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Electrical qualifications

For some, the electrical industry might seem like a bit of a minefield when trying to assess the skill and capability of a person who is carrying out electrical work in the UK. In this article, Steven Devine sheds some light on the qualifications (past and present) that persons may have, what they all mean.

On the IET Technical Helpline we often receive a range of enquiries relating to the common problem of identifying what is meant by electrotechnical qualifications. Perhaps you're considering embarking on a career as an electrician and wish to know the range of opportunities available to you. Perhaps you're a recruiter, baffled by the numbers, names and letters next to qualifications that bear no resemblance to the qualifications that you yourself may have completed twenty, ten or even five years ago. Or perhaps you're looking to take on an apprentice, or employ someone, but you are not entirely sure how to go about assessing qualifications.

With so many specialisms emerging within the electrical industry, it is becoming more difficult to determine relevant experience. An industrial electrician who has spent most of their career maintaining three-phase machinery may not have the desired experience to carry out maintenance on domestic properties for a housing association, despite having all the required qualifications. This situation can easily be reversed for a fully qualified electrician who is registered as a domestic installer and can certify their own work in accordance with Part P of the building regulations. However, they may have never worked a day on a construction site. A simple conversation with each applicant about their experience will likely shed a lot of light on their suitability to their job. In addition, using the information in this article and the tables that follow, you can gain a better understanding of what their qualifications mean.

The following lists the various titles you may come across and a general insight to what you can expect them to have achieved in terms of qualifications and experience. This is by no means a definitive guide as experience and qualifications may vary significantly.

Apprentice (the traditional way)

A well-known title in the construction industry, an apprenticeship is known as the traditional and most valued method of becoming an Electrician. Electrical Apprentices benefit from having on-site experience and guidance from experienced Electricians along with technical training at a college or training centre. An Electrical Apprentice will be studying to achieve a Level 3 technical certificate and an NVQ or a Level 3 Diploma. They will generally be working under the supervision of qualified Electricians and Supervisors. The qualification gained from an apprenticeship consists of two key parts: technical classroom training and vocational onsite assessments. Learners would usually be expected to have at least maths, English and Information Communication Technology (ICT) qualifications at grade C. An apprenticeship is expected to last between 3 and 4 years and on completion the learner will be a qualified Electrician.

Electrician's Mate

An Electrician's Mate is usually an unqualified (possibly qualified to Level 1 or 2) person working in the electrical industry who has some knowledge and understanding of electrical installations and is able to assist an Electrician. It would generally be expected that an Electrician's Mate would be instructed to carry out work by qualified Electricians and usually not be permitted to work unsupervised. To reduce overall cost, it is common to find several Electrician's Mates working, under the supervision of qualified Electricians, on large industrial and commercial sites.

Possible qualifications held:

(a) Access to Building Services;
(b) Electrotechnical Craft (Level 2); or
(c) Technicals in Building Services Engineering.

Electrician (qualified)

An electrician is generally someone who has completed a 3-4 year apprenticeship and holds a Level 3 technical and vocational qualification or Level 3 Diploma. These qualifications can be obtained without going through an apprenticeship but an electrician will need to have worked in the electrical industry to have achieved the vocational qualification and is unlikely to do so without having at least 3 years' experience working in the electrical industry. An electrician may hold a Level 3 Technical Certificate and the National Electrotechnical Training (NET) AM2 certificate and, providing that they have evidence to show that they have been working in the electrical industry for a reasonable period of time, they may be regarded as an electrician by the Joint Industry Board (JIB). It would be expected that someone regarded as an electrician would have the experience and knowledge required to carry out electrical work in domestic, commercial and industrial environments although in some cases commercial and industrial environments may require some additional specialised training.

Approved Electrician

You may often hear the title 'Approved Electrician'. But what does this actually mean? Well the term is given to an electrician who has met all the required criteria to be awarded this status from the Joint Industry Board (JIB). To gain the JIB status of Approved Electrician an electrician must satisfy a number of requirements. They would, of course, be expected to have completed an apprenticeship or hold the equivalent qualifications. Further to this they will have had sufficient experience working as an electrician (in excess of two years after completion of qualifications is usually acceptable). It is usually expected that at least a Level 3 qualification in inspection, testing and initial verification has been achieved, such as:

(a) the City & Guilds 2391, 2394 and 2395 qualifications; and/or
(b) the EAL Inspection and Testing and Initial Verification qualifications.

Approved Electricians would usually be expected to have the ability to efficiently design, install and verify a wide range of electrical installations in the most efficient and economical manner. They will be capable of running projects, setting out good systems of working from drawings and specifications. They will also have an extremely good understanding of the requirements of BS 7671.

Domestic Installer (England and Wales only)

Since the introduction of Part P of the Building Regulations (Electrical Safety-Dwellings) the definition of Domestic Installer has been established. In the electrical industry Domestic Installers are not considered to be electricians; they are not required to undergo the 4 years' training an apprentice has to. However, many electricians are registered Domestic Installers.
A Domestic Installer is generally expected to have at least a minimal understanding of installing new electrical installations and be familiar with the current requirements of BS 7671. The level of experience that a domestic installer may have varies very broadly. Many domestic installers are fully qualified electricians and have a wealth of experience in the electrical industry. However, there are also many who have not completed an apprenticeship or gained the equivalent qualifications and experience as an electrician. In fact, there are centres that provide training for people new to the electrical industry with no prior experience whatsoever. To register as a Domestic Installer two qualifications are generally required:

(a) Current Level 3 Award in the Requirements for Electrical Installations (17th Edition); and either
(b) Level 3 Award in the Initial Verification and Certification of Electrical Installations; or
(c) Level 3 Award in Approving Electrical Work in Dwellings in Compliance with Building Regulations.

These qualifications can be achieved relatively quickly with a recommended learning period of around 100 hours in total. That could be as little as 3 weeks depending on centre requirements and prior experience.

Domestic Installers will also be expected to provide evidence of work that they have carried out to demonstrate competence to an assessor from the scheme provider. The Domestic Installer generally chooses an installation that he or she would like to be inspected and makes the necessary preparations for the assessment.

Notifiable or non-notifiable work?

If work is going to be carried out on a domestic property it is important to determine whether that work is classed as notifiable or non-notifiable. If it is the latter then it is not required for the person to register the work with either the local authority or scheme provider. If the work is notifiable then the person carrying out the work must use one of the three methods available detailed in the following link here.

Qualifications

The Office of Qualifications and Examinations Regulation (Ofqual) is the regulator of qualifications, examinations and assessments in England and the regulator of vocational qualifications in Northern Ireland. It is important to remember that all recognised qualifications will meet the strict requirements of what was known as the Regulated Qualification Framework (RQF), previously known as the National Qualifications Framework (NQF), more recently known as Qualifications and Credit Framework (QCF). This means that if you achieve a Level 2 qualification from one Awarding Organisation it will be substantially the same as a qualification in the same field from another Awarding Organisation.

Table A shows how qualifications are structured and comparison of the various levels.

Table B shows many of the qualifications (past and present) that you may come across in the electrical industry.

Competence

We are often asked the question: what is a competent person?
The short answer is: a competent person is somebody who is capable of completing a specific task safely and effectively.
This can be very difficult to assess, especially with regards to an electrician as the work they will be doing may vary significantly. Some of the basic expected requirements are that the person carrying out electrical work has had sufficient training and experience.

This does not mean that a person who holds a Level 3 qualification in electrical installations is competent to carry out work on all electrical installations. There will likely be areas that they are unfamiliar with. However, experience and training will have given them at least the ability to work safely and assess whether or not they are in fact competent to carry out a specific task.

Older qualifications

Many people working in the electrical industry nowadays hold qualifications that are no longer available from awarding organisations. This does not mean that they are obsolete, unacceptable, inferior or superior, it simply means that they were completed at a different time. Qualifications are designed so that they reflect current industry practices and needs and you may therefore find some modern qualifications containing units on energy efficiency and micro generation that did not exist in older qualifications. On the other hand you may find that older qualifications contain some units, such as a unit on the installation of mineral insulated cable, which have not been required to be included in many qualifications for a number of years.

So how would an electrician update their qualifications? Let's say that an electrician holds an electrical qualification that they achieved in 1999 and would like to obtain the equivalent current qualification. To do this they would be required to complete the missing units from the

1999 qualification that make up the current qualification. These are normally referred to as 'bridging units'. Once these bridging units have been obtained an application can be made through the college or training provider to the relevant awarding organisation for the current qualification to be awarded. This approach must be agreed with the training provider prior to enrolling on the qualification but is supported by most awarding organisations.

Table A Qualification structure

<table>
<tr><td></td><td colspan="4">University</td></tr>
<tr><td>Level 8</td><td colspan="4">Doctorate</td></tr>
<tr><td>Level 7</td><td colspan="4">Master's Degree</td></tr>
<tr><td>Level 6</td><td rowspan="3">University Degree</td><td colspan="3"></td></tr>
<tr><td>Level 5</td><td colspan="2" rowspan="2">Foundation Degree</td><td>HND</td></tr>
<tr><td>Level 4</td><td>HNC</td></tr>
<tr><td></td><td colspan="2">School</td><td></td><td>F.E College</td></tr>
<tr><td>Level 3</td><td>A-Level</td><td>A2
AS</td><td>→</td><td>Level 3 Diploma/Certificate</td></tr>
<tr><td>Level 2</td><td colspan="2">GCSE
Grades A-C</td><td>→</td><td>Level 2 Diploma/Certificate</td></tr>
<tr><td>Level 1</td><td colspan="2">GCSE
Grades D-G</td><td>→</td><td>Level 1 Diploma/Certificate</td></tr>
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Table B Qualifications

Level	Awarding organisation	Title of qualification	Experience and Understanding	Work experience required
Level 1				
1	**C&G 2000 Certificate 2000-12**	**Access to Building Services Certificate In Introduction To Electrical Installation Skills**	Designed to deliver a good, basic understanding of the building services industry – enough to choose a career path and move on to a higher level qualification. One of the mandatory units for this qualification is 'Introduction To Electrical Installation Skills'.	No
1	**EAL**	**Access to Building Services Engineering**	Similar to the C&G building services qualification.	No
Level 2				
2	**C&G 2365**	**Electrotechnical Craft**	This is a full time college-based qualification and is usually gained by learners that aim to progress onto an Electrotechnical Apprenticeship Programme. Those that hold this qualification do not necessarily have work experience.	No
2	**236/2360 Part A/1 (old)**	**Electrical installations**	Equivalent to the 2330 and the 2356 L2/3 completed in full.	
2	**C&G 2330 (old)**	**Certificate in Electrotechnical Technology**	This qualification is no longer available but is the equivalent to the current C&G 2365	No
2 (NVQ)	**C&G 2356**	**Electrotechnical Services and Systems**	Electrotechnical Services NVQ is for people who have achieved the 2330 (Electrotechnical Technology) Levels 2 and 3 or more and are already working as	Yes

			Electricians, or in a similar role.	
2	**C&G 8202**	**Technicals in Building Services Engineering**	This is a full-time college-based qualification and is usually gained by learners that aim to progress onto an Electrotechnical Apprenticeship Programme. Those that hold this qualification do not necessarily have work experience.	No
Level 3				
3	**C&G 2365**	**Electrotechnical Craft**	This qualification is equivalent to the college part of a Level 3 apprenticeship. At this stage learners will need to gain employment to gain vocational qualifications.	No
3	**EAL**	**Electrical Installation**	This qualification is really designed for those wishing to embark on a career in the electrical industry.	No
3	**236/2360 Part B/2 (old)**	**Electrical installations**	Equivalent to the 2330 and the 2356 Level 3.	No
3	**C&G 2330 (old)**	**Certificate in Electrotechnical Technology**	This qualification is no longer available but is the equivalent to the current C&G 2365.	No
3 (NVQ)	**C&G 2356**	**Electrotechnical Services and Systems**	Electrotechnical Services NVQ is for people who have achieved the 2330 (Electrotechnical Technology) Levels 2 and 3 or more and are already working as Electricians, or in a similar role.	Yes
3	**C&G 2397**	**Installing, Testing and Ensuring Compliance of Electrical**	This qualification is primarily aimed at Electrical Installers wishing to progress further in employment. On successful completion candidates will become eligible and recognised by certification	No

		Installation Work in Dwellings	bodies as competent to undertake electrical work. This will be the minimum qualification level for Qualified Supervisors responsible for electrical work in domestic properties subject to Part P of the Building Regulations (England and Wales).	
3	**C&G 2357**	**Electrotechnical qualification**	This qualification is designed for learners wishing to gain an apprenticeship within the electrotechnical industry. Learners will gain the skills and knowledge to carry out job roles and responsibilities associated with the installation and maintenance of electrotechnical systems. On successful completion learners will have achieved the industry desired level of competence required to carry out the specific roles.	Yes
3	**C&G 5357**	**Electrotechnical Technology**	This qualification is designed to provide new entrants and those seeking progression in their career with the opportunity to develop the necessary skills to carry out job roles and responsibilities associated with the installation and maintenance of electrotechnical systems.	Yes
3	**C&G 2919**	**Electric Vehicle Charging (2919)**	This qualification, designed for qualified Electricians, provides specialised knowledge for the installation of electric vehicle charging points.	No
3	**C&G 2382**	**Requirements for Electrical Installations**	This qualification is designed for qualified Electricians to show that they are capable of extracting information from the current version of BS 7671.	No

3	**EAL**	**Requirements For Electrical Installations BS 7671: June 2008 (2015)**	This qualification is designed for qualified Electricians to show that they are capable of extracting information from the current version of BS 7671.	No
3	**EAL**	**Level 3 NVQ Diploma in Electrotechnical Services**	This qualification is designed to provide new entrants and those seeking progression in their career with the opportunity to develop the necessary skills to carry out job roles and responsibilities associated with the installation and maintenance of electrotechnical systems.	Yes
3	**C&G 2391 (Old)**	**Inspection and Testing**	This qualification is the equivalent of C&G 2394 and the 2395. Those that hold this qualification are expected to have good knowledge of electrical installations and how to test them and to verify that installations meet the requirements of BS 7671.	No
3	**C&G 2391.50 (New 2017)**	**Initial Verification**	This qualification helps you to develop the knowledge and practical skills required to professionally install and carry out initial verification and testing on electrical installations.	No
3	**C&G 2391.51 (New 2017)**	**Periodic Inspection or Electrical Installation Condition Report (EICR)**	This qualification provides knowledge and guidance to help with carrying out inspections of existing electrical installations, also known as (EICR).	No
3	**C&G 2391.52 (New 2017)**	**Inspection and Testing**	This qualification covers both 2391.50 and 2391.51.	No
	EAL	**Inspection and**	Those that hold this qualification are	No

3		**Testing**	expected to have good knowledge of electrical installations and how to test them and to verify that installations meet the requirements of BS 7671.	
3	**C&G 2394**	**Initial and Fundamental Inspection and Testing**	This qualification helps to develop the knowledge and practical skills required to professionally install and carry out initial verification and testing on electrical installations.	No
3	**C&G 2395**	**Periodic inspection and testing**	This qualification provides knowledge and guidance to help with carrying out inspections of existing electrical installations, also known as (EICR).	No
3	**EAL**	**Approving Electrical Installation Work in Dwellings in Compliance with Building Regulations**	This qualification is usually held by persons with a reasonable level of experience in the electrical industry and focuses predominantly on domestic dwellings.	No
Level 4				
4	**C&G 4467**	**Building Services Engineering**	Those who hold this qualification are expected to have the skills and experience to take on a project manager role in the building services engineering industry.	No
4	**C&G 2396**	**Design, Erection and Verification**	This qualification is usually held by qualified electricians who are working in a position that requires advanced knowledge and understanding of circuit design and calculations.	No

Advanced				
N/A	**NET (AM2)**	**Electrotechnical Assessment of Occupational Competence**	This qualification is commonly held by those who have completed an apprenticeship. It is a good measure of someone's capability as the assessment is very difficult and requires a good knowledge of electrical installations to be completed successfully.	No
N/A	**NET (AAC)**	**Advanced Assessment of Competence**	This qualification is usually gained by those looking to achieve approved Electrician status. This is an advanced assessment that indicates that the Electrician has very good knowledge and understanding of electrical installations.	Yes
N/A	**C&G 2372**	**Installing and Testing Domestic Photovoltaic Systems**	This qualification is generally undertaken by qualified Electricians so that they can gain skills and knowledge for the installation and testing of photovoltaic systems in homes.	No
There are many qualifications that have been obtained from overseas training centres and awarding organisations. It can be difficult to compare many of these qualifications and there are far too many to list here. However, there is a service provided by a UK organisation called NARIC. In most circumstances NARIC will be able to provide information on overseas qualifications and their UK equivalent. Another option is to contact awarding organisations in the UK and provide information about the training and experience you have gained overseas.				