the workplace
- Part work experience and skills can count towards achieving the CVQ
- Allows for continuity whereby if a candidate cannot complete the CVQ at a centre or school, they can continue at another approved centre
- CVQs are recognized qualifications and facilitate free movement of labour throughout the CARICOM region.

Benefits of CVQs to Employers

- Provides a larger cadre of skills employees/candidates to choose from
- Reduces cost of recruiting and selecting the ideal job candidate
- Reduces cost for training workers
- Ensures higher levels of productivity

Benefits of CVQs to the Caribbean region

- Produces a higher skilled workforce that is ready to adapt to ever-changing global demands
- Provides greater access for persons to achieve higher qualifications
- Contributes to the region's human resource capacity development

U49002 Undertake interactive workplace communication

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively communicate with others in the related working environment to achieve required objectives.

It focuses on responding promptly to requests, the sharing of information and developing good working relationships with colleagues.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Communicate information	1.1 Questions are asked to elicit additional **information**.
	1.2 Appropriate sources of **information** are identified.
	1.3 **Information** is selected and sequenced appropriately.
	1.4 **Information** is **communicated** about tasks, processes, events or skills.
	1.5 Verbal or written communication is used as required.
2. Share information to achieve appropriate work outcomes	2.1 **Information** is shared with colleagues.
	2.2 Feedback is sought and **information** provided to others.
	2.3 Goals and aims are **communicated** to appropriate persons.
	2.4 Outcomes are **communicated** to appropriate persons.
3. Develop and maintain working relationships with colleagues	3.1 Constructive contributions are made to the production process.
	3.2 Requests from colleagues and customers are responded to promptly.

RANGE STATEMENT

All range statements must be assessed:

1. Information :

- Drawings
- Work schedules
- Job instructions
- Client instructions
- Organizational policies

2. Communicated:

- Face-to-face methods (including verbal and non-verbal communication)
- Using the telephone
- Using written (including electronic) methods
- Signage

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to communicate in the workplace.
2. How to convey information in simple English.
3. How to read and interpret instructions.
4. What is the basic level in writing English (writing short, routine text).
5. What information to share with colleagues in your job role and why this is important.
6. Why it is important to respond promptly to requests.
7. Why good working relationships with colleagues are important.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur

U49102 Use access equipment to work at heights

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively and safely work on elevated surfaces.

It focuses on using access equipment to work on elevated surfaces as well as the associated health and safety risks.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Prepare to work at heights	1.1 Occupational health and safety requirements associated with working on **elevated work surfaces** are recognized and adhered to.
	1.2 **Personal protective equipment** is selected, correctly fitted and used appropriately according to manufacturer's instructions.
	1.3 Workplace operation plans are identified and followed in accordance with job requirements, surrounding activities and environment.
	1.4 **Safety hazards** are identified and correct organizational procedures followed to minimize risks to self and others.
	1.5 Risks of working at heights are assessed with supervisor.
2. Conduct checks before using access equipment	2.1 All necessary checks are made to access equipment before use.
	2.2 Checks are made to ensure that ground and floor surfaces are suitable and safe.

3. Work safely	3.1 Barricades and signage to isolate working area are safely erected.
	3.2 Different types of surfaces are identified in relation to risks.
	3.3 Tools, equipment, materials and components in, on or around the access equipment are safely and effectively placed.
	3.4 Equipment used to gain access to and from the working height is used in accordance with manufacturer and organizational guidelines.
	3.5 Work activities are safely conducted at heights.
4. Clean up	4.1 Waste material is removed and disposed of safely.
	4.2 Unused materials are stored/stacked appropriately.
	4.3 Tools and equipment are removed and stored safely.
5. Record information regarding working at heights	5.1 Records are kept of **relevant information** pertaining to working at heights.
	5.2 Completed records are handled and stored in accordance with company policies.

RANGE STATEMENT

All range statements must be assessed:

1. **Elevated work surfaces**:

    - Scissor-type lifts
    - Extending arm
    - Roofs (various types)
    - Mounting structures (independent)
    - Scaffolding
    - Support structures

2. **Personal protective equipment:**

    - Coveralls
    - Safety boots
    - Hard hat/cap
    - Gloves
    - Safety glasses/goggles
    - Ear plugs/earmuffs
    - Dust masks/respirator
    - Harnesses

3. **Safety hazards:**

    - Limited space
    - Other activities taking place within vicinity
    - Weather conditions
    - Wet surfaces
    - Vegetation
    - Utilities

4. **Relevant information:**

    - Service information
    - Condition of equipment
    - Environmental condition

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. What is meant by 'working at heights'.
2. What are the workplace and equipment safety requirements relative to working at heights.
3. How to assess the risks of working at heights and why this is important.
4. What are the different types of access equipment and working platforms for working at heights and the limitations of the use of this equipment.
5. How to inspect the prepared access equipment or working platforms before use.
6. What to do when the supplied access equipment is not suitable for the work required.
7. Why it is important to regularly inspect access equipment and working platforms.
8. What types of work surfaces are suitable and safe.
9. What types of information should be recorded when working at heights.
10. How to document information in accordance with company policies.
11. How to handle and store completed records.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge, **on at least two (2) occasions.** This evidence must come from a real working environment.

Method of Assessment

(2) Method of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Written/oral questioning
- Observation
- Written evidence (case study, projects, assignments)
- Witness testimony

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U49202 Maintain health and safety in the photovoltaic panel installation environment

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively perform work activities and conform to Occupational Health and Safety requirements.

It focuses on knowledge of Acts, regulations and guidelines in the photovoltaic panel installation environment and how these apply in practice.

Candidates will be required to identify hazards and report safety risks to their supervisor while adopting safe working practices and systems. They will also need to know what to do in the event of accidents and emergencies.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Follow safe work practices	1.1 **Occupational health and safety requirements** associated with the working environment are adhered to.
	1.2 Safety equipment and devices are checked in accordance with legislative requirements and/or company and manufacturer's procedures or instructions.
	1.3 **Personal protective equipment** is selected and used in accordance with legislation and company procedures.
	1.4 **Personal protective equipment**, tools and equipment are fit for the work undertaken.
	1.5 **Personal protective equipment** not being used is stored appropriately according to organizational procedures.
	1.6 Safe **manual handling** procedures are used.

2. Adopt systems of work	2.1 Work tasks are prioritized and carried out in accordance with **occupational health and safety requirements** and company procedures.
	2.2 Equipment required to carry out the work is selected and safely used.
	2.3 Components and materials required for the installation are selected and correctly used according to manufacturer's and legislative requirements.
3. Identify and report workplace hazards and risks	3.1 **Hazards and risks** in the workplace are identified.
	3.2 Identified **hazards and risks** are reported to the appropriate person according to company guidelines.
	3.3 Identified risks are minimized.
4. Follow accident and emergency procedures	4.1 Appropriate persons are notified in the event of an accident or emergency.
	4.2 **Emergency procedures** are followed according to company guidelines.

RANGE STATEMENT

All range statements must be assessed:

1. Occupational Health and Safety requirements:

- Operation of mechanical/manual equipment
- Protective clothing and equipment
- Worksite environment and safety
- Handling of materials
- Emergency procedures
- Physical/mental/emotional condition of workers

2. Personal protective equipment:

- Coveralls
- Safety boots
- Hard hat/cap
- Gloves
- Safety glasses/goggles
- Ear plugs/ear muffs
- Dust masks/respirator
- Harnesses

3. Manual handling techniques:

- Lifting and lowering of heavy loads
- Pushing and pulling objects/loads
- Carrying or moving objects/loads
- Holding or restraining

4. Hazards or risks:

- Limited space
- Weather conditions
- Wet surfaces
- Electrical

5. Emergency procedures:

- Fire
- Medical
- Evacuation

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. What are the basic principles of occupational safety and health Acts.
2. What are the Occupational Health and Safety regulations and guidelines pertaining to the photovoltaic installation environment and how these apply in practice.
3. What are the different types of personal protective equipment and how these should be used and stored.
4. What are the possible hazards and risks in the photovoltaic installation working environment.
5. How to follow safety instructions.
6. How to adopt safe working practices.
7. How to select and safely use material, equipment and tools to standards.
8. What are the different manual handling techniques.
9. How to follow procedures to respond to accidents and emergencies.
10. Who to contact in the event of an accident or emergency.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

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U49302 Confirm photovoltaic panel installation requirements

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required for identifying and confirming the specifications required to complete photovoltaic panel installation.

It focuses on establishing the type, location, characteristics and features of the installation and on assessing the structure intended for the installation.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Identify and confirm specifications required to complete installation	1.1 Sources of information to confirm the specifications are identified.
	1.2 Components that need to be checked when confirming the requirements are identified.
	1.3 Aspects of the installation other than components to be checked are listed.
	1.4 Work is carried out to the latest specifications and in accordance with company policies.
	1.5 Confirmation is sought to ensure that specifications are accurate and up to date.
2. Establish type, location, characteristics and features of installation	2.1 **Type** and location of the installation work are established.
	2.2 Checklist is prepared of the characteristics, features and other conditions.
	2.3 Ground level and floor surface are checked for stability.
	2.4 **Structure** intended for the installation is assessed for suitability.

RANGE STATEMENT

All range statements must be assessed:

1. **Type of installation:**

    - Pole mount
    - Ground mount
    - Pitched-roof mount
    - Flat-roof mount
    - Façade (thin film)

2. **Structure:**

    - Existing structure
    - New building
    - Onto a roof structure
    - Into a roof structure
    - Onto a non-roof structure

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to identify and confirm the specifications required to complete the installation.
2. How to establish the type, location, characteristics and features of the installation.
3. How to check for stability of ground level and floor surface.
4. How to assess the structure for suitability.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
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- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

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U49402 Work with photovoltaic systems

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required for working with photovoltaic systems and identifying major components and their purposes in photovoltaic systems.

It also focuses on the necessary conditions for operating an effective photovoltaic system and the legislation and safety precautions that must be taken.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Obtain task specifications and make plans	1.1 Relevant specifications for task outcomes are obtained.
	1.2 Steps required to complete tasks are identified.
	1.3 Tasks are specified that must be carried out and completed by a qualified electrician.
2. Identify components and suitable locations	2.1 **Major components** of the photovoltaic system are identified.
	2.2 Components are labeled with the correct information according to system requirements.
	2.3 Photovoltaic technology used in panels is recognized and used.
	2.4 Conditions are approved for an effective photovoltaic system.
	2.5 A suitable location for each component is identified.

3. Check the system	3.1 System is checked and relevant information recorded in accordance with legislation and manufacturer's and company procedures.
	3.2 Safety precautions relating to photovoltaic systems are identified and followed.

RANGE STATEMENT

All range statements must be assessed:

1. **Major components:**

    - Panels
    - Inverter
    - Charger controller
    - Mounting system

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How the photovoltaic system works.
2. What types of photovoltaic technology is used in panels.
3. What are the different materials used to construct photovoltaic panels.
4. What is the difference between grid-connected and off-grid systems.
5. What are the common words and terms used in the photovoltaic environment.
6. How to identify non-compliance equipment.
7. Why equipment may be non-compliant.
8. What are the necessary conditions for operating an effective photovoltaic system.
9. What safety precautions to take with photovoltaic systems.
10. What are the specific installation requirements that are to be met.
11. What work relating to photovoltaic installation must be carried out by a qualified electrician.
12. What planning permission is required for photovoltaic installations.
13. What problems may arise with photovoltaic installation and their possible causes.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
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- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
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- Role play/simulation

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(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both.. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

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U49502 Locate, test, handle and position photovoltaic panels prior to installation

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required for locating, testing, handling and positioning of photovoltaic panels prior to installation.

It is about selecting the correct type and quantity of components and understanding the testing procedures that need to be carried out on the photovoltaic panels.

Additionally, it considers the impact of incorrect handling and transportation of materials and components, as well as the importance of positioning materials and components correctly.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Locate and select materials and components.	1.1 Materials and components are located and identified.
	1.2 Materials and components are checked and their markings matched.
	1.3 Correct types and quantity of materials and components for the job are selected according to system requirements..
2. Handle and transport materials and components	2.1 Materials and components are handled safely and correct handling methods and **equipment** used according to manufacturer and organizational procedures.
	2.2 Materials and components are transported safely.
3. Carry out testing procedures on photovoltaic panels	3.1 Relevant tests are carried out in accordance with manufacturer's recommendations and company policy.
	3.2 Information is recorded to comply with manufacturer's recommendations.

4. Position materials and components	4.1 Materials and components are positioned securely to avoid damage to them and surrounding objects.
	4.2 Materials are positioned to allow for ease of access for other work.

RANGE STATEMENT

All range statements must be assessed:

1. **Equipment:**

    - Hand trucks
    - Platform trucks
    - Pallet jacks
    - Pallet racks
    - Strapping

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to locate and select the correct type and quantity of materials and components to meet the specifications.

2. How to handle, position and transport materials and components correctly.

3. What are the consequences of handling and transporting materials and components incorrectly.

4. What weather conditions impede handling and transportation of materials.

5. What testing procedures must be carried out on the photovoltaic panels.

6. What are the different ways to carry out the tests in adverse conditions.

7. Who is permitted to carry out tests.

8. What are the different faults that may be found when testing and transporting materials and equipment and how these should be dealt with.

9. What recording and reporting procedures are required following the tests and why.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

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(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

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- Personal statement
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- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U49602 Prepare the structure for photovoltaic panel installation on an existing structure

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to prepare an existing structure for photovoltaic panel installation. It relates to the removal of existing roof components, the types of dangerous components or materials that might be discovered and what actions should be taken if these are found.

It includes knowing the different type of preparation that is required for installation specific to an existing structure and the methods of securing installation materials to different types of structures. It also focuses on ensuring that the installation area meets specifications.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Prepare area and structure for panel installation	1.1 Work areas are clearly marked out and isolated from the rest of the site.
	1.2 Areas exposed to debris are protected.
	1.3 Ground and floor surfaces are prepared ready to receive installation equipment and materials and access equipment.
	1.4 Structure for panel installation is prepared in accordance with customer requirements, company guidelines, manufacturer's recommendations and current legislation.
2. Identify and remove dangerous components or materials	2.1 **Dangerous components or materials** that may be revealed are identified.

	2.2 Occupational health and safety procedures relevant to hazardous components and materials are followed.
	2.3 **Appropriate action** is taken to remove dangerous components and materials.
3. Remove existing roof components and materials	3.1 Existing roof material is removed with minimum damage.
	3.2 Checks are made to ensure that access to the internal roof structure is not impeded by materials.
4. Select and prepare installation equipment	4.1 Required installation equipment is identified and selected.
	4.2 Equipment is set up correctly and safely according to manufacturer' and organizational instructions.
	4.3 Checks are made to ensure that equipment is in good working order.
5. Select materials to be used	5.1 Specifications for materials to be used are identified and confirmed.
	5.2 Checks are made to ensure that the required type, quantity and quality of materials are available for use.
6. Check that the installation area meets specifications	6.1 All necessary checks are carried out to ensure the installation area meets job specifications, legislative and manufacturer's requirements.

RANGE STATEMENT

All range statements must be assessed:

1. **Dangerous components or materials:**

    - Asbestos cement
    - Infested materials
    - Fiberglass

2. **Appropriate actions:**

    - Report to appropriate persons
    - Remove/treat infested wood
    - Remove/repair damaged components

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. Which parts of the Building Regulations relate to the removal of existing roof components and how these apply in practice.
2. What types of dangerous components or materials might be discovered and what actions should be taken if these are found.
3. What preparation should be made for the various types of installations.
4. What are the advantages and disadvantages of different installation methods.
5. What are the different methods for securing installation materials to different types of structures.
6. What are the types of problems or challenges that may occur when preparing an existing structure for installation and how these can be overcome.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U49702 Fix photovoltaic panels onto a roof structure

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required in fixing photovoltaic panels onto a roof structure. It covers locating and marking out the area to which panels are to be fixed and how to expose the roof area to attach fixtures to the structure.

The unit also describes selecting and fixing brackets correctly, reinstating the roof covering after fixing brackets, fixing panels to mounting system correctly and safely, connecting panels and the different issues to be considered when fixing panels onto some types of roofs.

During both preparation and construction, candidates may have to deal with unexpected events such as accidental damage to a roof structure or difficulty in conforming to specifications. They must be able to take the correct action under such circumstances.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Expose roof area	1.1 Roof covering is removed to expose area for attaching fixing brackets.
	1.2 Roof covering removed is stored safely and securely with no damage to surrounding area.
	1.3 Roof structure is checked for soundness before panel mounting kit is attached.
	1.4 Structure and brackets are examined to ensure suitability for the installation prior to fixing.
	1.5 Roof is kept water tight throughout the installation process.
2. Locate and mark out area for fixing panels	2.1 Location for fixing the panels onto the roof structure is identified.

	2.2 **Occupational health and safety requirements** are adhered to and are consistent with the relevant legislation and codes of practice.
	2.3 Working methods allow for waste to be disposed of safely and correctly according to organizational and industry procedures.
	2.4 Documents are referenced to identify location to fix panels in compliance with **specifications**.
	2.5 Area for fixing photovoltaic panels is identified and marked out.
3. Select and fix brackets to roof structure	3.1 Brackets are checked for associated problems and related solutions.
	3.2 Brackets are fixed to roof structure in accordance with manufacturer's instructions and site conditions.
4. Replace roof covering after fixing brackets	4.1 Roof covering is replaced safely and securely.
	4.2 Checks are made to ensure that no damage is caused when replacing roof.
	4.3 Brackets are checked to ensure that they do not interfere with the integrity of the roof covering.
5. Fix panels to mounting system	5.1 Pre-checks are carried out on panels and findings recorded appropriately.
	5.2 Panels are moved safely and correctly to area in which they are to be installed.
	5.3 Correct fixing kit is selected for panels.
	5.4 Panels are placed onto mounting bar/brackets and fitted correctly.
	5.5 Panels are attached to bracket-mounting bar safely and securely.

6. Connect panels	6.1 Correct method for connecting panels is identified.
	6.2 Panels are connected correctly and safely using the correct joining process according to industry requirements.
	6.3 Panels are left in a safe condition.

RANGE STATEMENT

All range statements must be assessed:

1. **Occupational health and safety requirements:**

    - Operation of mechanical equipment
    - Operation of manual equipment
    - Protective clothing and equipment
    - Worksite environment and safety
    - Working at heights policy
    - Handling of exposed electrical wires
    - Handling of materials
    - Emergency procedures

2. **Specifications:**

    - Agreed location
    - Budget for materials and resources
    - Working methods
    - Waste management
    - Customers' requirements

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to safely remove roof covering for attaching a panel mounting kit.
2. How to interpret specifications and the importance of following them.
3. What are your basic responsibilities in relation to safety and health in the photovoltaic environment.
4. How to locate and mark out the area where panels are to be fixed.
5. What are the different types of roof coverings and how to remove them safely.
6. What are the types of problems which may occur and the appropriate corrective actions to take.
7. What improvements may be needed to roof structures before the panel mounting kit is attached.
8. How to ensure the roof is kept water tight during the installation process when a roof structure has been removed.
9. What is a panel mounting kit and how it functions when on the roof.
10. What are the different types of mounting kits and how these are fitted to different roof types.
11. How to connect panels in a roof mounting kit correctly and safely.
12. What problems can occur when connecting panels together and what are the possible solutions.
13. How and why to leave panels in a safe condition.
14. What are the different issues to consider when fixing panels into flat roofs.
15. Why the installation may differ on different types of roofs.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U49802 Perform post-photovoltaic installation activities

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to execute post-photovoltaic installation activities. It covers aspects relating to ensuring that the installation is left in a safe condition, removing materials and debris from the site, dealing with customer queries, resolving problems and recording information.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Check the installation	1.1 Technical requirements of installation are checked to ensure installation is left in a safe condition.
	1.2 Occupational health and safety requirements associated with task application and workplace environment are followed.
2. Handle and remove waste	2.1 Waste materials are handled correctly and safely disposed of according to Occupational Health and Safety requirements.
	2.2 **Hazardous materials** are identified for separate handling.
	2.3 **Hazardous materials** are removed using correct procedures.
3. Clean up	3.1 Tools and equipment are cleaned, maintained and stored.
	3.2 Unused materials are safely stacked/stockpiled/stored.
	3.3 Site is cleared of debris and unwanted material.

4. Provide customer service	4.1 Relevant contact information is shared with others to maintain organizational standards for service delivery.
	4.2 Service provided is checked against customers' needs and expectations.
	4.3 Customers' questions or concerns are responded to appropriately according to organizational guidelines.
	4.4 Information on the installation activity is accurately recorded in accordance with legislation, manufacturer's and company procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Hazardous materials:**

    - Broken glass
    - Unwanted materials and debris
    - Harmful substances

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to leave the installation in a safe condition.
2. Why it is important to remove all materials and debris from the site.
3. How to identify and overcome problems in relation to the post-installation activity.
4. What type of information needs to be recorded regarding the installation.
5. What are types of hazardous chemicals and substances which may be present.
6. What are the safe and correct methods of disposing of waste materials.
7. What are safe and suitable methods for storing tools, equipment and machinery.
8. How to deal with customers' questions concerning the work.
9. How to record the required information.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role playing/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

U49902 Plan to undertake a routine task

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively plan to undertake a routine task and applies to all individuals working in the photovoltaic industry.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Identify task requirements	1.1 **Instructions** for procedures are obtained, understood and clarified when necessary.
	1.2 Relevant specifications for task outcomes are obtained, understood and confirmed when necessary.
	1.3 Task outcomes are identified.
	1.4 Task requirements such as completion time and quality measures are identified.
2. Plan steps required to complete task	2.1 Individual steps or activities required to undertake the task are understood and clarified when necessary, based on instructions and specifications provided.
	2.2 Sequence of activities required to be completed is identified in the plan.
	2.3 Planned steps and their outcome are checked to ensure conformity with instructions and relevant specifications.
3. Review plan	3.1 Outcomes are identified and compared with (planned) objectives, task instructions, specifications and task requirements.
	3.2 Plan is revised to better meet objectives and task requirements as necessary.

RANGE STATEMENT

All range statements must be assessed:

1. **Instructions:**

    - Standard operating procedures
    - Clear specifications and requirements
    - Quality control and time allowances

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. What is the basic level of ability in speaking.
2. What is the basic level in reading.
3. What is the basic level in writing English.
4. What is basic numeracy.
5. What are task requirements.
6. What are the workplace operating procedures.
7. What is the use of work schedules, charts, work bulletins and memos.
8. How to work safely to instructions.
9. How to convey information in simple English to invoke correct actions.
10. How to apply quality procedures.
11. How to read and interpret simple drawings and specifications.
12. How to plan a routine task.
13. How to undertake a routine task.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both on. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

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U50302 Mark off/out (general engineering)

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively transfer dimensions from engineering drawings, prints or plans and applies to individuals working in the photovoltaic installation industry.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Determine job requirements	1.1 Drawings, job instructions and specifications are interpreted and understanding demonstrated.
	1.2 Appropriate methods and sequencing are selected and are consistent with proposed fabricating process.
2. Transfer dimensions	2.1 **Marking off/out** is carried out to specifications using appropriate tools and **equipment**.
	2.2 Data points are correctly established according to technical specifications.
	2.3 Dimensions transferred are correct and appropriate according to technical specifications.
3. Make templates	3.1 Appropriate template materials are selected according to organizational guidelines.
	3.2 Templates are produced to specifications and appropriate to desired use.
	3.3 **Storage procedures** are followed correctly according to organizational procedures..

RANGE STATEMENT

All range statements must be assessed:

1. **Marking off/out:**

- Engineering components
- Jigs and fixtures
- Castings
- Templates
- Dies and tooling

2. **Equipment:**

- Marking out tables
- Surface tables
- Rotary tables
- Dividing heads
- Vee blocks
- Cylinder squares
- Sine bars and the like
- Vernier height gauges
- Protractors
- Straight edge
- Set squares
- Marking out tools

C. Storage procedures:

- Labelling
- Identification

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. How to read and interpret drawings and specifications.
2. How to use basic numeracy.
3. How to use marking out tools and equipment.
4. How to use marking off/out techniques.
5. How to handle template materials.
6. What are the different template materials relevant to the engineering process.
7. How to use basic operations in simple geometry measurements and calculations.
8. How to transfer measurements.
9. How to mark off/out accurately.
10. How to measure and calculate manually.
11. How to record measurement.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

- Observation
- Written/oral questioning
- Witness testimony
- Personal statement
- Written evidence (projects or assignments)
- Case study and scenario analysis
- Role play/simulation

Questioning techniques should not require language, literacy or numeracy skills beyond those required in this unit of competency.

(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

The candidates must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, products and manufacturing specifications, codes, standards, manuals and reference materials.

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U50402 Draw and interpret sketches and simple drawings

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively draw and interpret sketches and simple drawings and applies to all individuals working in the photovoltaic installation industry.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Prepare free-hand sketch	1.1 Sketch is correctly and appropriately drawn according to job requirements.
	1.2 Objects or parts of sketch are depicted.
	1.3 Correct dimensions are obtained and clearly shown.
	1.4 Instructions are shown clearly.
	1.5 Base-line or datum point is indicated.
2. Interpret details from free-hand sketch	2.1 Components, assemblies or objects are recognized.
	2.2 Dimensions identified are appropriate to field of employment.
	2.3 Instructions are identified and followed.
	2.4 Material requirements are identified.
	2.5 Symbols are recognized in sketch.
3. Select correct technical drawing	3.1 **Drawing** is checked and validated against job requirements.
	3.2 **Drawing** version is checked and validated.

4. Identify drawing requirements	4.1 Requirements and purpose of the **drawing** are determined from customer, work specifications and/or associated documents.
	4.2 Data required to produce the **drawing** are identified and collected.
	4.3 **Drawing** requirements are confirmed with relevant personnel and timeframes for completion established.
5. Prepare or make changes to engineering drawings	5.1 Drafting equipment is appropriately selected according to required specifications.
	5.2 Drafting principles are applied to produce a **drawing** that is consistent with standard operating procedures within the company.
	5.3 Work is undertaken to prescribed procedures.
	5.4 Completed drawing is approved in accordance with standard operating procedures.

RANGE STATEMENT

All range statements must be assessed:

1. **Drawing:**

    - Perspective
    - Exploded views
    - Hidden view
    - Engineering (r their equivalents from the full range of engineering disciplines)
    - Standard engineering symbols or their equivalents

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. What are the types and use of drawing instruments and supplies.
2. How to identify alphabet of lines, line type variation, order of usage and application on drawings.
3. What are the types of scales and proportions and how they are used for measurement.
4. How symbols, dimensions, drawing terminology and their applications are used.
5. How to estimate measurements.
6. How to read and interpret simple drawings.
7. How to measure accurately.
8. How to communicate effectively.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

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- Witness testimony
- Personal statement
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- Role play/simulation

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(3) Context of Assessment

This unit may be assessed on the job, off the job or using a combination of both. Where assessment occurs off the job, that is, the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by a candidate working alone or as part of a team. The assessment environment should not disadvantage the candidate.

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U50502 Perform manual handling and lifting

Unit Descriptor:

This unit describes the knowledge, skills and attitudes required to effectively manually handle materials and applies to individuals working in the photovoltaic installation industry.

ELEMENT	PERFORMANCE CRITERIA
	To be competent you must achieve the following:
1. Lift materials	1.1 Material weight is determined using the most appropriate technique.
	1.2 Lifting techniques are undertaken according to standard operating procedures, required movement, movement techniques, storage conditions, height and position.
2. Move/shift materials	2.1 **Appropriate equipment** is selected when required according to organizational guidelines.
	2.2 Material is placed safely and securely on moving equipment.
	2.3 Material is relocated ensuring safety of personnel and security of material.
	2.4 Material is unloaded from moving equipment and placed in a safe and secure manner.

RANGE STATEMENT

All range statements must be assessed:

1. **Appropriate equipment**:

    - Hand trolleys
    - Wheelbarrows
    - Motorized/hand pallet trucks (not sit on)
    - Hand carts
    - Dedicated production or process lifting equipment
    - Baskets
    - Spreader bars
    - Cradles or the like attached to lifting equipment
    - Rope

UNDERPINNING KNOWLEDGE AND SKILLS

You need to know and understand:

1. What are the workplace and equipment safety requirements including occupational health and safety guidelines and regulations.
2. How to read and interpret basic documents.
3. How to use basic numeracy.
4. How to use manual handling techniques/methods.
5. How to operate handling tools and equipment.
6. What techniques are used for weight determination.
7. How to work safely to instructions.
8. How to communicate effectively.

EVIDENCE GUIDE

For assessment purposes:

(1) Critical Aspects of Evidence

Candidates must prove that they can carry out **all** the elements, meeting **all** of the performance criteria, range and underpinning knowledge **on at least two (2) occasions.** This evidence must come from a real working environment.

(2) Methods of Assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic.

Evidence may be collected in a variety of ways including:

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(3) Context of Assessment

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Simulation **must not be used,** except in exceptional circumstances where natural work evidence is unlikely to occur.

GLOSSARY OF TERMS

Occupational Standards

Occupational Standards of competence are industry-determined specifications of performance, which describe the knowledge, skills and attitudes required by a worker in the performance of a particular role in the workplace. They specify what a person should know and do in order to carry out the functions of a particular job in the work environment. They are the building blocks for all activities in a competency-based training and certification system. An Occupational Standard is made up of a qualification plan, a unit title, elements, performance criteria, range statements, underpinning knowledge and skills and evidence guide.

Qualification Plan – The Qualification Plan identifies the Mandatory units which are those units that are necessary to deem a candidate competent in the occupational area and provide flexibility in different wok environments. It also contains the Title and Level of the qualification to be awarded.

Unit Title - The unit title is a succinct statement of the outcome of the unit of competency. It reflects the major activities or functions of an individual's work as well as the discreet units of work.

Unit Descriptor - The unit descriptor communicates the content of the unit of competency and the skill area it addresses.

Elements - These are the basic building blocks of the unit of competency. They describe the tasks in which competence should be demonstrated in order to carry out the specific function.

Performance Criteria - These are the descriptions of the outcomes of performance required for successful achievement of an element. They specify the required performance in relevant tasks, roles, skills and applied knowledge that enables competent performance.

Range Statement - This describes the essential operating conditions that should be present in training and assessment, depending on the work situation, needs of the candidate, accessibility of the item and local industry contexts. It lists the parameters in which candidates much demonstrate their competence.

Underpinning Knowledge and Skills – The knowledge identifies what a person needs to know to perform the work in an informed and effective manner. The skills describe the application of knowledge to situations where understanding is converted into a workplace outcome.

Evidence Guide - The Evidence Guide is critical in assessment as it provides information to Training Providers and Assessors about how the described competency should be demonstrated. It provides a range of evidence for the Assessor to make a determination of competence and defines the assessment context. The Evidence Guide describes:

- Conditions under which competency must be assessed including variables such as the assessment environment or necessary equipment

- Suitable methodologies for conducting assessment including the potential for workplace simulation
- Resource implications, for example access to particular equipment, infrastructure or situations
- How consistency in performance must be assessed over time, various contexts and with a range of evidence

Level 1 – Directly supervised worker

Recognizes competence in a range of varied work activities performed in a variety of contexts. Most work activities are simple and routine. Collaboration with others through work groups or teams may often be a requirement. Substantial supervision is required especially during the early months evolving into more autonomy with time.

Level 2 – Supervised skilled worker

Recognizes competence in a broad range of diverse work activities performed in a variety of contexts. Some of these may be complex and non-routine and involve some responsibility and autonomy. Collaboration with others through work groups or teams and guidance of others may be required.

Level 3 – Independent/autonomous skilled worker

Recognizes competence in a broad range of complex, technical or professional work activities performed in a wide variety of contexts, with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources are often a requirement. The individual is capable of self-directed application, exhibits problem solving, planning, designing and supervisory capabilities.

Level 4 – Supervisory specialist worker

Recognizes competence involving the application of a range of fundamental principles and complex techniques across a wide and unpredictable variety of contexts. Requires very substantial personal autonomy and often significant responsibility for the work of others, the allocation of resources, as well as personal accountability for analysis, diagnosis, design, planning, execution and evaluation.

Level 5 – Managerial professional worker

Recognizes the ability to exercise personal professional responsibility for the design, development or improvement of a product, process, system or service. Recognizes technical and management competencies at the highest level and includes those who have occupied positions

of the highest responsibility and made outstanding contribution to the promotion and practice of their occupation.