Qualification Specification

ProQual Level 3 Diploma for Electrical and Mechanical Draughtsman

ProQual Level 3 Diploma for Electrical and Mechanical Draughtsman

This qualification is part of ProQual's broad offer of qualifications in the Construction Occupational Skills Sector.

To find out more about other qualifications in this, or any other sector, or for our latest fees; check our Fees Schedule via the QR code below:

Scan Here

Contents

Introduction

The ProQual Level 3 Diploma for Electrical and Mechanical Draughtsman provides a nationally recognised qualification for individuals looking to begin a career in the engineering and construction sectors. It is designed for new entrants who wish to develop the core skills and knowledge required to produce detailed technical drawings for electrical and mechanical systems using both traditional draughting methods and computer-aided design (CAD) software.

The qualification prepares learners for roles within design teams that support the delivery of infrastructure, manufacturing, and construction projects. Draughtsmen play a vital role in translating technical specifications into accurate and practical drawings, contributing to the safe and effective implementation of engineering solutions. The course emphasises industry-relevant practices and encourages learners to build a strong foundation in engineering drawing, technical communication, and design interpretation.

The aims of this qualification are:

- Develop practical skills and technical knowledge required for accurate draughting in both electrical and mechanical disciplines.
- Equip learners with the ability to interpret and apply engineering drawings, schematics, and specifications in compliance with industry standards.
- Support progression into employment or further professional qualifications within the construction, engineering, or manufacturing industries.

The awarding body for this qualification is ProQual AB. This qualification has been approved for delivery in England. The regulatory body for this qualification is Ofqual, and this qualification has been accredited onto the Regulated Qualification Framework (RQF) and has been published in Ofqual's Register of Qualifications.

Qualification Profile

Qualification Title:	ProQual Level 3 Diploma for Electrical and Mechanical Draughtsman
Qualification Number:	610/6502/X
Level:	3
Total Qualification Time (TQT):	635
Guided Learning Hours (GLH):	415
Assessment:	Pass/Fail
	Internally assessed and verified by centre staff
	External quality assured by ProQual verifiers
Qualification Start Date:	1st October 2025
Qualification Review Date:	1st October 2028

Learner Profile

Candidates who complete this qualification should have as a minimum:

- 3 GCSE passes in Maths, English Language and Science or Technology.

Centres should carry out an initial assessment of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Structure

This qualification consists of **7** mandatory units. Candidates must complete all mandatory units to complete this qualification.

Unit Number	Unit Title	Level	TQT	GLH
Mandatory Units – Candidates must complete **all** units in this group.				
K/651/7969	Project Planning and Health and Safety	3	55	35
R/651/7970	Drawing Office Operations and Equipment	3	110	60
T/651/7971	Site Observation and Technical Drawing	3	60	40
Y/651/7972	Fundamentals of Technical Drawing Application	3	60	40
A/651/7973	Computer-Aided Design	3	70	60
D/651/7974	Parametric Modelling for Workflows	3	60	30
F/651/7975	Electrical and Mechanical Draughting and Technical Communication	3	220	150

Centre Requirements

Centres must be approved to deliver this qualification. If your centre is not approved to deliver this qualification, please complete and submit the **ProQual Additional Qualification Approval Form.**

Materials produced by centres to support candidates should:

- Enable them to track their achievements as they progress through the learning outcomes and assessment criteria.
- Provide information on where ProQual's policies and procedures can be viewed.
- Provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence.

Centres must have the appropriate equipment to enable candidates to carry out the practical requirements of this qualification.

Certification

Candidates who achieve the requirements for this qualification will be awarded:

- A certificate listing all units achieved, and
- A certificate giving the full qualification title:

ProQual Level 3 Diploma for Electrical and Mechanical Draughtsman

Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the qualification. All certificates will be issued to the centre for successful candidates.

Unit certificates

If a candidate does not achieve all of the units required for a qualification, the centre may claim a unit certificate for the candidate which will list all of the units achieved.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement.

Assessment Requirements

Each candidate is required to produce a portfolio of evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence can include:

- Observation report by assessor.
- Assignments/projects/reports.
- Professional discussion.
- Witness testimony.
- Candidate product.
- Worksheets.
- Knowledge tests.
- Photographic and/or video evidence of the candidate's practical work.
- Record of oral and written questioning.
- Candidate reflection on own practical work.
- Recognition of Prior Learning.

Candidates must demonstrate the level of competence described in the units. Assessment is the process of measuring a candidate's skill, knowledge and understanding against the standards set in the qualification.

Centre staff assessing this qualification must be **occupationally competent** and qualified to make assessment decisions. Assessors who are suitably qualified may hold a qualification such as, but not limited to:

- ProQual Level 3 Certificate in Teaching, Training and Assessment.
- ProQual Level 3 Award in Education and Training.
- ProQual Level 3 Award in Assessing Competence in the Work Environment. *(Suitable for assessment taking place in a working environment only.)*
- ProQual Level 3 Award in Assessing Vocational Achievement. *(Suitable for assessment taking place in a simulated training environment only.)*

Candidate portfolios must be internally verified by centre staff who are **occupationally knowledgeable** and qualified to make quality assurance decisions. Internal verifiers who are suitably qualified may hold a qualification such as:

- ProQual Level 4 Award in the Internal QA of Assessment Processes and Practice.
- ProQual Level 4 Certificate in Leading the Internal QA of Assessment Processes and Practice.

Occupationally competent means capable of carrying out the full requirements contained within a unit. **Occupationally knowledgeable** means possessing relevant knowledge and understanding.

An observation report and witness testimony are differentiated as follows:

- An **assessor's report** is completed by a qualified assessor who observes the candidate carrying out practical work. The assessor will make assessment decisions as they observe and record these in the report, alongside a commentary of what they observe.
- A **witness statement** is completed by a suitably qualified or experienced expert who observes the candidate carrying out practical work. The witness statement will contain **only** a commentary of what has been observed. An assessor must then use the witness statement, alongside any additional evidence to make assessment decisions.
- In all cases, an assessor's report is preferred as evidence over a witness statement as it is always better for an assessor to observe a candidate live.

Assessors may wish use to use a checklist or evidence matrix to organise and track the assessment outcomes that have been achieved, but these **do not,** in themselves, constitute evidence of achievement.

An assessor's report or witness statement alone is unlikely to be sufficient evidence of achievement. Reports and statements should always be accompanied by photographic and/or video evidence.

Where a knowledge-based assessment criteria is included within an otherwise competence-based learning outcome, it is expected that it be assessed within the context of the required practical competency.

A single piece of evidence may be used to cover multiple assessment criteria.

Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Enquiries, Appeals and Adjustments

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements.

Centres should contact ProQual for further information or queries about the contents of the policy.

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Units – Learning Outcomes and Assessment Criteria

Title:	Project Planning and Health and Safety (H&S)			**Level:**	3
Unit Number:	K/651/7969	**TQT:**	55	**GLH:**	35

Learning Outcomes *The learner will be able to:*		**Assessment Criteria** *The learner can:*	
1	Interpret project requirements and develop a technical plan.	1.1	Identify project requirements from a range of technical documentation and briefings.
		1.2	Extract information from sketches, specifications, and technical data.
		1.3	Define task outputs and deliverables.
		1.4	Develop a technical task plan including: • Stages. • Timescales. • Resource needs.
		1.5	Identify key roles, responsibilities, and communication methods for the project team.
2	Understand the relevant Health and Safety legislation and standards for a technical environment.	2.1	Identify legislative standards relevant to technical drawing and engineering workplaces.
		2.2	Explain the responsibilities of individuals under H&S legislation and workplace policies.
		2.3	Describe safe working systems, signage, and symbols.
		2.4	Identify sources of information for H&S practices.
3	Conduct a risk assessment and implement safe working practices.	3.1	Identify common risks and hazards associated with drawing offices and engineering settings.
		3.2	Identify environmental and workplace factors that may affect safety.
		3.3	Carry out a risk assessment for a defined technical task.

3	*Continued*	3.4	Implement safe housekeeping and manual handling practices in technical settings.
		3.5	Identify appropriate PPE and safety controls for task types.
4	Communicate plans, Risks, hazards, and solutions to relevant personnel.	4.1	Apply appropriate communication methods to convey technical task plans.
		4.2	Explain task solution and safety requirements to others using suitable formats.
		4.3	Liaise with appropriate authorities or colleagues to resolve planning or safety issues.

Additional Assessment Information

This unit focuses on developing learners' ability to plan technical projects effectively while applying essential health and safety principles. It equips learners with the skills to interpret project requirements, create task plans, conduct risk assessments, and communicate safety measures, ensuring safe, structured, and compliant practices in technical environments.

Learning Outcome 2 is knowledge based. This means that evidence is expected to take the form of candidate's written work and/or records of appropriate professional discussions.

Learning Outcomes 1, 3 and 4 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Drawing Office Operations and Equipment			Level:	3
Unit Number:	R/651/7970	TQT:	110	GLH:	60

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Select, inspect, and safely use draughting tools, equipment, and materials for technical tasks.	1.1	Identify the equipment and materials required for drawing office tasks.
		1.2	Inspect manual, digital, and trade-specific tools for operational safety and compliance.
		1.3	Maintain accurate records of equipment inspections and service history.
		1.4	Report equipment inspection outcomes through appropriate communication channels.
		1.5	Apply safe working practices when using technical, manual, and digital tools and equipment.
2	Select and use measuring tools to gather accurate data in both drawings and site settings.	2.1	Select suitable measuring tools for specific drawing requirements.
		2.2	Use measuring tools accurately to support technical drawing development.
		2.3	Operate analogue and digital measuring devices in a safe and effective manner.
		2.4	Assess environmental factors that may affect measurement accuracy.
		2.5	Conduct site reconnaissance and collect measurement data using appropriate techniques.
3	Produce and communicate technical drawings and documentation.	3.1	Use manual draughting tools safely and effectively for technical tasks.
		3.2	Document technical tasks and processes accurately and clearly.
		3.3	Communicate technical information clearly in verbal, written, and digital formats.

4	Use digital systems to create, present, and manage technical documents and data.	4.1	Use word processing software to create professional documents.
		4.2	Create presentations using presentation software.
		4.3	Use spreadsheet software for data entry, calculation, and basic analysis.
		4.4	Present graphical information clearly within a spreadsheet environment.
5	Handle data securely and maintain compliant records using digital and physical systems.	5.1	Follow data handling principles, procedures, and control frameworks in the handling, transferring, and storing of classified or sensitive information.
		5.2	Implement data management processes to securely maintain software-based record-keeping systems.
		5.3	Implement data management processes to securely maintain hardware-based records in line with organisation protocols.
		5.4	Respond appropriately to cyber security risks relevant to data management.

Additional Assessment Information

This unit equips learners with the skills to operate effectively within a drawing office environment. It covers the safe use of draughting and measuring tools, technical documentation practices, digital applications, and secure data handling. Learners will gain competence in both manual and digital systems essential for professional technical drawing operations.

Learning Outcomes 1, 2, 3, 4 and 5 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Site Observation and Technical Drawing			Level:	3
Unit Number:	T/651/7971	TQT:	60	GLH:	40

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Understand drawing types, techniques, and applications.	1.1	Identify the requirements for creating schedules and location-based documentation.
		1.2	Describe different sketching techniques and their relevance in technical communication.
		1.3	Interpret gathered information required to create accurate technical sketches.
		1.4	Determine scale, annotations, and dimensions in technical drawings.
		1.5	Identify the requirements for producing different types of electrical and mechanical drawings.
2	Gather and document site-based information.	2.1	Explain the purpose and key requirements of site reconnaissance activities.
		2.2	Use a field notebook to record relevant site information effectively.
		2.3	Produce sketches to represent site reconnaissance findings.
3	Use collated data to support effective technical drawing.	3.1	Classify relevant information to support drawing and diagram production.
		3.2	Create freehand sketches to convey construction-related information.
		3.3	Apply drawing conventions and symbols to improve clarity and technical accuracy.

Additional Assessment Information

This unit develops the learner's ability to gather, interpret, and document site-based information for technical drawing purposes. If focused on sketching techniques, schedule creation, and the production of accurate, annotated drawings. Learners will use field observations to inform clear, standards-based technical documentation relevant to engineering and construction contexts.

Learning Outcome 1 is knowledge based. This means that evidence is expected to take the form of candidate's written work and/or records of appropriate professional discussions.

Learning Outcomes 2 and 3 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Fundamentals of Technical Drawing Application			Level:	3
Unit Number:	Y/651/7972	TQT:	60	GLH:	40

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Understand technical drawings and associated documentation.	1.1	Identify drawing sheet orientation, sizes, and folding standards.
		1.2	Interpret information from title blocks and drawing content.
		1.3	Determine technical specifications from documentation and sketches.
		1.4	Identify material data, tolerances, and technical references relevant to drawing.
2	Apply draughting standards and conventions to technical drawings.	2.1	Identify appropriate line types, thicknesses, and borders conventions in technical drawings.
		2.2	Produce consistent and legible lettering in line with technical drawing standards.
		2.3	Apply standard symbols appropriate to a drawing task.
		2.4	Use dimensioning methods using current drawing conventions.
		2.5	Use standard abbreviations in technical drawings.
3	Construct 2D and pictorial representations of 3D objects using projections and geometry.	3.1	Apply mathematical and geometric principles to support technical drawing tasks.
		3.2	Produce orthographic projections to represent objects accurately in 2D.
		3.3	Produce pictorial drawings that clearly communicate the shape and form of 3D objects.
		3.4	Develop sectional views to illustrate internal features in accordance with recognised conventions.
		3.5	Apply plane and solid geometry to produce clear and accurate technical drawings.

4	Produce accurate freehand and scaled manual drawings.	4.1	Select suitable tools and techniques to support manual sketching tasks.
		4.2	Produce freehand sketches that represent objects clearly using straight and curved lines.
		4.3	Produce freehand sketches that illustrate different views and appropriate levels of detail.
		4.4	Apply appropriate scale methods to produce accurate technical drawings.

Additional Assessment Information

This unit provides learners with the foundational knowledge and skills needed to interpret, construct, and present technical drawings. It focuses on draughting standards, geometric principles, and manual draughting techniques. Learners will gain competence in producing accurate 2D and pictorial representations, applying conventions and scaling methods to support technical communication in engineering and construction.

Learning Outcome 1 is knowledge based. This means that evidence is expected to take the form of candidate's written work and/or records of appropriate professional discussions.

Learning Outcomes 2, 3 and 4 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Computer-Aided Design			Level:	3
Unit Number:	A/651/7973	TQT:	70	GLH:	60

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Set up and manage CAD systems and environment.	1.1	Identify CAD system requirements, including hardware and software components.
		1.2	Configure a CAD system for effective use.
		1.3	Identify file formats and data exchange methods across software environments.
		1.4	Use coordinate systems and workspaces to support CAD operations.
		1.5	Operate the CAD environment for productivity and technical accuracy.
2	Create and annotate 2D CAD drawings with precision.	2.1	Use drawing and modification tools to create accurate geometries.
		2.2	Apply linework, hatching, shapes, and curves using CAD tools.
		2.3	Use annotation and text tools to present technical information.
		2.4	Apply dimension styles and formatting to technical drawings.
		2.5	Organise drawings using layers and view settings.
		2.6	Navigate the drawing environment to manage saved views.
3	Use advanced CAD tools to organise and enhance drawings.	3.1	Create reusable content using blocks and attributes.
		3.2	Apply attributes to ensure data consistency.
		3.3	Integrate raster images into CAD layouts.
		3.4	Insert external references into technical drawings.
4	Create and export 3D CAD models.	4.1	Construct 3D components using modelling tools.
		4.2	Navigate 3D environments and apply visualisation methods.
		4.3	Apply rendering tools to enhance model presentation.

4	*Continued*	4.4	Export 3D outputs for external use.
5	Prepare final drawings using plotting and workflow integration.	5.1	Create isometric and multi-view drawings for technical communication.
		5.2	Prepare drawings for plotting with correct layout, scale, and paper settings.
		5.3	Select output equipment and materials for final plotting.
		5.4	Produce final plotted drawings to specification.
		5.5	Demonstrate an integrated workflow using multiple CAD tools and outputs.

Additional Assessment Information

This unit develops learners' skills in using Computer-Aided Design (CAD) software for technical drawing and modelling tasks. It covers setting up and managing CAD environments, producing accurate 2D and 3D drawings, applying annotation, layering, and dimensioning, and using advanced tools to enhance productivity. Learners will also prepare final plotted outputs and manage digital workflow.

Learning Outcomes 1, 2, 3, 4 and 5 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Parametric Modelling for Workflows			Level:	3
Unit Number:	D/651/7974	TQT:	60	GLH:	30

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Set up and use a parametric workstation effectively.	1.1	Configure software settings such as origin, units, snap, and grid, to prepare a parametric workstation.
		1.2	Use constraints, sketches, extrusions and pattern tools to build parametric geometry.
		1.3	Demonstrate how to manipulate dimensional and geometric constraints to control model intent.
2	Develop and document parametric components and assemblies.	2.1	Create parametric parts and features using formula-based parameters.
		2.2	Assemble components into a model using parametric relationships.
		2.3	Produce technical drawings or layouts derived from parametric models.
3	Manage the use of parametric modelling outputs in digital product development.	3.1	Export models or drawings in appropriate file formats.
		3.2	Apply basic rendering and presentation techniques to communicate model appearance.
		3.3	Review and revise model outputs to improve usability and documentation quality.

Additional Assessment Information

This unit provides learners with foundational knowledge of parametric modelling principles and workflows. It explores key concepts such as constraint-based design, parametric assemblies, and output documentation. Through simulated tasks and formative assessment, learners gain awareness of digital modelling tools used in technical environments without needing to produce real-work project outputs.

Learning Outcomes 1, 2 and 3 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Title:	Electrical and Mechanical Draughting and Technical Communication			Level:	3
Unit Number:	F/651/7975	TQT:	220	GLH:	150

Learning Outcomes *The learner will be able to:*		Assessment Criteria *The learner can:*	
1	Understand electrical and mechanical draughting requirements.	1.1	Identify electrical and mechanical systems that require technical drawings.
		1.2	Determine the different types of diagrams (e.g., layout, schematic, single-line, installation, elevation).
		1.3	Explain the purpose of drawings used in service distribution (e.g., heating, lighting, ventilation, water, alarms).
		1.4	Identify regulatory, manufacturer and client standards including E&M drawing production.
2	Understand the production of electrical and mechanical drawings from data and specifications.	2.1	Describe how to obtain requirements from specifications, sketches, and installation schedules.
		2.2	Understand site observation recording using notebooks, sketches, or checklists.
		2.3	Interpret architectural and structural layouts to location E&M service routes.
		2.4	Identify service zone, penetrations, and coordination constraints from site or plan information.
		2.5	Select appropriate drawing sheets, scales, and templates to match project needs.
3	Produce mechanical system drawings to specification.	3.1	Produce schematic or layout drawings for heating, hot/cold water, ventilation, or drainage systems.
		3.2	Apply correct symbols for valves, pumps, ducts, diffusers, heat emitters, boilers, etc.
		3.3	Indicate key system details such as flow direction, pipe sizes, and component locations.

3	*Continued*	3.4	Annotate mechanical drawings with technical data (e.g., capacities, materials, operating ranges).
		3.5	Apply layering and line weights for clarity and compliance.
4	Produce electrical system drawings to specification.	4.1	Create schematic or layout drawings for lighting, electrical power, and fire alarm systems.
		4.2	Use appropriate symbols for distributions boards, light fittings, switches, sensors, etc.
		4.3	Indicate circuit numbers, cable routes, control types, and connection details.
		4.4	Apply annotation and dimensioning to support technical accuracy.
		4.5	Follow conventions for zoning, phasing, cable trays, and containment systems.
5	Coordinate and present multi-service drawings.	5.1	Overlay electrical and mechanical layouts to identity conflicts or overlaps.
		5.2	Apply drawing conventions for combined services (colour, layers, symbols, etc).
		5.3	Present integrated service drawings with legends, keys, title blocks, and drawing metadata.
		5.4	Manage file formats, version control, and drawing registers.
		5.5	Communicate drawing intentions to peers, supervisors, or installation teams.
6	Review and revise drawing outputs to meet project needs.	6.1	Check drawings for clarity, technical accuracy, compliance, and readability.
		6.2	Make and document revisions in response to design updates or feedback.
		6.3	Apply versioning methods to track drawing history.
		6.4	Export and prepare drawings for digital sharing, printing, or archiving.
		6.5	Reflect on feedback and implement improvements to enhance drawing outputs.

Additional Assessment Information

This unit develops the knowledge and practical skills required to produce accurate and compliant electrical and mechanical technical drawings. Learners will explore the purposes, standards and types of service drawings used in building systems such as heating, ventilation, electrical power, lighting, and alarms. The unit covers extracting information from specifications, conducting site observations, interpreting plans, and applying industry conventions. Learners will produce schematic and layout drawings for both electrical and mechanical systems, using appropriate symbols annotations, and technical data. The unit also focuses on coordinating services, managing file outputs, applying revisions, and preparing integrated drawing packages that reflect multi-disciplinary design requirements.

Learning Outcome 1 and 2 are knowledge based. This means that evidence is expected to take the form of candidate's written work and/or records of appropriate professional discussions.

Learning Outcomes 3, 4, 5 and 6 are competency based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria.

Appendix One – Command Verb Definitions

The table below explains what is expected from each **command verb** used in an assessment objective. Not all verbs are used in this specification

Apply	Use existing knowledge or skills in a new or different context.
Analyse	Break a larger subject into smaller parts, examine them in detail, and show how these parts are related to each other. This may be supported by reference to current research or theories.
Classify	Organise information according to specific criteria.
Compare	Examine subjects in detail, giving the similarities and differences.
Critically Compare	As with compare but extended to include pros and cons of the subject. There may or may not be a conclusion or recommendation as appropriate.
Describe	Provide detailed, factual information about a subject.
Discuss	Give a detailed account of a subject, including a range of contrasting views and opinions.
Explain	As with describe but extended to include causation and reasoning.
Identify	Select or ascertain appropriate information and details from a broader range of information or data.
Interpret	Use information or data to clarify or explain something.
Produce	Make or create something.
State	Give short, factual information about something.
Specify	State a fact or requirement clearly and in precise detail.

ProQual Awarding Body
ProQual House
Unit 1, Innovation Drive
Newport, Brough
HU15 2GX

Tel: 01430 423 822
enquiries@proqualab.com
www.proqualab.com