GQA Level 2 NVQ Diploma for the Installation of Photovoltaic Panels Qualification Number 600/1373/4

Issue 2: August 2023

PERSONAL COMPETENCE SUMMARY

Name	Company/Centre
Job Title	GQA Registration Number

UNITS OF COMPETENCE					ASSESSOR SIGNATURE Performance and knowledge assessment completed and supplemented with evidence overtime	DATE
Please ensure the correct Pathway is selected and the relevant units achieved and signed off for the appropriate Pathway						
Pathway 1- Pathway Mandatory Units						
A/600/7364	AG3	Communicating and Working with Others in the Glass and Related Working Environment	2	3		
D/502/9721	PV3	Use Access Equipment to Work at Heights	2	4		
J/502/9650	PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment	2	5		
L/502/9651	PV10	Confirm PV Panel Installation Requirement	2	3		
L/502/9715	PV2	Knowledge of Photovoltaic systems	3	6		
M/502/9724	PV5	Locate, Test, Handle and Position Photovoltaic Panels Prior to Installation	3	6		
T/502/9800	PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed During the PV Installation Process	2	2		
Pathway 2-Pathway Mandatory units						
A/600/7364	AG3	Communicating and Working with Others in the Glass and Related Working Environment	2	3		
J/502/9650	PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment	2	5		
L/502/9651	PV10	Confirm PV Panel Installation Requirement	2	3		
L/502/9715	PV2	Knowledge of Photovoltaic systems	3	6		
M/502/9724	PV5	Locate, Test, Handle and Position Photovoltaic Panels Prior to Installation	3	6		
T/502/9800	PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed During the PV Installation Process	2	2		

M/502/9688	PV13	Fix photovoltaic panels onto a non-roof structure	2	6		
Group P1 Optional units Pathway 1 a minimum of 14 credits must be achieved from this group if Pathway 1 selected						
K/502/9687	PV12	Fix photovoltaic panels onto a roof structure	2	8		
M/502/9657	PV11	Fix photovoltaic panels into a roof structure	3	8		
M/502/9688	PV13	Fix photovoltaic panels onto a non-roof structure	2	6		
Optional Units A Both Pathways a minimum of 3 credits must be achieved from this group						
R/502/9800	PV8	Prepare the structure for Photovoltaic Panel Installation - Existing Structure	2	5		
T/502/9275	PV7	Prepare the structure for Photovoltaic Panel Installation – New Build	2	3		
Optional Units B Both Pathways a minimum of 3 credits must be achieved from this group						
H/502/9722	PV4	Post Photovoltaic Installation Activities	2	3		
R/503/0400	PV13	Ensure the glass related installation is completed safely and handed over to the customer	3	5		
Additional (entirely optional) unit for Pathway 2 Note, if this unit is selected for Pathway 2, it will be shown on the qualification certificate but cannot be taken instead of the required optional units in optional groups A or B						
D/502/9721	PV3	Use Access Equipment to Work at Heights	2	4		

RELIABLE EVIDENCE: The forms of evidence available include (mark as appropriate)

Observation in the workplace	☐	Assessment of knowledge	☐
Records of prior experience	☐	Witness statement(s)	☐
Testimonial(s)	☐	Photographic evidence	☐
Work records	☐	External testing	☐

Passport Style Candidate Photo (Mandatory)

COMPETENCE COMPLETION SIGNATURES

By signing here, the Candidate and Assessor confirm that evidence presented is authentic and that the assessments took place in accordance with the relevant assessment strategy. Details of the assessments and evidence must be recorded in the assessment decision record/summaries at the end of each unit.

	Name and Signature	**Date**
Candidate		
Lead Assessor		
Internal Verifier		
EQA		

Introduction to the Qualification

Who is this Qualification for?

This qualification is aimed at those who work as Installers of Photovoltaic Panels, primarily in domestic properties, or commercial buildings, but could also be taken by those installing PV panels in a commercial situation such as a Solar Farm

The standards cover all aspects of the work required with Photovoltaic 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 Pathways and grouping of optional units should allow all employed in the industry equal opportunity to complete the qualification.

The qualification is at Level 2, although some units are at a different level, and should be taken by those who are fully trained to deal with the installation process, so candidates should require minimum supervision in undertaking the job.

What is required from candidates?

There are 2 Pathways for this qualification; Pathway 1 is for those working on installations on domestic or commercial properties, Pathway 2 is for those installing PV Panels on the ground on a commercial site such as a Solar Farm.

GQA qualifications are made up of a number of units that have a credit value or credits.

The required number of units/credits are detailed below.

- The qualification has a minimum credit value of 49 credits if Pathway 1 is selected.
- The qualification has a minimum credit value of 37 credits if Pathway 2 is selected.

The units are made up of the things those working in these job roles need to know to be able to carry out the work safely and correctly. These are called Learning Outcomes, and all must be met to achieve the unit.

GQA qualifications are made up of units that have a credit value or credits. This qualification has 1 mandatory unit.

The units are made up of the things you need to know and the things you need to be able to do to carry out your job safely and correctly. These are called Learning Outcomes, and all must be met to achieve the unit.

Pathway 1-Pathway Mandatory units			
Unit Ref	**Unit title**	**Level**	**Credit**
A/600/7364 AG3	Communicating and Working with Others in the Glass and Related Working Environment	2	3
D/502/9721 PV3	Use Access Equipment to Work at Heights	2	4
J/502/9650 PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment	2	5
L/502/9651 PV1O	Confirm PV Panel Installation Requirement	2	3
L/502/9715 PV2	Knowledge of Photovoltaic systems	3	6
M/502/9724 PV5	Locate, Test, Handle and Position Photovoltaic Panels Prior to Installation	3	6
T/502/9800 PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed During the PV Installation Process	2	2

Pathway 2-Pathway Mandatory units			
Unit Ref	**Unit title**	**Level**	**Credit**
A/600/7364 AG3	Communicating and Working with Others in the Glass and Related Working Environment	2	3
J/502/9650 PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment	2	5
L/502/9651 PV1O	Confirm PV Panel Installation Requirement	2	3
L/502/9715 PV2	Knowledge of Photovoltaic systems	3	6
M/502/9724 PV5	Locate, Test, Handle and Position Photovoltaic Panels Prior to Installation	3	6
T/502/9800 PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed During the PV Installation Process	2	2
M/502/9688 PV13	Fix photovoltaic panels onto a non-roof structure	2	6
Group P1 Optional units Pathway 1 a minimum of 14 credits must be achieved from this group if Pathway 1 selected			
K/502/9687 PV12	Fix photovoltaic panels onto a roof structure	2	8
M/502/9657 PV11	Fix photovoltaic panels into a roof structure	3	8
M/502/9688 PV13	Fix photovoltaic panels onto a non-roof structure	2	6
Optional Units A Both Pathways a minimum of 3 credits must be achieved from this group			
R/502/9800 PV8	Prepare the structure for Photovoltaic Panel Installation - Existing Structure	2	5
T/502/9275 PV7	Prepare the structure for Photovoltaic Panel Installation - New Build	2	3
Optional Units B Both Pathways a minimum of 3 credits must be achieved from this group			
H/502/9722 PV4	Post Photovoltaic Installation Activities	2	3
R/503/0400 PV14	Ensure the glass related installation is completed safely and handed over to the customer	3	5
Additional (entirely optional) unit for Pathway 2 Note, if this unit is selected for Pathway 2, it will be shown on the qualification certificate but cannot be taken instead of the required optional units in optional groups A or B			
D/502/9721 PV3	Use Access Equipment to Work at Heights	2	4

Assessment Guidance:

Evidence should show that you can complete all of the learning outcomes for the unit.

Types of evidence:

This is a knowledge only qualification. Evidence of knowledge can be demonstrated though a combination of written responses to questions , oral Q&A sessions, or guided discussions. Verbal evidence should be audio/video recorded and be fully auditable.

Quantity of evidence:

Evidence should show that you understand the unit content in context of the range and scope shown at the end of the unit.

Potential sources of evidence:

The main source of evidence for the practical aspects of this unit will be either detailed, written answers, recorded guided discussions, or written answers supplemented by recorded discussions.

Please Note that photocopied or downloaded documents such as manufacturers' or industry guidance, H&S policies, Risk Assessments etc., are not normally acceptable evidence for GQA qualifications unless accompanied by a record of a professional discussion or Assessor statement confirming candidate knowledge of the subject.

GQA Qualification Implementation Requirements covering Centre Approval, Candidate Assessment and ongoing Quality Assurance

This document indicates the requirements of Approved Centres delivering GQA qualifications and / or units of credit.

1. Equality of Opportunity

Equality of access to fair and valid assessment is necessary for all candidates undergoing assessment. This may mean making reasonable adjustments to normal assessment methods for candidates with particular or special assessment requirements. Candidates work patterns should not become a barrier to assessment, the organisation of which may have to be flexible. In the same way, reasonable adjustment arrangements may be necessary for candidates with a disability. For example, a candidate who is unable, through disability, to produce oral or written evidence, may be allowed to use the method they normally use as a substitute for the required form of communication. Reasonable adjustments need to be approved by GQA.

2. Recognised/Approved Assessment Centres

2.1 Individual centres must be approved by GQA to offer specific qualifications and / or units of credit. A centre may be a single organisation or a partnership of two or more organisations. It may operate at a single location or have satellites. For further details see the GQA booklet "Guide to Centre Approval". The Centre Approval process is carried out by a GQA approved EQA. Each Centre must maintain a centre file. It is important to be clear what the steps in the assessment process are:

- plan evidence collection and opportunities for assessment
- collect evidence
- judge evidence
- determine whether sufficient evidence has been presented
- make an assessment decision and give feedback to the candidate

NB Any deviation from the norm must be approved by a GQA EQA

2.2 Assessors and Verifiers

All Assessors of candidate performance must be competent, to make qualitative judgements, both in the skills they are assessing and in the assessment of candidates and hold the appropriate Assessor national award. Assessor occupational knowledge related to the qualifications being assessed is essential and must be illustrated to GQA prior to approval.

Internal Verifiers are responsible for the quality assurance of the assessment process within a centre. They should have a relevant occupational background, be competent in internal verification and hold the Internal Verifier national award. It is recommended that Internal Verifiers work towards national recognition of assessor competence.

EQAs are responsible for ensuring accurate and consistent standards of assessment across centres, qualifications, units of credit and over time. They should have a relevant occupational background, be competent in external quality assurance and hold the relevant national external quality assurance award. GQA will approve and licence all individuals involved in the assessment and verification of its approved qualifications and / or units of credit. Individuals who are working towards the Assessor or Internal Verifier national awards can only be provisionally licensed. The judgement of provisional licence holders will need to be agreed/authorised by a fully qualified and GQA licensed individual who cannot carry out a dual role in relation to a specific candidate.

All GQA Assessors and Verifiers must undertake a minimum of 2 significant CPD activities in both occupational areas and assessment and verification. Reflective CPD records must be maintained and made available to GQA EV's for review.

2.3 Centre Approval, Monitoring Reviews and Quality Assurance

The centre recognition/approval process is the start of a significant part of the awarding body's quality assurance system. The Approval process will begin with an EQA review of centre procedures to ascertain the potential centres ability to deliver GQA qualifications and / or units of credit. Centres will be expected to meet the relevant regulatory authority criteria for delivery of qualifications prior to initial approval; continued compliance with the criteria will be monitored through regular EQA visits. It is recommended that centre reviews are conducted at minimum every six months by a GQA EQA.

New or multi-site centres may be required to undertake quarterly or more frequent EV reviews to ensure that different locations can be seen to satisfy the national requirements.

GQA will ensure that unacceptable barriers relating to the assessment and internal verification of candidates in small companies do not deny recognition of competence to competent young workers. In such circumstances, GQA will demonstrate that its quality assurance procedures remain sufficient and rigorous to ensure that the competence outcomes have standing and credibility in the occupational area.

Enhanced quality procedures to ensure consistency of assessment and verification will be necessary and will include:

- a high level of sampling of assessment decisions N.B. In some instances the EQA may visit each assessment location and qualification / unit of credit candidate (e.g. single candidates dispersed throughout different small companies on government funded programmes)
- an in-depth scrutiny of assessment plans, materials and records
- specific centre guidance aimed at the successful implementation of qualifications and / or units of credit in SMEs via approved centre partnerships. This can include guidance on the quantity and quality of valid, authentic, and transferable evidence expected to be attributed to individual candidates
- ensuring centres are following the requirements prescribed in any appropriate assessment strategies and applicable codes of practice
- the identification and publication of good practice in centres

As part of the Quality Assurance process Proskills require an Enhanced external quality assurance process. This will be in the form of 1 significant underpinning knowledge question answered by the candidate for each unit of the qualification. The questions will be decided by GQA, and guideline answers must be submitted for approval and once approved kept in the Centre File to allow independent assessment

3. Qualification / Unit of Credit Candidates

All candidates must register with a GQA recognised/approved centre. The centre must maintain appropriate candidate personal details for external audit purposes etc.

The centre will provide candidates with advice and guidance on how to prepare for assessment and allocate an Assessor who will assess candidate ability to meet the requirements of the relevant qualifications / unit of credit. It is the candidate's responsibility to demonstrate competence and to do this they must: • prove they can consistently meet all the qualification and / or unit of credit criteria

- provide evidence from work, that they can perform competently in all the contexts specified in the qualification / unit of credit requirements
- prove that they have the knowledge and understanding required to perform competently, even where they have not provided evidence from the workplace

It is therefore critical that quality evidence is provided in a format to allow the Assessor to make a decision and for the Internal Verifier to audit/verify his/her decision.

4. Evidence

A qualification and / or credit is awarded when a person has achieved the necessary outcomes of the qualification and / or unit of credit.

The specific combination of units necessary to achieve a qualification is detailed in the qualification structure.

Certificates of Unit Credit can be awarded when candidates achieve any one, or more, units from the qualification.

The evidence the candidate brings forward is primarily evidence of performance of what he/she can do, not just what he/she knows. The assessment criteria / qualification requirements are described within the qualification and / or unit of credit itself and can incorporate practical skills and knowledge.

The assessor's role is to judge each relevant item of evidence. Each must be judged against the qualification and / or unit of credit requirements. It is not sensible to collect evidence against individual criteria. Nor is it effective. If items of evidence were collected for each of the criteria, the candidate may have to produce many items of evidence, well above the number actually required. GQA recommend holistic assessment.

When judging each item of evidence, the assessor is deciding whether the evidence:

- is authentic – i.e. actually produced by the candidate
- meets the criteria
- relates as appropriate to a context defined within the qualification and / or unit of credit
- confirms that the candidate has the required underpinning knowledge

When the assessor makes a decision about the candidate's competence, he or she examines all the evidence available to determine:

- if the evidence, as a whole, covers all the evidence of achievement
- whether the evidence indicates consistency in competent performance
- whether there is enough evidence on which to base an inference of competence

The answer can only be:

- yes (the candidate is competent)
- no (the candidate is not yet competent)
- there is insufficient evidence to make a decision

Consistency means that the individual is likely to achieve the standard in their work role, in the different activities defined in the qualification and / or unit of credit over time and range of work. The assessor must judge how long a time period is enough to be confident that the candidate can perform reliably to the standard. Unsupported evidence i.e. based on a single assessment/visit will not normally prove consistency.

Performance evidence

Performance evidence can be what the individual actually produces, or the way the individual achieves the standard. One is called product evidence and the other process evidence.

Product evidence is tangible – you can look at it and feel it. Products can be inspected and the candidate can be asked questions about them.

In order to make a fair and objective assessment, the assessor must be able to answer the question: Is there sufficient evidence that the candidate can consistently meet the requirements of the qualification and / or unit of credit? Process evidence describes the way the candidate has achieved an outcome – how they went about it. This may be, for example, the way the quality of products is checked or the way customer complaints are handled. This usually means observing the candidate in action.

Performance evidence may cover a number of outcomes. It makes sense to plan evidence collection so that what the candidate does, in the normal course of their job, can be related to different outcomes and units. The activities that clearly link to the qualification and / or unit of credit requirements are the things to concentrate on when planning evidence collection and assessment and when monitoring the candidate's progress. Look for opportunities in the candidate's job when evidence can be collected against a number of units at the same time.

Performance evidence can be:

- Naturally occurring – evidence produced in the normal course of work. Evidence of this sort is usually of high quality and reliable. It is also cost effective to collect naturally occurring evidence
- Taken from previous achievements – the candidate may be able to bring forward evidence from previous work experience to show that they are still competent to the standard.

- Evidence of prior achievement can be used when it can be shown to support a judgment that the candidate can still achieve the standard. So, the assessor must be satisfied that the evidence of prior achievement is sufficiently reliable to justify saying that the candidate is currently competent.
- Simulated – from circumstances specially designed to enable the candidate's performance to be assessed. Simulation is generally not acceptable.
- The exceptions to this are:
    - Dealing with emergencies
    - Dealing with accidents
    - Certain pre-approved real time simulators
    - Limited other procedures that cannot be practically performed in the workplace, and for which sufficient evidence can be collected through other means.

NB: It is not always possible or feasible to collect naturally occurring evidence. It is likely that some simulation may be needed, when it may take too long to wait for the evidence to arise e.g. it may be an aspect of performance which occurs infrequently. An example of this may be evidence of how to deal with emergencies i.e. it makes sense to look for evidence from sources other than naturally occurring ones, rather than for, say, waiting for the building to burn down. Centres must obtain GQA EQA approval prior to the use of simulation.

Knowledge evidence

Being able to achieve a standard requires the ability to put knowledge to work. The qualification and / or unit of credit indicates the knowledge each person should use if they are to perform competently.

It should not be necessary to test all of the candidate's knowledge separately; however, any exception to this would be detailed in the relevant Assessment Strategy. Performance evidence could show that the candidate knows what he or she is doing. When this is not the case, or if the assessor is not convinced from the performance evidence, it may be necessary to check the individual's knowledge separately.

Oral or written assessments must clearly provide a suitable means of checking the breadth and depth of an individual's knowledge. Assessors will need to judge the best mix of knowledge evidence according to individual circumstances. Knowledge evidence is useful when deciding the quality of performance evidence, but must not be used in isolation to judge competence or as an alternative to performance evidence. Care must be taken that candidate evidence is auditable and verifiable.

NB: These Qualification implementation guidelines are generic across the full range of GQA qualifications. Further guidance on acceptable evidence on each qualification will be found in the Introduction to the Qualification section of the candidate booklet

Candidate Declaration

Candidate

Name.....

Centre/Company

Name.....

Assessor(s)

Name(s).....

I acknowledge receipt of this copy of GQA qualification booklet. The unit structure provides information on which units must be achieved to be awarded the qualification. The individual units detail the necessary requirements etc. that I must achieve.

I understand that I will have an important role in preparing for and planning assessments and with guidance from the Assessor.

I will collect and record relevant evidence.

I have been informed of the appeals system, should I want to appeal against any part of the assessment process.

I understand the assessments will be carried out with regard to the company's/centre's Equal Opportunities Policy.

Candidate signature.....

Date.....

A/600/7364 AG3	Communicating and Working with others in the Glass and Related Working Environments	Level 2	3 Credits

The aim of this unit is to provide the learner with the knowledge and skills to communicate and work effectively with others in the glass and glass related working environment.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know what information to share with colleagues on your job role and why this is important.	1.1 Give 3 examples of information linked to your job role that need to be shared with colleagues.			
	1.2 Explain why sharing information with colleagues is important.			
2. Be able to share information with colleagues.	2.1 Share information with colleagues using different methods, for example: – Face to face conversations – Company systems – Written notes – Drawings/sketches – Telephone (voice or text) – Email – Internet			
3. Know why it is important to respond promptly to requests.	3.1 Explain why it is important to respond promptly to requests from colleagues and customers and give 3 examples.			
4. Be able to respond promptly to requests from colleagues.	4.1 Respond promptly to requests from colleagues and/or customers to include the provision of: • – Information – Physical assistance – Advice			
5. Know why good working relationships with colleagues are important and how barriers to this can be overcome.	5.1 Explain why good working relationships are important.			
	5.2 Give 3 examples of problems in developing and maintaining good working relationships with colleagues and suggest solutions.			
6. Be able to develop and maintain good working relationships with colleagues.	6.1 Develop and maintain good working relationships with colleagues.			

Assessor Comments/Feedback

D/502/9721 PV3	Use Access Equipment to Work at Heights	Level 2	4 Credits

The aim of this unit is to provide the learner with the knowledge and skills required to work safely at height. The learner will be required to show knowledge of the inspections that need to be carried out, and the problems that can occur with these types of equipment and offer solutions, also the equipment must be used safely and in accordance with manufacturer's and Company guidelines.

Learning outcome. The learner will:	**Assessment criteria. The learner can:**	**Evidence Ref No.**		
1. Know what is meant by "working at heights"	1.1 Define "working at heights".			
	1.2 Explain how the working at heights act affects the work to be carried out.			
2. Know how to find guidance on the legislation that applies to the use of access equipment and working at heights.	2.1 Explain where to find information on the legislation that applies to the use of access equipment for working at heights.			
3. Know how to assess the risks of working at heights and why this is important.	3.1 Explain how to accurately assess the risks of working at heights. State 3 things to consider.			
	3.2 Explain why it is important to carry out a specific risk assessment on working at heights			
4. Be able to assess the risks of working at heights.	4.1 Carry out an effective risk assessment for working at heights.			
5. Know the different types of access equipment and working platforms for working at heights.	5.1 List three different types of access equipment or working platforms that may be used to work at heights.			
	5.2 Explain the limitations on the use of the equipment listed in 5.1.			
	5.3 Explain what to do when the supplied access equipment is not suitable for the work required.			
6. Know how to inspect the prepared access equipment or working platforms before use and how to deal with any problems identified.	6.1 Explain 3 checks to make on access equipment or working platforms before use.			
	6.2 Explain who can carry out the checks and when they should be made.			
	6.3 State 3 problems that can arise when checking the access equipment or working platforms			
	6.4 Explain how to deal with each of the 3 problems identified.			
7. Know why it is important to regularly inspect access equipment	7.1 Explain why it is important to regularly check access equipment and working platforms.			
8. Be able to inspect the access equipment before use.	8.1 Carry out all necessary checks before using the access equipment.			
9. Use the equipment in accordance with manufacturer's guidelines, Company procedures and relevant health and safety legislation.	9.1 Gain access to and from the working height in accordance with manufacturer and Company guidelines.			
	9.2 Ensure any materials and components are lifted and placed in, on or around the access equipment in a safe, effective manner.			
	9.3 Ensure any materials and components are removed from the access equipment in a safe effective manner.			

D/502/9721 PV3	Use Access Equipment to Work at Heights (Continued)	Level 2	4 Credits

	9.4 Follow the Company and manufacturer's guidelines and relevant legislation on health and safety throughout the use of the equipment			
10. Recognise what is meant by a "fragile" surface, and the legislation that applies specifically to working on or near a fragile surface.	10.1 List 3 surfaces that are generally referred to as "fragile".			
	10.2 Explain how to make relevant people aware of the presence of a fragile surface.			
	10.3 Describe 3 precautions to take when working on or near a fragile surface.			
11. Know the types of information to record regarding working at height.	11.1 Describe the information to be recorded on: – The use of access equipment – The inspection of access equipment			
	11.2 Explain the requirements for keeping the information.			
12. Be able to record necessary information regarding the use of access equipment to work at heights.	12.1 Complete all relevant information in accordance with legislation, manufacturer and Company procedures..			
	12.2 Ensure the completed records are handled and stored in accordance with legislation, manufacturer and Company procedures			

Assessor Comments/Feedback

J/502/9650 PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment	Level 2	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to work safely in the Photovoltaic panel installation working environment and to be able to carry out the correct actions should an accident or emergency occur.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know which acts, regulations and guidelines apply to the Photovoltaic installation environment and how these apply in practice.	1.1 State which acts, regulations and guidelines apply to the Photovoltaic installation environment.			
	1.2 Explain how these acts, regulations and guidelines apply in practice to the Photovoltaic installation environment.			
2. Know how to carry out an effective assessment of hazards and risks in the Photovoltaic installation working environment.	2.1 Describe the steps in carrying out a risk assessment.			
	2.2 Explain the aspects of Photovoltaic panel installation that pose risk of electrocution or electric shock and how to minimise the risks.			
	2.3 Give 3 examples of risks or hazards other than electrocution that can occur in the Photovoltaic panel installation working environment.			
	2.4 Explain the actions required when discovering unsafe working conditions. To include reporting systems.			
3. Be able to identify hazards and assess risks in the Photovoltaic panel installation environment.	3.1 Carry out an accurate risk assessment of the Photovoltaic panel installation environment.			
4. Know how to adopt safe working practices.	4.1 Describe your work place, indicating the guidance documents relating to safe working in your job role			
	4.2 Describe three tasks in the Photovoltaic installation working environment and the equipment and personal protective equipment used.			
	4.3 Explain the choices of equipment and personal protective equipment given in the example above..			
	4.4 Explain what to do if the required PPE or tools and equipment are not fit for purpose.			
	4.5 Describe the safe manual handling methods and equipment available.			
	4.6 Explain what to do when faced with a task or piece of equipment that is unfamiliar			
5. Be able to adopt a safe system of work.	5.1 Correctly select and use safety equipment, for example: – Barriers – Signage – Electrical isolation			
	5.2 Correctly select and use personal protective equipment in accordance with legislation and Company procedures.			
	5.3 Correctly select and safely use equipment required to carry out the work.			

J/502/9650 PV1	Maintain Health and Safety in the Photovoltaic Panel Installation Working Environment (Continued)	Level 2	5 Credits

	5.4 Correctly select and use materials, to include: – Components – Consumables – Substances			
	5.5 Use safe manual handling procedures.			
6. Know what to do in the event of accidents or emergencies.	6.1 Describe the correct procedure to follow in the case of an accident.			
	6.2 Describe the correct procedure to follow in the case of an emergency			
	6.3 Describe the procedure for reporting and recording accidents and emergencies			
Assessor Comments/Feedback				

L/502/9651 PV10	Confirm PV Panel Installation Requirement	Level 2	3 Credits

The aim of this unit is to provide the learner with the knowledge and skills to accurately identify and confirm the PV panel installation requirements.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know how to identify and confirm the specifications required to complete the installation.	1.1 Name the sources of information that may be available to confirm the specification.			
	1.2 Name the components that need to be checked when confirming the requirements.			
	1.3 List the aspects of the installation other than components that need to be checked.			
	1.4 Explain how to confirm the specification is accurate and up to date to ensure all work is carried out to the latest specification and in accordance with legislation.			
2. Know how to establish the type, location, characteristics and features of the installation.	2.1 Explain how to establish the type and location of the installation work			
	2.2 Explain how to identify the characteristics and features of the site.			
	2.3 Explain how characteristics, features and other conditions can affect the way the installation is carried out.			
3. Be able to assess the structure intended for the installation.	3.1 Assess the structure for suitability for the installation, to include: – Identification of correct fittings – Compliance with legislation – Compliance with Company and manufacturer's guidance – Condition of structure			
4. Know how to overcome problems in the confirmation of installation requirements.	4.1 Describe three problems that can occur in the confirmation of the installation requirements.			
	4.2 Explain how these might be overcome.`			
Assessor Comments/Feedback				

L/502/9715 PV2	Knowledge of Photovoltaic Systems	Level 3	6 Credits

The aim of this unit is to provide the learner with the underpinning knowledge of PV systems, requirements, components and properties. This includes understanding of typical problems and their likely causes.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know the properties of a Photovoltaic system.	1.1 Explain how a Photovoltaic system works.			
	1.2 Name the 3 types of PV technology used in panels.			
	1.3 Explain the difference between Grid-Connected and Off-Grid systems.			
	1.4 Name the material that PV panels are constructed from.			
	1.5 Name the type of current generated by PV panels.			
	1.6 Explain how this is converted to be suitable for use.			
2. Understand the meaning of common words and terms used in the Photovoltaic working environment.	2.1 Explain the meaning of the following: – Cell – Module – String – Array			
	2.2 Explain the meaning of: – kWp – Kwh – Voc – Isc – STC – Commissioning – Grid Connection			
	2.3 Describe the following terms with regards to roofs: – Gable – Hipped – Half hipped – Trusses – Rafters – Struts – Tie beams – Purlin – Ridge board – Eaves			
3. Know the International Standards that PV modules are tested to.	3.1 Name the 2 International Standards that apply to PV modules.			
	3.2 Explain how to confirm the modules have been approved to the required standard.			
	3.3 Explain the importance of compliance with MCS accreditation			

L/502/9715 PV2	Knowledge of Photovoltaic Systems (Continued)	Level 3	6 Credits

4. Understand the conditions necessary for an effective Photovoltaic system.	4.1 Identify the ideal conditions for an effective PV system.			
	4.2 Explain how to compensate for conditions that reduce the amount of output.			
	4.3 Know the amount of power used in an average 3 bedroom house.			
	4.4 Know how to calculate the potential power that a specified system can generate			
5. Know the major components needed in a PV system and their purpose.	5.1 List 5 main components required in a PV system.			
	5.2 Describe the properties of each component. 5.3 Explain the purpose of each component.			
	5.3 Explain the purpose of each component.			
	5.4 Give an example of a suitable location for each component.			
6. Know the legislation and safety precautions to take with PV systems.	6.1 Explain 3 parts of the installation that must take note of the Building Regulations.			
	6.2 Explain what work relating to PV Installation must be carried out by a qualified Electrician.			
	6.3 Name the components that should be labelled, what information should be included and how it should be recorded.			
	6.4 Describe the current safety precautions to take with PV systems			
7. Understand the requirements for planning permission with PV installations.	7.1 Explain how to check the requirements for planning permission in England, Wales, Scotland or Northern Ireland.			
	7.2 State 3 types of building or location where planning permission may be required.			
8. Know the typical problems that can arise and their possible causes.	8.1 Describe 2 problems that can cause no system output during the day and what to check.			
	8.2 Describe 2 problems that can be indicated by the system output being lower than expected and what to check.			
	8.3 Describe 2 possible reasons that system output is lower than previously produced and what to check.			
Assessor Comments/Feedback				

M/502/9724 PV5	Locate, Test, Handle and Position Photovoltaic Panels prior to Installation	Level 3	6 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to correctly locate, handle and position, in readiness for work, materials and components in the Photovoltaic panel installation, this includes testing and recording of test results.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Be able to locate and select the correct type and quantity of materials and components to meet the job specification.	1.1 Identify materials and components by their labels/identification marks.			
	1.2 Locate materials and components.			
	1.3 Check that materials and components match their markings.			
	1.4 Select the correct type and quantity of materials and components for the job.			
2. Be able to handle and transport materials and components correctly	2.1 Handle the materials and components safely, using the correct handling methods including: – Correct handling equipment – Correct manual handling techniques – Personal protective equipment			
3. Know the impact of incorrect handling and transporting materials and components correctly.	3.1 Describe the type of damage that can occur during the handling and transportation of installation materials and components.			
	3.2 Give 3 examples of how incorrect handling and transporting of materials and components can impact on installation work.			
	3.3 Describe the weather conditions that can have an impact on the handling and transportation of materials and how to minimise the impact.			
4. Know the testing procedures to follow on the Photovoltaic panels.	4.1 Explain 3 operational tests to make on the Photovoltaic panels.			
	4.2 Describe the equipment and safe methods to use when carrying out the tests.			
	4.3 Explain when these tests should be carried out.			
	4.4 Describe the conditions that can affect the testing procedure.			
	4.5 Explain the different ways to carry out the tests in adverse conditions.			
	4.6 Explain who is permitted to carry out the tests..			
	4.7 Describe 3 possible faults that may be found and what to do about them.			
	4.8 Explain the recording and reporting procedures required following the tests			
5. Be able to carry out the testing procedures.	5.1 Carry out the relevant tests in accordance with manufacturer's recommendations.			
	5.2 Record all necessary information to comply with manufacturer's recommendations.			
6. Know how to position materials and components correctly.	6.1 Explain why materials and components need to be positioned correctly, to include: – Protection from damage – Security – Ease of access			

M/502/9724 PV5	Locate, Test, Handle and Position Photovoltaic Panels prior to Installation (Continued)	Level 3	6 Credits

	6.2 Give 3 examples of difficulties/hazards in positioning materials and components, to include 1 caused by weather conditions.			
	6.3 Give solutions to the 3 examples given.			
7. Be able to position materials and components correctly	7.1 Position materials and components correctly, taking into account: – Avoiding damage to the materials or surrounding objects – Security of materials and components – Ease of access for further work			
Assessor Comments/Feedback				

T/502/9800 PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed during the PV Installation Process	Level 2	2 Credits

The aim of this unit is to provide the learner with the knowledge to be able to deal with situations where asbestos

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know the health and safety requirement and statutory and industry regulations which apply to removing materials containing asbestos cement and where to obtain the information.	1.1 State which health and safety requirements and statutory and industry regulations apply and explain how these relate to the removal and storage of materials containing asbestos cement.			
	1.2 Explain where information relating to health and safety and statutory legislation regarding asbestos can be obtained.			
	1.3 Explain the legal responsibilities that must be followed if asbestos cement is found whilst working			
2. Know how to identify the presence of asbestos and the importance of removing contaminated items without cutting or breaking them.	2.1 Explain how to identify asbestos.			
	2.2 Explain why it is important to try and remove contaminated materials without cutting or breaking the materials.			
	2.3 State 3 areas where asbestos may be present that will impact on the installation of PV panels.			
3. Know why it is important to follow correct procedures for the removal of asbestos cement.	3.1 Explain why it is important to follow correct procedures for removing asbestos cement.			
	3.2 Describe the effects that asbestos can have on humans.			
	3.3 State the personal protective equipment that needs to be worn when working with asbestos.			
	3.4 Explain why it is important to wear protective equipment at all times.			
4. Know how to review Company paperwork to identify whether asbestos is present and what type it is.	4.1 Explain the Company paperwork relevant to the completed survey and installation instructions to identify whether asbestos is present and what type it is.			
	4.2 Give 3 reasons why it is important that the Company paperwork is completed when asbestos cement is identified.			
5. Know why it is important to wait for a licensed asbestos contractor to remove asbestos insulation board.	5.1 Explain why it is important, whilst checking the site, to wait for a licensed contractor to remove any asbestos insulation board.			
	5.2 Explain how to ensure the Company doing so is licensed to remove asbestos from a site.			
6. Know why it is important to erect safety barriers and warning signs when asbestos cement is identified.	6.1 Explain why it is important to erect safety barriers and warning signs when asbestos cement is identified.			
	6.2 Describe the types of barriers and warning signs that are to be used when asbestos cement has been identified.			

T/502/9800 PV9	Understanding the Procedure to follow after the Discovery of Materials Containing Asbestos Cement Exposed during the PV Installation Process (Continued)	Level 2	2 Credits

7. Know how to store asbestos cement and contaminated materials ready for safe removal from site.	7.1 Explain how to handle, pack and store asbestos cement and contaminated materials in accordance with statutory legislation.			
8. Know how to ensure asbestos cement waste is transported safely	8.1 Explain how asbestos cement waste should be transported. 8.2 Describe the problems that could occur if asbestos cement is not transported correctly.			

Assessor Comments/Feedback

M/502/9688 PV13	Fix Photovoltaic Panels onto a non-Roof Structure	Level 2	6 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to fix PV panels onto a non-roof structure; it includes knowledge of fixings, roof coverings, connections and the need to work safely in the Photovoltaic panel installation working environment. The unit also requires knowledge of associated problems and possible solutions

Learning outcome. The learner will:	**Assessment criteria. The learner can:**	**Evidence Ref No.**		
1. Know the types of structures other than roofs that may be suitable for mounting PV panels.	1.1 List 2 other locations apart from a roof where PV panels could be installed..			
	1.2 Describe the reasons for selecting non-roof surfaces for mounting panels to.			
	1.3 State 3 benefits of fixing panels to a location other than a roof structure.			
	1.4 List 3 problems that can occur with installation in non-roof structures			
2. Be able to locate and mark out location to install PV panels onto chosen location.	2.1 Use drawings and associated documents to identify location to fix panels to comply with customer requirements, organisational guidelines and legislation.			
	2.2 Identify and mark out area ready to receive panels			
3. Be able to identify the process for mounting panels onto suitable location.	3.1 Ensure that chosen location is suitable and in correct condition to mount the panels to.			
	3.2 Ensure location is correctly prepared to receive mounting system.			
	3.3 Check that the mounting system is suitable for chosen location			
4. Know how to select and fix brackets mounting system to non-roof structure.	4.1 Explain 3 types of fixings available and the structures they are suitable for.			
	4.2 Describe the safest method to fix selected mounting option to non-roof structure.			
	4.3 Know where to get information to ensure mounting system used is correct and fixed in accordance with manufacturer's instructions.			
	4.4 Describe 3 problems that can arise when fixing mounting systems to non-roof structure and how these can be overcome			
5. Be able to fix mounting system to chosen location.	5.1 Ensure mounting system selected is correct type to use.			
	5.2 Select correct fixing method to fix mounting system to non-roof surface.			
6. Know how to fix panels to mounting system correctly and safely	6.1 Explain the process for fixing panels to mounting system.			
	6.2 Explain the different fixing kits available and where they are used.			
	6.3 Describe how you know that a panel has been fixed correctly to the mounting system.			
	6.4 Describe the checks that need to be carried out once panel is installed			

M/502/9688 PV13	Fix Photovoltaic Panels onto a non-Roof Structure (Continued)	Level 2	6 Credits

	6.5 Explain 3 problems that can occur when fixing panels to a mounting system and suggest possible solutions.			
7. Be able to fix panels to mounting system.	7.1 Ensure pre-checks have been carried out on panels and findings recorded appropriately.			
	7.2 Correctly move panels to area where they are to be installed.			
	7.3 Select correct fixing kit for panels.			
	7.4 Place panels on to mounting system and secure correctly.			
	7.5 Check panels are attached to bracket/mounting bar safely and securely			
8. Know how to connect panels together.	8.1 Describe 2 different ways panels can be connected together.			
	8.2 State the safe method for connecting panels together.			
	8.3 Describe where to get the information to connect panels correctly.			
	8.4 List 2 different connections that can be used.			
	8.5 Describe 3 problems that can occur when connecting panels together and suggest possible solutions.			
	8.6 Explain how to leave the panels in a safe condition and why this is important			
9. Be able to connect panels together safely	9.1 Correctly identify the method required for the panels be connected together.			
	9.2 Identify the correct joining process for connecting panels together.			
	9.3 Correctly and safely connect panels together.			
	9.4 On completion leave panels in a safe condition to ensure no harm to others.			

Assessor Comments/Feedback

K/502/9687 PV12	Fix Photovoltaic Panels onto a Roof Structure	Level 2	8 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to fix PV panels on to roof structures; it includes connecting panels together and also knowing how to deal with problems that can occur.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know how to locate, and mark out area where panels are to be fixed to.	1.1 Explain how to identify the location for fixing the panels on to the roof structure.			
	1.2 State the documents needed to refer to so that location of panels is carried out in accordance with customer requirements, organisational guidelines and legislation.			
	1.3 Describe how you would mark out the area to fix panels to			
2. Know how to expose roof area to be able to attach fixings to structure.	2.1 Explain how to safely remove roof covering to expose area for attaching fixing brackets.			
	2.2 Explain 3 types of roof coverings and how to remove them safely			
	2.3 List 3 problems that can occur when removing roof covering and how to identify them.			
	2.4 Explain how to overcome problems that are found when removing roof covering.			
	2.5 Give 3 reasons why improvements may be needed to roof structure before brackets can be fixed.			
	2.6 Give 3 areas you need to consider when removing roof structure to ensure roof is kept water tight on completion of installation			
3. Be able to locate and mark out location to install PV panels onto roof structure	3.1 Use drawings and associated documents to identify location to fix panels to structure.			
	3.2 Identify and mark out area ready to receive panels.			
4. Be able to remove existing roof covering ready to fix mounting brackets.	4.1 Identify type of roof covering used.			
	4.2 Ensure that roof covering is removed safely and correctly with no damage to surrounding area.			
	4.3 Ensure that roof covering removed is stored safely and securely.			
	4.4 Check the exposed roof area to ensure structure is in a suitable condition to receive fixings.			
	4.5 Ensure the structure and brackets are safe and suitable for the installation prior to fixing.			
5. Know how to select and fix brackets to roof structure.	5.1 Explain 3 types of fixings available and the structures they are suitable for.			
	5.2 Describe the safest method to fix selected bracket to roof structure.			

K/502/9687 PV12	Fix Photovoltaic Panels onto a Roof Structure (Continued)	Level 2	8 Credits

	5.3 Know where to get information to ensure roof brackets are correct and fixed in accordance with manufacturer's instructions.			
	5.4 Describe 3 problems that can arise when fixing brackets to roof structure and how these can be overcome.			
6. Be able to reinstate roof covering after fixing brackets.	6.1 Ensure roof covering is reinstated to ensure it is safe, secure and watertight.			
	6.2 Ensure no damage is caused when reinstating roof.			
	6.3 Ensure brackets do not interfere with the integrity of the roof covering			
7. Know how to fix panels to bracket/mounting bar correctly and safely	7.1 Explain the process for fixing panels to mounting bar/brackets.			
	7.2 Explain the different fixing kits available and where they are used.			
	7.3 Describe how to confirm that a panel has been fixed correctly to a bracket.			
	7.4 Describe 3 checks that need to be carried out once panels have been assembled.			
	7.5 Describe 3 problems that can occur when fixing panels to a bracket or mounting bar and suggest possible solutions.			
8. Be able to fix panels to mounting system.	8.1 Ensure pre-checks have been carried out on panels and findings recorded appropriately.			
	8.2 Correctly move panels to area where they are to be installed..			
	8.3 Select correct fixing kit for panels.			
	8.4 Place panels on to mounting bar/brackets and fit correctly.			
	8.5 Check panels are attached to bracket/mounting bar safely and securely			
9. Know how to connect panels together.	9.1 Identify 2 different ways panels can be connected together.			
	9.2 State the safe method for connecting panels together.			
	9.3 Identify where to get the information to connect panels correctly.			
	9.4 List 2 different connections that can be used.			
	9.5 Describe 3 problems that can occur when connecting panels together and suggest possible solutions.			
	9.6 Explain how to leave the panels in a safe condition and why this is important			
10. Be able to connect panels together safely.	10.1 Correctly identify the method required for the panels to be connected together.			
	10.2 Identify the correct joining process for connecting panels together.			

K/502/9687 PV12	Fix Photovoltaic Panels onto a Roof Structure (Continued)	Level 2	8 Credits

	10.3 Correctly and safely connect panels together.			
	10.4 On completion leave panels in a safe condition to ensure no harm to others.			
11. Know the different issues to consider when fixing panels onto flat roofs.	11.1 Describe 3 considerations when fixing PV panels onto flat roofs.			
	11.2 Explain how the installation may differ from an angled roof.			

Assessor Comments/Feedback

M/502/9657 PV11	Fix Photovoltaic Panels into a Roof Structure	Level 3	8 Credits

The aim of this unit is to provide the learner with the knowledge and skills to be able to fix PV panels into roof structures; it includes connecting panels together and also knowing how to deal with problems that can occur.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know how to locate, and mark out area where panels are to be fixed to.	1.1 Explain how to identify the location for fixing the panels on to the roof structure.			
	1.2 State the documents needed to refer to so that location of panels is carried out in accordance with customer requirements, organisational guidelines and legislation.			
	1.3 Describe how you would mark out the area to fix panels to			
2. Know how to expose roof area to be able to attach fixings to structure.	2.1 Explain how to safely remove roof covering to expose area for attaching panel mounting kit.			
	2.2 Explain 3 types of roof coverings and how to remove them safely			
	2.3 List 3 problems that can occur when removing roof covering and how to identify them.			
	2.4 Explain how to overcome problems that are found when removing roof covering.			
	2.5 Give 3 reasons why improvements may be needed to roof structure before panel mounting kit is attached.			
	2.6 Give 3 areas you need to consider when removing roof structure to ensure roof is kept water tight on completion of installation			
3. Be able to locate and mark out location to install PV panels onto roof structure	3.1 Use drawings and associated documents to identify location to fix panels to structure.			
	3.2 Identify and mark out area ready to receive panels.			
4. Be able to remove existing roof covering ready to fix mounting brackets.	4.1 Identify type of roof covering used.			
	4.2 Ensure that roof covering is removed safely and correctly with no damage to surrounding area.			
	4.3 Ensure that roof covering removed is stored safely and securely.			
	4.4 Check the exposed roof area to ensure structure is in a suitable condition to receive panel mounting kit.			
	4.5 Check condition of roof membrane and that it is in sound condition and free from damage and waterproof.			
5. Know how to select and fix brackets to roof structure.	5.1 Explain how to fit panel mounting kit to roof structure in a safe and secure way.			
	5.2 Explain the purpose of the panel mounting kit and how it functions when in the roof.			
	5.3 Describe 3 of the important properties that a panel mounting kit should have. to a roof and explain why they are used for each roof type			

M/502/9657 PV11	Fix Photovoltaic Panels into a Roof Structure (Continued)	Level 3	8 Credits

	5.4 Explain the different ways the panel mounting kit can be fitted			
6. Be able to fix panel in roof mounting kit to roof structure to provide a weatherproof installation.	6.5 On completion check in roof panel mounting kit is fitted squarely and securely.			
	6.6 On completion check in roof mounting kit is within stated tolerances for surrounding roof covering. 6.7 Ensure the installation is weatherproofed according to manufacturer's instructions.			
	6.7 Ensure the installation is weatherproofed according to manufacturer's instructions.			
7. Know how to fix panels to in roof mounting kit correctly and safely	7.1 Explain the process for fixing panels to in roof mounting kit.			
	7.2 Explain the different in roof panel fixing kits available and where they are used.			
	7.3 Describe how to confirm that a panel has been fixed correctly to an in roof panel mounting kit.			
	7.4 Describe 3 checks that need to be carried out once panels have been assembled.			
8. Be able to fix panels to in roof mounting system.	8.1 Ensure pre-checks have been carried out on panels and findings recorded appropriately.			
	8.2 Correctly move panels to area where they are to be installed..			
	8.3 Select correct mounting fixing kit for panels.			
	8.4 Place panels on to mounting fixing kit and fit correctly.			
	8.5 Check panels are attached to in roof mounting system safely and securely			
9. Know how to connect panels together.	9.1 Identify 2 different ways panels can be connected together.			
	9.2 State the safe method for connecting panels together.			
	9.3 Identify where to get the information to connect panels correctly..			
	9.4 List 2 different connection methods.			
	9.5 Describe 2 problems that can occur when connecting panels together and suggest possible solutions.			
	9.6 Explain how to leave the panels in a safe condition and why this is important			
9.6 Explain how to leave the panels in a safe condition and why this is important	10.1 Correctly identify the method required for the panels to be connected together.			
	10.2 Identify the correct joining process for connecting panels together			
	10.3 Correctly and safely connect panels together.			
	10.4 On completion leave panels in a safe condition to ensure no harm to others.			

M/502/9657 PV11	Fix Photovoltaic Panels into a Roof Structure (Continued)	Level 3	8 Credits

11. Know the different issues to consider when fixing panels into flat roofs.	11.1 Describe 3 considerations when fixing PV panels into flat roofs.			
	11.2 Explain how the installation may differ from an angled roof.			

Assessor Comments/Feedback

R/502/9800 PV8	Prepare the Structure for Photovoltaic Panel Installation – Existing Structure	Level 2	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills required to correctly prepare the site, equipment and tools in readiness for Photovoltaic panel installation into an existing structure. The learner will also have to demonstrate knowledge of associated problems and possible solutions.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know which parts of the Building Regulations relate to the removal of existing roof components and how they apply in practice.	1.1 State which parts of the Building Regulations relate to the removal of existing roof components.			
	1.2 Explain how these apply in practice.			
2. Know what types of dangerous components or materials might be discovered and what actions should be taken if they are discovered.	2.1 State the types of dangerous components or materials that may be revealed, to include: – Existing materials – Infestations			
	2.2 State what action should be taken if dangerous components or materials are discovered, to include reference to, for example: – Authorisation – Training – Licences/permits			
3. Be able to prepare the work areas correctly	3.1 Mark out work areas clearly and isolate them from the rest of the site..			
	3.2 Protect all areas exposed to debris.			
	3.3 Prepare ground and floor surfaces ready to receive installation equipment and materials and access equipment.			
	3.4 Prepare the structure for panel installation in accordance with customer requirements, Company guidelines and legislation.			
	3.5 Remove vulnerable objects			
4. Be able to correctly remove the necessary existing roof components and materials.	4.1 Remove all necessary existing roof material causing minimum damage.			
	4.2 Ensure access to the internal roof structure is not impeded by materials e.g. roof lining.			
5. Know the different types of preparation required for the various installation types.	5.1 Give 2 examples of the different types of installation.			
	5.2 Give 2 examples of the possible problems for each of the installation methods listed above.			
	5.3 Explain the advantages and disadvantages of each of the installation methods			
6. Be able to safely prepare the correct equipment.	6.1 Identify and select the correct equipment.			
	6.2 Set up the equipment correctly.			
	6.3 Ensure that the equipment operates correctly.			
7. Be able to ensure the required materials are available for use.	7.1 Identify and confirm the specification for the materials.			
	7.2 Ensure the required type, quantity and quality of materials is available for use.			

R/502/9800 PV8	Prepare the Structure for Photovoltaic Panel Installation – Existing Structure (Continued)	Level 2	5 Credits

8. Know different methods of securing installation materials to different types of structure.	8.1 Explain fixing methods in accordance with current codes of practice.			
	8.2 Give three examples of different types of structure and explain how installation materials would be secured to them.			
9. Be able to ensure that the installation area meets specification	9.1 Carry out all necessary checks to ensure the installation area meets the job specification and legislative and manufacturer's requirements.			
	9.2 Prepare the installation area to meet job specification.			
10. Know the types of problems that can occur with preparation and how to overcome them.	10.1 Explain 3 problems that can occur during the preparation process.			
	10.2 Give a possible solution for each of the problems			

Assessor Comments/Feedback

T/502/9275 PV7	Prepare the Structure for Photovoltaic Panel Installation – New Build	Level 2	3 Credits

The aim of this unit is to provide the learner with the knowledge and skills required to correctly prepare the site, equipment and tools in readiness for Photovoltaic Panel Installation in New Build . The learner will also have to demonstrate knowledge of associated problems and possible solutions.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Be able to prepare the work areas correctly	1.1 Mark out work areas clearly and isolate them from the rest of the site.			
	1.2 Protect all areas exposed to debris.			
	1.3 Prepare ground and floor surfaces ready to receive installation equipment and materials and access equipment.			
	1.4 Prepare the structure for panel installation in accordance with customer requirements, Company guidelines, manufacturer's recommendations and current legislation			
2. Know the different types of installation equipment and their uses.	2.1 Give 3 examples of the different types of installation equipment and their use; for example: – Battery supplied equipment • Machinery – Mains supplied equipment – Manual tools			
3. Be able to safely prepare the correct installation equipment.	3.1 Identify and select the correct equipment.			
	3.2 Set up the equipment correctly.			
	3.3 Ensure that the equipment operates correctly			
4. Be able to ensure the required materials are available for use	4.1 Identify and confirm the specification for the materials.			
	4.2 Ensure the required type, quantity and quality of materials is available for use.			
5. Know different methods of securing a Photovoltaic installation to different types of structure.	5.1 Explain fixing methods in accordance with current codes of practice and relevant legislation, to include 3 types of fixings.			
	5.2 Give three examples of different types of structure and explain how the panels would be secured to them.			
6. Be able to ensure that the installation meets specification	6.1 Carry out all necessary checks to ensure the installation area meets the job specification and legislative and manufacturer's requirements.			
	6.2 Prepare the installation area to meet job specification			
7. Know the types of problems that can occur with preparation and how to overcome them.	7.1 Explain 3 problems that can occur during the preparation process.			
	7.2 Give a possible solution for each of the problems			
Assessor Comments/Feedback				

H/502/9722 PV4	Post Photovoltaic Installation activities	Level 2	3 Credits

The aim of this unit is to provide the learner with the knowledge and skills to ensure the completed work is left in a safe condition, and that the site is left in a safe and practicably clean condition. The learner will also be expected to have knowledge of the procedures related to recording information. There is also the need to be aware of associated problems and possible solutions.

Learning outcome. The learner will:	**Assessment criteria. The learner can:**	**Evidence Ref No.**		
1. Know how to ensure the installation is left in a safe condition.	1.1 Explain the steps that must be taken to ensure the installation is left in a safe condition.			
2. Know why it is important to remove all materials and debris from the site.	2.1 Explain why it is important to remove all materials and debris from the site.			
3. Be able to remove all surplus materials and debris from the site.	3.1 Remove all surplus materials and debris from the site			
4. Know how to deal with customer questions concerning the work.	4.1 Give 3 examples of questions that customers may ask about the system.			
	4.2 Explain the information that would be provided in answer to the questions asked.			
	4.3 Explain how the customer can contact the Installer or Installation Company should there be any reason to do so.			
5. Know how to identify and overcome problems in relation to the post installation activity.	5.1 Describe three problems that might occur in the post installation activity and explain how they might be overcome.			
6. Know the type of information that needs to be recorded regarding the installation.	6.1 Explain 3 pieces of information that have to be recorded.			
	6.2 Explain the documentation used to record the information.			
	6.3 Explain what happens to the completed documents			
7. Record information related to the installation activity.	7.1 Accurately record information on the installation activity in accordance with legislation, manufacturer and Company procedures.			
Assessor Comments/Feedback				

R/503/0400 PV14	Ensure the Glass related Installation is completed safely and handed over to the Customer	Level 3	5 Credits

The aim of this unit is to provide the learner with the knowledge and skills required to ensure the installation is left in a safe condition, and all necessary information is communicated effectively and professionally to customers.

Learning outcome. The learner will:	Assessment criteria. The learner can:	Evidence Ref No.		
1. Know how to identify and confirm the specifications required to complete the installation	1.1 Finish off the work to specified requirements.			
	1.2 Ensure the installation is left in a safe condition prior to commissioning.			
	1.3 Undertake all necessary checks required by legislation, manufacturer and in accordance with Company guidelines to ensure the system is safe and ready for handover			
2. Be able to agree the installation meets the original job specification.	2.1 Discuss with the client/authorised representative the correct position/installation of components to ensure supplied installation meets specification.			
3. Know what information to share with customers and why it is important this is done effectively.	3.1 Give 3 examples of information linked to the installation that needs to be shared with customers before starting the installation work and list 2 ways of providing the information.			
	3.2 Give 3 examples of information linked to the installation that needs to be shared with customers on completion of the installation work and list 2 ways of providing the information.			
	3.3 Explain why sharing information with customers is important.			
	3.4 Describe how to ensure the customer understands the information provided.			
4. Be able to share information with customers.	4.1 Share information with customers using different methods prior to and after the installation, for example: – Face to face conversations • Demonstration – Company systems – Written notes – Drawings/sketches – Telephone (voice or text) – Email – Internet			
5. Know why it is important to respond professionally to customer questions and requests.	5.1 Explain why it is important to respond promptly and in a professional manner to questions and requests from customers.			
	5.2 Give 3 examples of questions or requests a customer may have.			
	5.3 Explain how to deal with a question you are unable to answer immediately.			
	5.4 Explain how to deal with a request that is outside of the agreed job specification and why it is important to deal with this correctly			

R/503/0400 PV14	Ensure the Glass related Installation is completed safely and handed over to the Customer	Level 3	5 Credits

6. Know why good working relationships with customers are important and how barriers to this can be overcome.	6.1 Explain why good working relationships are important, stating one benefit to: – The Company – You as an individual			
	6.2 Give 3 examples of problems in developing and maintaining good working relationships with customers and suggest solutions.			
7. Be able to develop and maintain professional and effective working relationships with customers.	7.1 Demonstrate a professional approach to customers.			
8. Understand the problems that can arise during the handover process.	8.1 Describe 3 possible problems that can become apparent during the handover process.			
	8.2 Suggest likely causes of each problem identified.			
	8.3 Suggest possible solutions to rectify each problem.			
Assessor Comments/Feedback				

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GQA Qualifications, Unit 1, 12 O'Clock Court, Attercliffe Road, Sheffield, S4 7WW
Tel: 0114 272 0033/272 0080
Email: info@gqaqualifications.com Website: www.gqaqualifications.com